

# Variety is the spice of life: multiple intelligence and the gifted

From **Kathy Frazier, teacher of academically talented middle school students** comes the following comment:

"The MI (*Multiple Intelligences*) approach is very valuable for these kids even though they already do well academically. We talk a lot in this class about metacognition and how we think. This project fits right in. Some of these students are perfectionists and very self-critical. It can help some kids who are very strong in one area like language but they have to struggle with math. They're frustrated because the math doesn't come as easy as they expect. It's not that they're not good in math but they don't just get it as easy as, say, the language arts. It helps with that. Some students get really down on themselves when they must struggle in one subject while everything else comes very easily. They think, 'I'm really, really, really bad at this'. I have to tell them, 'No, it's just more challenging'.

One boy who was working on an art project said that he wanted to give up because "This is hard for me because I'm not strong in my spatial intelligence". I had a talk with him and pointed out that accepting challenges to improve even those areas where we are not strong is an important part of your education. They should select those weaker areas sometimes and not always take the road of what they're best in.

What MI theory and the MIDAS profile points out is that we all have strengths as well as weaknesses and that it's OK to have areas where you're not so good. It makes it more acceptable to the self-critical student.

When you give this type of student reasons and techniques for understanding why they think the way they do, it is very powerful. It's like the MIDAS normalized them so they don't feel too different or abnormal. We talk a lot about thinking-about-thinking and being the non-conforming, round peg in the square hole of the classroom. This helps them to be not so frustrated. We talk about how they might approach a teacher about doing alternative projects that better match their learning skills so they're not so frustrated by the standard assignments. A teacher might still say "no" but it will give her something to think about and maybe find ways to help the student who is frustrated in her class. This gives students a tool that they can take the initiative with."

Kathy was named the 1997 Gifted Teacher of the Year by the Ohio Association of Gifted Children. Her full report can be found in MI News on the Web.

## **Multiple Intelligence theory in the classroom**

Multiple Intelligence is an educational philosophy. It was first introduced in "Frames of Mind" (1983) and has been followed by many other books both by its originator, Howard Gardner, and people such as Thomas Armstrong, Branton Shearer (who also developed the assessment scale called MIDAS), Davis Lazear (an educator) and Bruce Campbell (also an educator). A variety of models based on MI have been implemented in many US schools and some Australian schools with a lot of enthusiasm. (Thomas Hoerr's book "Becoming an MI School" is perhaps the most well-known example.) How MI is practised in the classroom is dependant upon the educationist that implements it. Enthusiastic testimonies abound from teachers of all different educational groups, from teachers of gifted and talented children through to teachers of specific learning disabled children. In the latter cases, teachers comment that when students understand their strengths (as distinct from the usual focus of their weaknesses), their self-esteem improves. Also, when students learn through their strengths, they not only learn more effectively but show improvement in their weaker areas. Kinaesthetically intelligent children (those children who learn best by "doing") and visual spatial children (those children who learn most effectively through seeing or imagining) are reported as making the biggest improvement within an MI teaching environment. Teachers also gain improvements. Bruce Campbell, in reporting the results of the introduction of MI into his school, commented,

"Due to the nature of the programme, I developed different skills than I previously relied on when standing in front of a class lecturing each day. I began to observe my students from seven new

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perspectives. I began working with them, rather than for them. I explored what they explored, discovered what they discovered and often learned what they learned. I began to find my satisfaction in their enthusiasm for learning and independence, rather than in their test scores and ability to sit quietly, and, most importantly, in planning for such a diversity of activities. I began to grow more creative and multi-model in my own thinking and learning. I learned to write songs and sing. I improved my ability to draw and paint. I began to see growth and development within myself. I even began to wonder who was changing the most, my students or myself.”

([http://www.newhorizons.org/art\\_mireserch.html](http://www.newhorizons.org/art_mireserch.html) )

## The theory

Howard Gardner was dissatisfied with modern IQ tests, which tied intelligence to the ability to provide fast concise answers to problems involving mainly linguistic and logical skills. Gardner's theory suggests a person is intelligent if they can solve problems that confront them in life and can (or will, in the case of children) produce goods or services that are of value to the people around them (their society). Gardner found that there was a wide variety of ways by which the human mind approached problem solving or producing goods or services. Originally Gardner identified seven distinct ways people learn and comprehend reality (using eight criteria - see chart for details). The seven intelligences are: Linguistic, Logical/Mathematical, Visual/Spatial, Bodily/Kinaesthetic, Musical, Interpersonal and Intrapersonal. Over the last two years Gardner has reviewed the evidence for two further attributes (naturalistic and existential or spiritualism) and declared that they also fulfil the criteria for intelligences. In this article we look at the original seven intelligences:

1. Verbal/Linguistic Intelligence - Language  
Responsible for the production of language. Developed through listening and speaking, reading and writing.
2. Logical Mathematical Intelligence - Mathematical Reasoning  
Responsible for “scientific reasoning” or deductive and inductive reasoning. This implies recognising patterns, working with abstract symbols such as numbers and geometric shapes and realising the relationships between separate and distinct pieces of information.  
Developed by problem solving.
3. Visual/Spatial Intelligence - Visual Reasoning  
Responsible for how people see, use and get around in space. Developed through sight but also through manipulating images in the mind.
4. Bodily/Kinaesthetic Intelligence - Kinaesthetic  
Responsible for control of controlled and autonomous body movements.  
Developed by doing, by experience.
5. Musical/Rhythmic Intelligence - Musical  
Responsible for the recognition and use of rhythmic and tonal patterns. Responsible for sensitivity to sounds. Developed by listening to and actively humming, singing or creating noises.
6. Interpersonal Intelligence - Leadership  
Responsible for co-operation - the ability to work in a group as well as communicate verbally and non-verbally with other people. Developed from the ability to notice distinctions among others. Also developed by learning from these distinctions.
7. Intrapersonal Intelligence - Self-Awareness  
Responsible for self-knowledge. Self-knowledge includes knowing what you are feeling, your emotions and how you think. It involves self-reflection and a sense of intuition about spiritual realities. Intrapersonal intelligence is responsible for self image and the ability to put self to one side to see the bigger picture, the future, the larger order of things and the essence or spirituality of the occasion. It is developed through awareness exercises. This intelligence is

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expressed through other intelligences - the writer through language, the dancer through kinaesthetics and the composer through music.

Intelligence, according to Gardner, is not a "learning style". A "style" is a general approach applicable across many activities, whereas an intelligence is a capacity which is specifically related to content. For example, if a child is said to have a "reflective style" he will apply that style to two or more different contents such as music and language.

How this theory is implemented in an educational environment is set out in the chart "Multiple Intelligence - Overview"

A gifted child is a blend of these described intelligences. She may be gifted in each and every one of these intelligences or may be gifted in only one or two. Most IQ (intelligence quotient) tests measure linguistic and logical/mathematical intelligence (language and mathematical reasoning) although a few subtests such as "block design" measure one aspect of visual/spatial intelligence. Thus a high IQ (above 125) indicates gifts in these intelligences, but as IQ is a scaled and averaged measurement, your child is not necessarily equally gifted in logic/mathematical and linguistic intelligence. To convert her gifts (potential) into talents (achievement or performance) and be successful at school, she needs to develop all intelligences but particularly linguistics and mathematics. If she is to become successful in her career, she needs to fully develop a selection of intelligences, not necessarily linguistics and mathematics. For example, if she is to become a talented architect, a student must develop gifts in logic/mathematical and visual reasoning. If she is to gain prominence as an architect, she must also have achieved a competent level of achievement in language (to produce reports and communicate with clients and colleagues) and interpersonal intelligence (to be a manager or work in a team). Career advisers in MI schools in the USA are using this knowledge to constructively advise students in which careers they would be most successful and to advise their students of the courses they need to complete to obtain their career goal. With a gifted child this has a strong impact as they become increasingly motivated to strengthen their areas of weakness sufficiently well enough to gain access to a chosen (and appropriate) career.

