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著者
SCHMIDT-FAJLIK, Ronald

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Multiple Intelligences Theory for Japanese High School English Language Teachers: A Teacher Training Course

Ronald SCHMIDT-FAJLIK

Abstract

Howard Gardner’s theory of multiple intelligences offers language teachers a way of addressing individual differences in the language classroom. Many teachers have heard of the theory, but may not fully understand the theory or how it may be used to address individual differences in their classroom. The article describes the development of a short training course to assist Japanese high school English to become better aware of the theory and how it may be used to address individual differences.

Introduction

Many teachers have heard of Howard Gardner’s theory of multiple intelligences although they may feel that they do not fully understand the theory or how it may be incorporated when teaching English. Adapting Gardner’s theory (MI) in terms of its practical application in the classroom serves as a way in which theory can inform practice as “Theories for practice, as distinct from theories of practice typically taught in teacher education programs, construct the cognitive structures for planning, decision making and teaching in the language classroom” (Burns in Freeman & Richards, 1986, p. 174). In this sense Gardner’s theory can be seen as not only providing a theoretical rationale for addressing individual differences in classrooms, but may also assist teachers in adapting existing syllabus material or in creating supplementary material which may address these differences. Demonstrating the practical application of Gardner’s theory may address the view that some teachers have that theory is useless in practical application as found in Stern’s statement that “Language teachers can be said to regard themselves as practical people and not as theorists. Some might even say they are opposed to ‘theory’ expressing their opposition in such remarks as ‘It’s all very well in theory, but it won’t work in practice’” (in Alatis, Stern & Strevens, 1983, p. 23). Howard Gardner’s theory of provides a basis by which teachers can develop a better understanding of the individual differences of students in their classrooms as well as their own cognitive profiles. Awareness of such differences may inform teachers of ways to approach their classrooms in terms of lesson planning and the types of materials used in a way which is more
cognitively fair to all those involved in the language learning process.

Addressing individual differences in the language classrooms is an important issue due to the variety of learners that language teachers have in their classrooms. Howard Gardner’s (1993) theory of multiple intelligences offers a way of interpreting individual differences based on the various cognitive strengths and skills of students. Gardner describes his choice of characterizing these various cognitive strengths and skills as ‘multiple intelligences’ in terms of the following: “‘multiple’ to stress an unknown number of separate human capacities, ranging from musical intelligence to the intelligence involved in understanding oneself; ‘intelligences’ to underscore that these capacities were as fundamental as those historically captured within the I.Q. test” (Gardner, 1993, p. xi). In *Frames of Mind*, Gardner proposes seven such intelligences; these being verbal/linguistic, logical/mathematical, visual/spatial, musical/rhythmic, bodily/kinesthetic, interpersonal, and intrapersonal. He has added an eighth intelligence, which he calls ‘naturalist’ (Checkley, 1997), and has left the door open for the discovery of other types of intelligences such as spiritual and existential intelligence (Gardner, 1998).

Incorporating MI theory in the language classroom benefits teachers by allowing them to become better aware of the role of individual differences in the classroom and how to better plan lesson material to address these differences. Due to the benefits that teachers may gain from a better understanding of the theory and how it may be used to address individual differences in the classroom, a training course which introduces the theory and how it may be used in class planning would