School subjects are also not aligned perfectly with the different intelligences. English teaching primarily develops language but also involves problem solving (mathematical reasoning) and some visual/spatial components. The physical act of writing requires bodily skills. Mathematics at school develops mathematical reasoning but also encourages visual reasoning (geometry). Science is a mixture of all of the Multiple Intelligences excluding music and the personal intelligences. By understanding "intelligence" is not one, but a variety of combinations of different intelligences, parents and educators realise a gifted child can have "blind spots". (see chart)

Adopting MI as an educational model changes the teacher's underlying approach to education. These changes are:

- There is more than one intelligence. Therefore there is more than one intelligent way to approach a problem or produce goods and services.  
This element of the theory has been positively exploited in special educational programmes. For example, programmes for hearing impaired children where knowledge usually taught verbally is taught visually/spatially or kinaesthetically (using touch (feeling), drama, constructing.). As evidenced in the opening quote, MI has also been used very successfully with gifted children.  
The theory does not propose that all topics can be taught equally effectively through each intelligence. Howard Gardner has always emphasised that, for instance, mathematics is most effectively taught using the symbols ("language") of mathematics and not through language, that English is taught most effectively using words (the "symbols" of linguistic intelligence). However, when teaching applied subjects such as history, there is not one most effective symbol that ensures that the student absorbs the knowledge. It can be words, pictures, demonstrations etc. How the student most effectively shows that they "know" a

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subject in history is also not predetermined, but a product of the student and the subject. It is only in the traditional educational system that language has become the only way to show that you “know” a subject. Once the student enters a career it is often more important to “do” the task than to verbalise or write about it.

- Each child is a unique combination of intelligences. This leads to a belief in individually-based education rather than the present common form of uniform education.
- People can all learn to be more intelligent and can teach others to be more intelligent by understanding or “knowing” at more than one level or type of intelligence.  
Most MI educators, and many others, are convinced that knowledge based on many intelligences is much more lasting and comprehensive than, for example, “book” knowledge.
- The development of each individual intelligence is independent of the other intelligences. This is simply because it involves different areas of the brain.  
Children who have a learning disability do not generally demonstrate neurological problems uniformly throughout their brain. Typically the learning disability is isolated to one discrete area of the brain, and strategies that avoid the damaged area allow the student to learn in spite of the damage. For example, if a student has difficulty visualising his times tables, he can be taught them through chanting (or more elaborate musical strategies), or by use of algorithms. A student who cannot remember the meaning of a word, often will “remember” the meaning if he draws a picture or icon next to the word. It is often forgotten in MI educational models that each intelligence consists of one or more capacities that are usually, but not always, present in the same strength in an individual. For example, rhythm, pitch and timbre are usually found together in a musically gifted person, but not always. This permits “fine tuning” of the model. If a capacity is not located in the same area of the brain as one that is poorly functioning, then that capacity may be exploited separately, almost like another intelligence. I, for instance, cannot form “images” in my mind, but I sculpt, a spatial pursuit. Both these capacities are part of visual-spatial intelligence. Knowledge of capacities at this level is very useful for understanding some of the unevenness in gifted children. In the chart “Multiple Intelligence - an Overview” I have included some references to the location in the brain that most effectively controls a particular capacity.
- While each intelligence can be shown to develop separately, at some level intelligence is unified. When solving a problem, all intelligences work together. The stronger intelligences tend to lead the weaker ones into achieving task completion.  
This is an aspect of MI theory that many educationalists “know” and employ, but it does not often appear in explanations of MI. It is why teaching “through” a child’s strength works. It is why visual-spatial gifted children achieve greater results in more difficult problems. They use their gifted intelligence (or “mastery”, as Howard Gardner refers to giftedness) to lead or access their weaker intelligence, linguistics. Howard Gardner has never advocated that the intelligences are independent of each other, yet some MI educationists act as though they were unconnected even though they “know” that they aren’t.
- Intelligence is not just an inherited trait but can be developed.  
This is a consequence of the link between “intelligence” and its neurological base. It is known from studies in neurophysiology and related fields (Hannaford, 1995) that neural activity (physical, sensory or cognitive) results in maintaining or establishing neural growth. It thus follows that this growth manifests itself in the child’s improved ability to achieve.

## Classroom strategies

Changing the philosophy of education throughout an entire school is a daunting programme. Precedents, given in outline form or in detail from books, articles or websites, give teachers/principals a chance to utilise ideas other schools have implemented to create an MI-friendly environment.

Some schools have used the idea of *tool rooms* where classes rotate to different rooms which house the materials commonly used when teaching with that intelligence. Other schools implement the different strategies side-by-side. Some teachers allow their students to choose which initial exercise they want to complete (remembering that each exercise is designed to teach

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predominantly through one intelligence). Other teachers/schools insist all students undertake lessons in the same sequence.

Teachers usually approach MI from two directions. Some teachers plan lessons teaching content through each intelligence. Other teachers plan their lessons around the strengths and weakness of their student's MI profiles. MI educationists generally prefer the later approach, as it encourages teaching weak students through their strengths. Teachers find that teaching through strengths develops a child's weaker intelligence. Thus, if a class of gifted children had a predominance of visual spatial learners with relatively weak linguistic intelligence, class plans for history and other applied subjects would involve considerable use of visual strategies to improve the effectiveness of the teaching. While this would also help develop their student's linguistic abilities, the class plan would additionally target English language development.

Many teachers use MI strategies, but will not have identified in a systematic way which intelligence(s) is involved, nor will they have identified which students will benefit and which students will feel challenged by the strategy. Suggestions expressed by Denise Wood in "Alternatives to the Cardboard Project" (Wood, 2000), utilise classic MI strategies for project work. It is easy to see the similarities between the projects suggested in the article and Shaw's "MI strategies for Year 11 History class" which follow this article. As Wood indicates in her article, a task should be set and assessed (or valued) using the same symbols. Thus a model (kinaesthetic) must function (or perform the task set by the teacher) and have structural and visual integrity, just as an essay (linguistic) must contain grammatical constructions and tell the story (or the task set by the teacher).

## **Motivation and Multiple Intelligences**

Teachers of any group of gifted children are aware that students of the same mental age do not all have the same cognitive profiles. Some are better at maths, others at language, some are better at answering verbally, others at written answers, others obviously understand a concept but can't express their knowledge. Teachers often teach achieving students that have confounding, consistent and specific discrepancies between their intelligence and their performance. Parents of these gifted children are also puzzled by the unevenness in their child's performance when they review test results. These parents do not know if they should provide tutorial help (where do you find programmes suitable for students who already perform above grade average?), chastise their child for "not trying" or obtain a referral to an educational assessor. In many of these cases the student's MI profile can provide a model for understanding the difference between a child's intelligence and subsequent performance within a scholastic environment. (see chart)

At some point a parent may have been advised by a teacher that a child's poor test performance was because of lack of interest. With this statement, the child's teacher is advising the parent that the child's lack of performance is "his own fault." But is it?

## **It has been known for some time that children learn best when:**

- Learning is fun or pleasurable, not because they think they will be rewarded (although a bribe never hurts!). This is called intrinsic motivation.  
One effective way of motivating a student is to have them undertake activities for which the student has some talent. With progress, the student avoids undue frustration and goes on to learn more. For the educator this means identifying activities that will rapidly become rewarding for a group of predisposed students. When application of Multiple Intelligence theory is made in this way teachers (and parents) are "teaching through a child's strength". It is particularly effective when applied to students who demonstrate uneven performance or significant discrepancies between different intelligences.
- They are emotionally involved. Children learn, remember and are more likely to use experiences that are troubling, mystifying or off-putting as well as ones that are pleasurable.  
Students are "turned off" or "on" very quickly, so a memorable opening illustration or attention-grabbing comment helps engage their minds. MI provides a plethora of ways to broach a topic, one of which the students are sure not to have experienced previously.

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- They are challenged. Children will not adopt new behaviour or new strategies in learning unless they are challenged.  
Traditional methods of teaching a student who has failed to learn the first time, is to repeat the same experience, perhaps slower, or perhaps one-to-one. There is no challenge to a gifted student in a remedial programme. MI theory would teach students through their strength; the content does not need to be downgraded.
- They become so absorbed in a physical or mental activity that they temporarily lose track of space, time, worldly concerns and even pain. This is one of the strongest motivating experiences a child can have of learning.  
Teaching through a student's strength allows the student to get involved, in-depth in a subject and experience the "flow state" mentioned above. This method teaches perseverance. It also motivates a child for further learning. Many case studies of students, particularly special needs students, tell of children that achieve this motivating experience for the first time when taught using MI strategies. Armstrong (1987).
- Their motivation is magnified by early pleasurable experiences of play. This pleasure in play is further enhanced by identification and approval of the adult who is with them when they learn something new. Intrinsic motivation is enhanced if that adult understands discipline and the nexus between fun and effort.
- They are enveloped within (classroom or home life or both) an atmosphere of continual improvement - a cycle of practise, learning and expression.

With gifted and talented children, the use of MIDAS (a self-assessment test for measuring a student's MI profile) as a metacognition tool has proven very successful. With all gifted children (particularly those with learning disabilities) it also appears to help self-esteem, mainly because it rewards them for the success achieved when learning through their strengths. It also motivates children to accept the challenge of developing their relative weaker intelligences.

### **Assessment Methods – Comment on the MIDAS website – Finding out more!**

The Multiple Intelligences Developmental Assessment Scales (MIDAS), represents the first effort to measure the multiple intelligences. It has been developed according to standard psychometric procedures and is said to provide an efficient method of obtaining a descriptive assessment of a student's multiple intelligence profile. The MIDAS is a self-reported measure of intellectual disposition and may be completed by either the child or an adult. It was developed by Branton Shearer (principal and author) and is available from the MIDAS website.

[www.angelfire.com/oh/themidasnews/contents.html](http://www.angelfire.com/oh/themidasnews/contents.html)

This site will take you to the MI News site from where links to more information are available.

Resources also available from the MIDAS website (and others) include material designed to enhance study skills and self-knowledge. There is material covering instructional approaches, curriculum planning and career development. There are MIDAS assessments for adults, adolescents and children. These can be purchased from this website. There are many examples of classroom application on the web. The MIDAS site publishes reviews that often include testimonials. Usually teachers provide an email address for correspondence and private communication.

There are other assessment methods, most of which are free. The best place to access these is to join an e-group on MI (access it through MIDAS site) and ask other teachers where to find the material.

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## **Strategies for a visual-spatial learner (with auditory disabilities)**

The characteristics of Linda Silverman's visual spatial learner can be roughly equated to Howard Gardner's visual-spatial intelligence. Her auditory learner can be compared to Gardner's linguistic and mathematical/logical intelligence.

Silverman's model has an advantage in its simplicity. However, Gardner's MI theory has an equal advantage with its acceptance of a more complex variation in children's patterns of achievement. For example, Silverman's model implies that a child with language difficulties will usually/often have problems with arithmetic (both are sequential activities) whereas the MI model alleges a separate development path for these intelligences. In support of the MI model is the significant number of primary school children who are gifted in arithmetic but who have inadequate language.

MI theory also has another advantage: the availability of strategies that help students who:

- Show evidence of a dysfunction in an area of the brain associated with a specific intelligence.
- Demonstrate inconsistent performance in the area of their giftedness.

The success of the MI strategies (teaching through a child's strength) is usually attributed to use of a different neural pathway to access the area of the brain associated with the required intelligence.

A review of the strategies for teaching visual spatial learners with auditory disabilities given by Silverman and Sword (1989, 2000) reveals two approaches:

- To remediate or lessen the effect of the auditory disability, and
- To teach using visual spatial strategies.

Educational models using MI have developed, implemented and evaluated a wide range of visual-spatial strategies to use in the classroom that will help these students learn more effectively. Using MI strategies, students learn using their gifted visual-spatial intelligence and may find that they also learn effectively through musical, logical/mathematical or the personal intelligences. A MI classroom can teach topics through each of the intelligences, thereby giving every student a chance to learn. Alternatively, with the knowledge of each student's MI profile, it can direct primary learning experiences to a specific student's gifted intelligence. MI emphasises that while teaching through a student's strength, their weaker intelligences are strengthened. MI education holds that all intelligences should and can be developed. Gifted students, if taught metacognition in an MI environment, come to terms with unevenness in their school performance and can become motivated to improve their own weaknesses.

The key to visual-spatial learning is being able to:

- watch something and "action replay" it in the head so that the individual can do it.
- think in pictures and images (and manipulate them in space).

At a cognitive level it is being able to:

- see events in the mind's eye through visualisation and imagining.
- "see" the times tables and read and copy them down.
- "see" colour, shape and texture.
- conjure up the whole scene again, whether scenery, scenes from a film or from real-life experience, a painting or a sequence of movements.

The above-described students learn by copying, by seeing, by doodling, drawing, charting and painting.

As already stated, knowing a student's MI profile allows for a more individualistic programme to be developed for each student. For example, if a student is:

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1. gifted in visual-spatial intelligence,
2. relatively weak in linguistics, but is also
3. strong (or even gifted) kinaesthetically,

an MI teacher would employ a lot of visual spatial strategies, decrease the amount of auditory teaching strategies and also increase the amount of “show me how it is done”, the number of experiments in science, and set modelling assignments in history or geography. If a kinaesthetically gifted student is taught using kinaesthetic strategies, many of the negative behavioural patterns associated with psychomotor and sensual supersensitivity disappear. Just encouraging activity in these students helps them focus and become involved.

If a gifted child has a specific gift in the inter-personal intelligence, then strategies involving co-operative learning or leadership themes will also be effective. If, instead, a child is gifted or strong in intra -personal intelligence, then strategies that involve metacognitive techniques requiring overall thinking and planning strategies, emotional processing, higher order reasoning and the use of independent studies/projects will be most effective. These strategies which teach through intra-personal intelligence include many that are used for gifted students that are emotionally overexcitable. (see chart)

## Summary

MI theory and practice has been around long enough for its efficiency to be judged. It is an approach that reportedly works well with gifted students and particularly well with gifted students who show discrepancies between intelligence and performance.

Many teachers, particularly those involved in gifted education, already utilise many MI strategies. These same teachers will realise how their students would benefit from a more formal introduction of MI in their classroom. Not only do students improve, but the teachers themselves benefit through development on a professional basis.

Knowledge of which intelligence is being challenged, which students will learn most effectively and which students will be challenged by a particular strategy, improves the effectiveness of the strategy. MI provides a model for the systematic and controlled use of these strategies.

## General References

### Books

Armstrong, T. In their own way: Discovering and encouraging your child' s personal learning style (1987) New York: Tarcher/Putnam.

This is just one of the many books Armstrong has written on educating special students through MI. He is particularly known for his redefinition of LD as Learning Differently.

Gardner, H. Frames of Mind: A Theory of Multiple Intelligences (1983) New York: Basic Books

Gardner has written many other books including his latest book, “Frames Revisited”, in which his theory on the 8<sup>th</sup> and 9<sup>th</sup> intelligence is given. Access these titles from any of the on-line publishers.

Hannaford, C. Smart Moves – Why Learning is Not All in Your Head (1995) Virginia, USA: Great Ocean Publishers

This book looks at learning through neuro-physiological evidence

Lazear, D. Eight Ways of Knowing: Teaching for Multiple Intelligences (1999) Melbourne: Hawker Brownlow,

Lazear is the educationist who worked with Gardner in their school, Project Zero, which developed Multiple Intelligence theory into classroom practice.

Pittelkow, K & Jacob, A. Discover the Gifts and Talents in Your Child (2000) Sydney: Simon& Schuster

This book, where it deals with school performance, looks at a gifted child through the eyes of MI.

Springer, SP, Deutsch G. Left Brain Right Brain – Perspectives from Cognitive Neuroscience (1998) 5<sup>th</sup> ed. New York: W.H. Freeman and Co.

This book looks at the evidence for cerebral hemispheric differences.

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## Articles

Lind, S. (1999) Supersensitivity and Gifted Individual. *Gifted*, 110, 1, 21-23

Silverman, L.D. (1989) Invisible Gifts, Invisible Handicaps. *Roeper Review*, 1 2(1), 37-42

Sword, Lesley. (2000) I Think in Pictures, You Teach in Words: The Gifted Visual Spatial Learner. *Gifted*, 114, 1, 27-30

Wood, D (2000) Alternatives to the Cardboard Project: Other Ways to Produce a Project. *Gifted*, 116, 1,21-22

## Websites

1. <http://dana.ucc.nau.edu/~shd/>
2. <http://www.ascd.org/readingroom/books/armstrong00book.html>
3. <http://www.angelfire.com/oh/themidasnews/contents.html>
4. <http://www.newhorizons.org/bibmishelf.html> (and links)

*Kay Pittelkow, scientist and educational popularist has recently co-authored a book "Discovering the Gifts and Talents in your Child". In this book she has used the concept of multiple intelligence theory to look at your school age gifted mathematician and scientist and your child's school performance, with particular emphasis on children who have uneven MI profiles. Kay is also a firm supporter of Gagne's model of talent development, and takes you step by step through the factors that influence the development of your child's gifts into a talent. Kay is an active member of a support group for parents of gifted children who have learning disabilities.*

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## References & Bibliography

I recommend using YAHOO (a search engine) and typing in MULTIPLE INTELLIGENCES. You will get access to schools using MI, publishers selling books on MI and a lot more. There is so much information available it is easy to lose a site. I recommend saving the references of good sites and then annotating and culling them.

### 1. General MI sites

- a. <http://users.cyberone.com.au/mevans>  
An Australian site generated by a school principal as part of his doctorate research. It is an easy entry into MI and gives a few of the major links.
- b. [www.newhorizons.org/bibmishelf.html](http://www.newhorizons.org/bibmishelf.html)/ This is not the opening site for Howard Gardner's school, but it is the one I use. It has many references to schools using MI.
- c. [www.igs.net/~cmorris/](http://www.igs.net/~cmorris/) This is where to go for information on MIDAS and MI NEWS. You can also join an e-group on MI.
- d. <http://www.coedu.usf.edu/~morris/> This is a site by Barry Morris with lots of teacher support material.
- e. [www.ascd.org/readingroom/books/armstrong00book.html](http://www.ascd.org/readingroom/books/armstrong00book.html)
- f. [www.ed.gov/databases/ERIC\\_Digests/ed410226.html](http://www.ed.gov/databases/ERIC_Digests/ed410226.html) There are others.
- g. <http://www.edc.org/CCT/ccthome/reports/tr4.html> This is a research essay in which are sketched the background and the major claims of a new approach to the conceptualisation and assessment of human intelligence. Put forth in 1983, the theory of multiple intelligences has inspired a number of research-and-development projects that are taking place in schools, ranging from preschool through to high school.
- h. <http://www.multi-intell.com/> This site concentrates on ideas presented by David Lazear, educationist. Also has excellent links to schools using MI.
- i. <http://dana.ucc.nau.edu/~shd/> This site is interesting in that it also presents "dos-and-don'ts" for children weak in the intelligence. I have used some of the information in one the charts.
- j. <http://www.literacynet.org/diversity/spelling.html> This site shows how spelling can be taught using MI (the author's do not recommend teaching spelling out of context, but if you want to, here it is). The site is a very valuable resource for teachers wanting to implement MI for literacy.

### 2. Books

- a. Gardner, H. *Frames of Mind: A Theory of Multiple Intelligences* (1983) New York: Basic Books
- b. Lazear, D. *Eight Ways of Knowing: Teaching for Multiple Intelligences* (1999) Melbourne: Hawker Brownlow
- c. Pittelkow, K & Jacob, A. *Discover the Gifts and Talents in Your Child* (2000) Sydney: Simon & Schuster

### 3. Sites concerned with teaching gifted children using MI

- a. [www.australia.edu/QueenslandTeaching/Multiple\\_intelligences.html](http://www.australia.edu/QueenslandTeaching/Multiple_intelligences.html) There is another Queensland Government site - their virtual database site that contains references to MI, but currently it is unavailable - worth keeping an eye open. Sue Shaw, Head of Teaching and Learning at Canterbury College, Beenleigh, QLD, is actively assisting and guiding teachers to implement MI in their classroom.
- b. [www.cais.com/gep](http://www.cais.com/gep) This is an on-line bookseller/publisher. I was impressed by the new book "Applying Multiple Intelligences to gifted education: I'm not just an IQ score" by Colleen Willard-Holt and Dan Holt ISBN 0-910609-35-7. Also a new book titled "Gifted Education home: a case for self-directed home schooling" ISBN 0-910609-40-3 sounded interesting and pertinent.

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## 4. *Schools and teachers*

See back copies of the MI NEWS at [www.anglefire.com](http://www.anglefire.com)

<http://www.ascd.org/readingroom/books/hoerr00.html>

Framework by Howard Gardner. Includes a list of schools using Multiple Intelligences

[www.ascd.org/readingroom/books/armstrong00book.html](http://www.ascd.org/readingroom/books/armstrong00book.html) Multiple Intelligence in the

classroom by Thomas Armstrong

[www.spectrumschool.org/](http://www.spectrumschool.org/)

<http://www.psia.org/Education/TPSArticles/teaching/tpsfall97multimodallessons.asp>

This is a Multiple Intelligence approach to teaching skiing techniques – a typical kinaesthetic activity. I have included it not only because it is an Australian example but because this lesson plan shows how gifted children can be cognitively engaged when being taught physical feats.

<http://www.multi-intell.com/> This site accesses various school and school systems that use MI.

## 5. *Evaluation and identification*

[www.angelfire.com/oh/themidasnews/contents.html](http://www.angelfire.com/oh/themidasnews/contents.html) will take you to the MI NEWS site from whence you can take links to more information about MIDAS. The MI NEWS has many articles that give examples of how MIDAS has been used in all type of teaching situations.

[www.angelfire.com/oh/themidas/article1.html](http://www.angelfire.com/oh/themidas/article1.html) This an article by Dr Branton Shearer “Assessing the multiple intelligences: what good can come of it?”

## 6. *Non- MI sites and resources*

[www.earlychildhood.com/articles](http://www.earlychildhood.com/articles) contains many articles, some on Multiple Intelligences but many more on the individual intelligences. For example, under “Child Development” there is a comprehensive article “Wired for Sound: The essential Connection” by Cynthia Barnes. There are articles on developing early maths concepts using games that are based on knowledge of cognitive development and a very good article “Movement and learning: movement across the curriculum”.

a. *Mathematics and others:* [www.igs.net/~cmorris/gref.html](http://www.igs.net/~cmorris/gref.html) This site provides indices of names and subjects and references in human intelligences

[www.wcer.wisc.edu/](http://www.wcer.wisc.edu/) Search for references in the on-line publications for articles and books on Mathematics Cognitive Guided Instructions by Thomas P Carpenter (editor) ISBN 0325001375

<http://www.markwahl.com/Default.htm> This is a website trying to interest you in buying books for teaching maths using MI. But to interest you in buying the books, Mark Wahl gives lots of examples and other information.

b. Visual spatial: [www.ascd.org/framebooks.html](http://www.ascd.org/framebooks.html) Reference to a book by David Hyerie: Visual Tools for Constructing Knowledge.

<http://childparenting.about.com/parenting/childparenting/library/weekly/aa091397.htm> leads you to an article called “nurture your child’s visual-spatial Intelligence

<http://www.psia.org/Education/TPSArticles/teaching/tpsfall97multimodallessons.asp>

In Australia, Hawker & Brownlow (publishers in Melbourne) and Dominies (Educational Resource Bookshop in Sydney) both have catalogues which indicate that they stock many books on MI. I use the on-line bookshop

<http://www.amazon.com> and search for Multiple Intelligence.

GARDNER’ S EIGHT CRITERIA  
for Identifying an Intelligence

# Variety is the spice of life: multiple intelligence and the gifted

*"Intelligence is the ability to find and solve problems and create products of value in one's own culture."*

*-Dr. Howard Gardner  
Harvard University*

1. Isolation as a Brain Function - A true intelligence will have its function identified in a specific location in the human brain. Reported cases of brain injury, degenerative disease, neurological studies and other medical studies have isolated brain functions in such detail that we are able to identify actual physiological locations for specific brain functions.
2. Prodigies, Idiot Savants and Exceptional Individuals - Human record of genius such as Mozart being able to perform on the piano at the age of four and Dustin Hoffman's "Rainman" character being able to calculate dates accurately down to the day of the week, indicate that there are specific human abilities which can demonstrate themselves to high degrees in unique cases. Highly-developed examples of a true intelligence are recorded in rare occurrences.
3. Set of Core Operations - There is an identifiable set of procedures and practices that are unique to each true intelligence.
4. Developmental History with an Expert End Performance - A true intelligence has an identifiable (typically, by clinical psychologists) set of stages of growth with a Mastery Level (*giftedness*), which exist, as an end state in human development. We can see examples of people who have reached the mastery level for each intelligence.
5. Evolutionary History - A true intelligence can have its development traced (typically, by cultural anthropologists) through the evolution of homo sapiens.
6. Supported Psychological Tasks - A true intelligence can be identified (typically, by clinical psychologists) by specific tasks that can be carried out, observed and measured.
7. Supported Psychometric Tasks - The use of psychometric instruments to measure intelligence (such as I.Q. tests) have traditionally been used to measure only specific types of ability. However, these tests can be designed and used to identify and quantify true unique intelligences. The Multiple Intelligence theory does not reject psychometric testing for specific scientific study.
8. Encoded into a Symbol System - A true intelligence has its own set of images (symbols) it uses which are unique to itself and are important in completing its identified set of tasks.

## Remember:

- Everyone has ALL the intelligences.
- The intelligences are not mutually exclusive - they act in consort.
- MI Theory was not developed to exclude individuals, but to allow all people to contribute to society through their own strengths!

# Variety is the spice of life: multiple intelligence and the gifted

## MULTIPLE INTELLIGENCE - OVERVIEW

### LINGUISTIC INTELLIGENCE

Operations (From Frames of Mind)	<b>Ways of Learning</b>	<b>Love</b> (From Web site no 2)	Teaching to Weaknesses (from website no 1)
<b>Left brain</b>	Think (in words), talking and writing	reading, writing, poetry, telling stories, impromptu talks, playing word games: quizzes eg "Sale of the Century"	1. Eliminate as much noise as possible
Semantics (vocabulary comprehension and lexical)	<b>Teach using</b>	Games: Balderdash, I spy, Impromptu	2. Provide a visual model/example to accompany auditory instructions
Phonology (localised)	Reading	Scattergories	3. Write down or have student write down all assignments, tasks or special schedules
Syntax (localised)	Vocabulary	<b>Need</b>	4. Use few words and simple directions
<b>Right brain</b>	Formal Speech	books, tapes, writing tools, paper, diaries, dialogue, discussion, debate, stories	5. If you repeat, <u>use the same words</u> , otherwise, the student may be confused
Pragmatics (diffuse)	o Discussing	<b>Characteristics</b>	
Semantic (lexical only)	o Debating	1. Will remember multi-step directions	
<b>Writing</b>	o Explaining	2. Learns incidental facts and concepts by hearing conversations of others	
angular gyrus	o Arguments	3. Knows all the words to songs on the radio	
	Story telling	4. Memorizes easily, even if not conceptualising	
	Humour eg puns	5. Likes records, rhythm activities	
	Impromptu speaking	6. May talk excessively (they are stimulated by listening to their own conversation)	
	Creative writing	8. May repeat things over and over	
	Poetry		
<b>Reading</b> (Non specific)	<b>Encourage</b>		
	Allow students to talk through tasks, taking sequential steps, if needed		
	2. Use tapes, records for testing or reading tasks		
	3. Encourage oral responses to oral tests		
	4. Pair this student with a visual learner		

### MATHEMATICAL/LOGICAL INTELLIGENCE

Operations (From Frames of Mind)	<b>Ways of Learning</b>	<b>Love</b>	Teach to weakness
Maths	Rationalising, comparing, evaluation, analysis in mathematical, symbols or words used as functions	Experimenting, questioning, figuring out, Ciphers, creating and doing puzzles, calculating	Use words to explain mathematical concepts.
Logic		Games:	Use Venn diagrams, mind maps and other visual aids to show relationships.
<b>Left brain</b> (typically)	<b>Teach using</b>	<b>Need</b>	Use pre-formatted layouts to ensure students maintain sequence and layout.
o Read and understand number terms	Abstract Symbols/Formulas	materials to experiment with, models to take apart or build, science materials, trips to the planetarium and science museum etc	Use computer programmes to teach (the sequence is forced on the student)
o Simple arithmetic=posterior of dominant hemisphere	Outlining		Use physical models to show concepts.
o Organization and planning =frontal lobe	Graphic Organisers	<b>Characteristics</b>	
<b>Right brain</b>	Number sequences	Constantly analysing, debating, and questioning.	
o Spatial (layout and geometry)	Calculations	Always into things (physically or mentally)	
o Understanding concept (abstract maths)	Deciphering codes		
o Understanding numeric relationships	Forcing relationships		
	Problem solving		
	Analysis and comparative techniques.		
	WHY?		

# Variety is the spice of life: multiple intelligence and the gifted

## SPATIAL INTELLIGENCE

Operations (From Frames of Mind)	Ways of Learning	Love	Teaching to Weaknesses
Visual Perception Spatial perception <b>Right brain</b> Ability to conjure up an image To recognise a transformation of an image or To modify that image; To be able to produce a graphic image Sensitivity to lines of force that enter into a visual or spatial display (eg compositional elements) Seeing relationships between disparate forms or experience.(eg metaphors) <i>Spatial (layout and geometry) =R (from LOGIC)</i> <i>Understanding concept (abstract maths)=(LOGIC)</i>	Visualising. <b>Teach using</b> Guided Imagery Active Imagination Colour coding systems Patterns/Designs Painting Drawing Mind mapping Pretending Sculpture Pictures <b>Encourage</b> Demonstrations Written visual directions  [If visualisation is a problem use spatial techniques as used to teach blind children or use 3-D art forms instead of 2-D drawings.]	Designing, drawing, visualizing, doodling e.g. maps, charts, graphs, photographs, drawings Books (visual aspects)  Games: Pictionary Jig Saws  <b>Need</b> Art, LEGO, video, movies, slides, imagination games, mazes, puzzles, illustrated books, trips to art museums  <b>Characteristics</b> Uses teacher's facial expressions & gestures for cues. Will notice details, errors, flaws etc. Visually orderly, Copies from others rather than asks	1. Remove visual distractions that cause "overload" 2. Give only one worksheet at a time (more may become overload) 3. Have student work at a <u>clear</u> desk or table 4. Present more verbal cues with visual directions

## KINAESTHETIC INTELLIGENCE

Operations (From Frames of Mind)	Ways of Learning	Love	Teaching to Weaknesses

# Variety is the spice of life: multiple intelligence and the gifted

<p>The location of motor co-ordination resides in the dominant hemisphere. Thus in most people it is a left brain function.</p> <p><b>Left brain</b> Learning motor movements</p> <p><b>Right brain</b> Automatic movement</p>	<p><b>Teach using</b> somatic sensations By doing, by acting out (drama, mime, charades). By feeling &amp; touching. Let them use movement (rock, tap fingers, swing legs, or etc.) when teaching them concepts. As older student taking notes while listening helps. Younger students often need to write things over and over</p> <p><b>Encourage</b> Dance Mime/ role playing Dramatic enactment Physical exercise Exploration activities Manipulative activities Body language / physical gestures Inventing/building or demonstrating Sports or games Gymnastic routines Human graph Body sculpture/ tableaux Use physical objects such as sandpaper, felt letters, clay, 3-D letters, beads and counting rods, pie charts (for fractions), jigsaws for maps, models etc. Write with sand.</p>	<p>Doing ,dancing, running, jumping, building, touching, gesturing <b>Need</b> role play, drama, movement, things to build and do, sports and physical games, tactile experiences, hands-on learning</p> <p><b>Characteristics</b> <b>Kinaesthetic</b> Make things, like paper airplanes or fans, constantly Want to move and touch everything <b>Tactile</b> Need concrete objects as aids to learning May have great difficulty with abstract concepts Often is classified as an underachiever May have "immature" learning techniques</p>	<p>.for out-of-control <b>Kinaesthetic</b></p> <ol style="list-style-type: none"> <li>1. Have quiet periods interspersed with active periods</li> <li>2. Needs to know when work/study time will end</li> <li>3. Needs quieting down period after physical activity</li> <li>4. Allow psycho-motor breaks between activities so that there will not be academic overload</li> <li>5. Allow them to move around whenever possible</li> <li>6. Concentration breaks down if they sit too long, so give them a short break if work requires sitting for long periods</li> </ol> <p><b>Tactile</b> Desensitise student to activities involving touch Seat in an area which allows space Minimize negative contacts with other students Use as many senses as possible</p>
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<p><b>MUSICAL INTELLIGENCE</b></p>		<p><b>Love</b></p>	<p>Teaching to Weakness</p>
<p>Operations (From Frames of Mind) <b>Right brain</b> Rhythm Pitch Timbre</p>	<p><b>Ways of Learning</b> via rhythms and melodies</p> <p><b>Teach using</b> Rhythmic patterns Vocal sounds/tones Music composition/creation Rapping Environmental sounds Instrumental sounds Singing/humming Tonal patterns Music performance</p>	<p>Singing, whistling, humming, tapping feet and hands, listening</p> <p><b>Need</b> sing-along time, trips to concerts, music playing at home and school, musical instruments</p>	<p>(not developed)</p>

# Variety is the spice of life: multiple intelligence and the gifted

<p><b>INTER-PERSONAL INTELLIGENCE</b> Operations (From Frames of Mind) <b>Right brain</b> Ability to know other people - to recognise their faces, their voices: to react appropriately to them, to equate in activities with them.</p>	<p><b>Ways of Learning</b> By bouncing ideas off other people in relation to their needs, feelings, and goals <b>Teach using</b> Giving feedback Intuiting others' feelings Co-operative learning strategies Person-to-person communication Empathy practice Jigsaw Collaborative skills teaching Receiving feedback Sensing others' motivation Group projects</p>	<p><b>Love</b> leading, organizing, relating, manipulating, mediating, partying <b>Need</b> friends, group games, social gatherings, community events, clubs, mentors/apprenticeships</p>	<p>Teaching to Weakness  (not developed)</p>
<p>Sensitivity to our own feelings, our own wants and fears, our own personal histories</p>	<p><b>INTRA-PERSONAL INTELLIGENCE</b> By thinking about it in relation to self <b>Teach using</b> Silent reflection methods Meta cognitive techniques Thinking strategies planning Emotional processing Know thyself /introspective procedures Mindfulness practices Focussing/concentration skills Higher order reasoning Altered states of consciousness practices Independent studies/projects</p>	<p>setting goals, meditating, dreaming, planning, reflecting</p>	<p><b>Need</b> secret places, time alone, self-paced projects, choices</p>

## Variety is the spice of life: multiple intelligence and the gifted

### MUTIPLE INTELLIGENCE THEORY IN THE TRADITIONAL CLASSROOM

Focussing on the intelligence being challenged in any academic exercise exposes student's strengths and weaknesses, thereby allowing appropriate strategies to be developed to help the student learn more effectively.

Intelligence	English	Maths	Science	Others
<p><b>1 Verbal/linguistic Intelligence.</b> (language) Responsible for the production of language. Developed through listening &amp; speaking, reading and writing.</p>		Used when problems expressed in words or reports are written.	Used to express ideas, write reports Used whenever answer is written	Used when language is required. e.g. debating any subject such as history. e.g. Debate key controversial historical decisions for today.
<p><b>2 Logical Mathematical Intelligence</b> (mathematical reasoning) Responsible for "scientific reasoning" or deductive and inductive reasoning. This implies recognising patterns, working with abstract symbols such as numbers and geometric shapes and seeing relationships between separate and distinct pieces of information. ○ Developed by problem solving.</p>	Used when doing philosophy or in any case when words are used as functions. Used when stories involve detection, or analysis. e.g. Predict what will happen next in a story.			Used whenever evaluation, analysis or synthesising is employed.  History eg tracing the patterns of historical development in the West.
<p><b>3 Visual/Spatial Intelligence</b> (visual reasoning) Responsible for how we see, use and get around in space. ○ Developed through sight but also through manipulating images in the mind.</p>	Used in visual exercises such as "describe what you would see when you walk down a supermarket aisle". Used whenever an illustration, story board, cartoon, etc is required. Used in "brainstorming sessions"	Used in geometry, topography and abstract or difficult problems. Needed to lay out problems on a page. Used when maths problems can be visualised: i.e. using pie charts to learn fractions	Used in technical drawing, drawing apparatus, visualising experiment, in inventing, in forming relationship between ideas, patterns. Used whenever results are to be mapped, charted, tabled, drawn, photographed.	Used whenever illustrations, maps or charts are used. History: study other cultures through their art. Geography: draw a map of the USA and show, by a picture, the main crop of the state.
<p><b>4 Bodily/Kinaesthetic Intelligence</b> (kinaesthetic) Responsible for control of body</p>	Used in drama, in role playing. Charades: e.g. "Guess	Used when counting blocks, beads or other mechanical	Used in experiments. Used in PE/Health exercises	Used whenever models or demonstrations are

## Variety is the spice of life: multiple intelligence and the gifted

Intelligence	English	Maths	Science	Others
<p>movements both controlled and autonomous.</p> <ul style="list-style-type: none"> <li>Developed by doing, by experience.</li> </ul>	<p>what piece of literature/author I am?"</p> <p>Build models of stage setting for Othello.</p>	<p>calculators are used. Fractions are easily taught using cut-out pie charts.</p>	<p>Used whenever models can be built</p> <p>Used in industrial arts.</p>	<p>Used "Show me how".</p> <p>History; act out or build a model a period of history.</p> <p>Geography: build a diorama to show how landforms affect rainfall in Tasmania.</p>
<p><b>5 Musical/Rhythmic intelligence</b> (musical)</p> <p>Responsible for the recognition and use of rhythmic and tonal patterns, and sensitivity to sounds.</p> <ul style="list-style-type: none"> <li>Developed by listening to and actively humming, singing, creating noises, taping etc.</li> </ul>	<p>Illustrate a piece of literature with music, sound, and rhythm</p>	<p>Use raps to learn mathematical operations, formulas, and problem solving</p>	<p>Make a music tape to accompany different scientific processes</p>	<p>History: learn about various period of history by analysis of their music</p> <p>Computer studies.</p> <p>Use music to improve computer keyboard skills.</p>
<p><b>6 Interpersonal Intelligence</b> (leadership)</p> <p>Responsible for cooperation, the ability to work in a group as well as communicate, verbally and non-verbally, with other people.</p> <ul style="list-style-type: none"> <li>Developed from the ability to notice distinction among others.</li> </ul>	<p>Practise joint story telling/writing with a partner</p>	<p>Partners teach each other processes and apply to problems</p>	<p>Assign teams to do lab experiments and report to class</p>	<p>Apply co-operative teaching practises – group or team efforts. e.g. team members learn about part of a period and teach each other</p> <p>Conduct an interview</p>
<p><b>7 Intra-personal Intelligence</b> (Self-awareness)</p> <p>Responsible for self-knowledge. Self-knowledge includes knowing what you are feeling, your emotions, and how you think. It involves self-reflection. Intra-personal intelligence is responsible for self image and the ability to put self to one side to see the bigger picture, the future, the larger order of things, and the essence or spirituality of the occasion. It is developed through awareness exercises. This</p>	<p>Write a reflection on what you learn for life today from literature.</p>	<p>Think/write about how math concepts help in daily living.</p>	<p>Keep a diary on discoveries about the self in science</p>	<p>History: imagine having dialogues with figures from the past</p>

## Variety is the spice of life: multiple intelligence and the gifted

Intelligence	English	Maths	Science	Others
intelligence is expressed through other intelligence: the writer through language, the dancer through kinaesthetic, the composer through music.				

Variety is the spice of life: multiple intelligence and the gifted

YEAR 11 MI HISTORY PLAN by S. Shaw

# REVISION ACTIVITIES

**DIRECTIONS:** Select TWO of the following activities to revise our study of Alexander. Be ready to share your products with the class in the last 15 minutes of the lesson.

1. Create a timeline of the events in the lives of Philip II of Macedon and Alexander III (the Great). Draw your timeline to scale.
2. Create a set of Trivial Pursuit cards with questions and answers based on the lives of Philip II and Alexander III (the Great). Divide questions into categories (people, places, etc).
3. Create a mind map showing the relationships between all of the key people in the lives of Philip II and Alexander III (the Great).
4. Write a rap song describing key events in the lives of Philip II and Alexander III (the Great). Be ready to present this to the class.
5. Script key scenes in a mini series based on the lives of Philip II and Alexander III (the Great). Be ready to present key scenes to the class.
6. Draw a story board of the key events in the lives of Philip II and Alexander III (the Great).
7. Write a series of quiz questions on key events in the lives of Philip II and Alexander III (the Great) and tape these.
8. Write a series of limericks describing key events in the lives of Philip II and Alexander III (the Great). (e.g. "There was a young fella from Pella...").
9. Make a series of mix and match word and definition cards for key terms in the study of the lives of Philip II and Alexander III (the Great).

MI Class plan by Sue Shaw, Head of Teaching and Learning at Canterbury College, Beenleigh, QLD 4207

## Variety is the spice of life: multiple intelligence and the gifted

IDEAS FOR DIFFERENT LEARNING by S.Shaw

Sue Shaw kindly gave me these exercises. They are a compilation of e-mail responses she made to teachers' requests for practical examples of MI in classroom teaching. As teachers are already very familiar with teaching methods that exercise (develop) linguistic intelligence, these exercises focus on methods that develop visual/spatial and kinaesthetic intelligence (or teach through these intelligences). Many teachers already use some of these ideas. MI theory formalises the use of these strategies and thereby imposes a discipline in devising curriculum and class plans.

Exercise (from S Shaw)	Intelligence exercise
<p>Working in groups, have students record a primary source document they have found onto tape.</p> <p>Have students construct a worksheet to test the understanding of other groups. Worksheets could have True or False, Multi choice or Close questions.</p> <p style="text-align: center;">Groups can then swap cassettes and worksheets. Best part is that these can be kept for the following year!</p>	<p>Subject = not specific but works best for English, history and other language based subject Group work = interpersonal Tape= linguistic. Developing worksheet=logical/mathematic Note: this could be used with videos replacing the tapes when visual and kinaesthetic intelligences are exercised. If the exercise commences with a tape/video, this exercise can be used to ensure students focus on content/presentation or techniques. Each group of students can concentrate on different aspects of the tape/video.</p>
<p>Use large flash cards in a number of ways:</p> <p>a) Flash -cover- write definition or spell as a revision;</p> <p>b) Blu-tack to board as basis for brainstorming revision. Students to come out to board to write each idea they recall;</p> <p>c) Issue lots of cards and have students blu-tack to board in correct sequence (e.g. chronology, cause-effect, flow charts);</p> <p>d) Issue jumbled flash cards (terms and definitions) to students in groups. Students to blu-tack word and definition to chalkboard (wall?) as quickly as they can.</p>	<p>Flash card exercise visual intelligence. The content is subject related Visual + linguistic</p> <p>The additional activity helps kinaesthetic learners</p> <p>The addition of the sequencing exercises logic/mathematical intelligence.</p> <p>The group work helps students develop inter-personal intelligence. The content is linguistic but can be applied to any subject. The activity assists kinaesthetic students.</p>

## Variety is the spice of life: multiple intelligence and the gifted

Exercise (from S Shaw)	Intelligence exercise
Use blank outlines of maps and have students cut out jumbled countries and glue onto maps. A second option is to give only the jumbled countries for students to fit together using an atlas and then glue into workbooks.	Subject: Geography or similar Exercises visual intelligence. The handling of material will help kinaesthetic students keep involved.
Issue a handout with illustrations and have students use OHT notes to match the correct information to the illustration. Students can also be given information and illustrations jumbled on the one page to cut, reorganise and paste into workbooks.	As above, this exercises visual and kinaesthetic students.
Use hypothetical situations, such as decisions faced by famous people (e.g. to cross the Rubicon) or crimes in other cultures to have students take a stand, explain and justify this position. These can be small scale or become larger as more details and implications are made known to students. Use a panel presentation to contrast ideas.	Analysis and evaluating develop logical/ mathematical intelligence whereas debating etc exercises linguistic ability.
Feature film helps many students to visualise and internalise information. Worksheets can focus on key elements of the Depth Study (such as the work of an archaeologist in "Raiders of the Lost Arc") or on social attitudes ("Revolution" or "Glory"). Older students can evaluate feature film from the point of view of historical accuracy. They could compile a folio of source extracts that support or refute the images and ideas presented in the film.	Films and videos develop visual intelligence. Making the student analyse a particular aspect of the film helps develop logical/analytical intelligence although it can be done visually depending on the question  Students tend to treat videos and films as "bludge time". They do not focus on the content etc and films used in this way do not develop or teach through any intelligence. By setting exercises the student is forced to employ visual intelligence to complete the exercise.
Revise vocabulary by putting jumbled words on OHTs or revision worksheets. Students need to unjumble and define.	This is primarily a linguistic exercise but can also employ visual intelligence. The fact is that visual learners seem to learn more effectively the words are presented in this fashion. However, MI visual intelligence is more to do with position in space, recognising objects and faces that are in unfamiliar presentations and recognising objects/patterns that are not readily presented as discreet parts. This is why many MI models now say Spatial rather than Visual intelligence. Thus this exercise works best in developing visual intelligence if the letters are jumbled in space as well as linearly.

## Variety is the spice of life: multiple intelligence and the gifted

Exercise (from S Shaw)	Intelligence exercise
<p>Use decodes and unscramble quizzes both to stimulate interest in a unit or to extend more able students while slower students complete a unit. Hieroglyphics puzzles are great for this.</p>	<p>Coding exercises usually develop logical/mathematical intelligence.  Introducing hieroglyphics also evolves visual intelligence</p>
<p>Play definition bingo to revise key terms. Either the student or the teacher can make large cards with key terms printed on them. The teacher then reads a definition. Students cover their term if they think it matches the definition. The first to cover all the terms, wins.</p>	<p>This type of exercise develops both visual and kinaesthetic intelligence.</p> <p>Many educational games based on curriculum content have been developed and can be purchased. As with the use of videos/films, it is important that the game is played “seriously” and rules adhered to. The students must understand that the teacher considers the game as part of the class work otherwise the students will not play to rules and the learning is ineffective.</p> <p>If the students develop their own game, extracting the content from source material, all the intelligences can be evolved. Visual learners can graphically (or otherwise visually represent) various ideas. The analysis of the content is mathematical/ logical, the co-operative work is inter-personal, the questions are linguistic, the presentation is visual, and the activity is kinaesthetic.</p>
<p>Make Christmas gifts in the style of the Depth Study; e.g. Orange Pomanders</p>	<p>Develops kinaesthetic intelligence</p>
<p>When studying the Middle Ages, hand made "papyrus" when studying Ancient Egypt, etc.</p>	<p>Develops kinaesthetic intelligence</p>
<p>Hold a banquet in the style of the Depth Study. Require students to complete research activities based on clothing, make up, food, entertainment, etc. Ensure authenticity.</p>	<p>Develops kinaesthetic intelligence</p>

## Variety is the spice of life: multiple intelligence and the gifted

Exercise (from S Shaw)	Intelligence exercise
<p>Divide types of information for the class and colour code this. For example, economic causes in red, social causes in blue, political causes in green, philosophical in yellow. Have students read and highlight one type of information only, or to have students complete all types themselves. Allow time to compare the way students have divided information and to discuss reasons for variations. Colour coding and underlining using highlighters or coloured pencils is a good way to assist both visual and kinetic learners cope with large amounts of text.</p>	<p>Develops visual intelligence and assists kinaesthetic learners</p> <p>The consequential discussion develops linguistic intelligence and validates the learning process.</p>
<p>Put up a long time line on the wall and issue each student (or pair) a different year or month (or decade) to research. Give an A4 sheet of coloured paper per student (or pair) to make notes on during research, and to add a picture, cartoon, graph or other visual aid. Pin these on the time line. (S. Shaw attributes this exercise to Susan Hinton )</p>	<p>Research is usually a logical/mathematical exercise.</p> <p>The activity benefits kinaesthetic learners</p> <p>The illustrations benefit visual learners.</p>
<p>Reduce the amount of writing required in answers by asking students to underline, circle, box, highlight in various colours and mark their answers with the number of the question. (This is good practice for using perusal time).</p>	<p>Helps visual learners demonstrate that they have learnt the content.</p>
<p>Watch film with the sound turned off. Ask students to "translate" what's going on and why. Contrast different interpretations.</p>	<p>A powerful visual intelligence development strategy</p>
<p>Copy historic cartoons with words omitted and help students to use symbols to identify significant Historical people etc. Then have students write captions.</p>	<p>A visual intelligence development exercise</p> <p>Caption writing develops linguistic intelligence</p>
<p>Issue cartoons minus captions and have students explain which of a number of possible captions they think is most appropriate.</p>	<p>As above</p>
<p>Collect clean garbage in a plastic shopping bag over a month or so. Ask friends to do the same. Issue one bag per group and ask students to hypothesise about the household who own the garbage.</p>	<p>Predominantly a visual and kinaesthetic exercise</p>
<p>Have students listen to songs from a particular period and identify the theme and mood of these songs. Have students use their knowledge of modern music to discuss the issue of representativeness of evidence.</p>	<p>Develops musical intelligence.</p>

## Variety is the spice of life: multiple intelligence and the gifted

Exercise (from S Shaw)	Intelligence exercise
Construct a character. Issue a "wallet" with documents and artefacts (real or simulated). Have students create an identi-kit of the person who owns the "wallet". An alternative is to divide students into groups and have them construct the character. In this case, brainstorm possible items which might be included with the class as an introductory activity.	Predominantly a visual and kinaesthetic exercise. The alternative exercise develops personal intelligences. The brainstorming sessions is a right brain activity and can involve any intelligence although mainly visual and personal intelligences would be employed in this case
Have students colour code words that relate to particular emotions (e.g. blue for words which are pleasing, red for those which have negative connotations). This is particularly useful for political documents.	Colour coding uses visual intelligence, the analysis of emotions develops personal intelligence.
Develop fast brainstorming using a "Nerf ball". Divide the class into smallish groups. Put the focus question on the board. Each group needs a scribe to record ideas on the board (different coloured chalk?). One group begins the brainstorming and then throws to another group who must quickly add an idea to the ' mind map' or list on the board, and then throw the ball to yet another group.	Classic brain-storming is a right-brain activity principally developing visual and, in this case, kinaesthetic intelligence. The use of groups allows the students to allocate roles according to their strengths. The teacher can consciously allocate roles to students that helps develop their weaker intelligence.

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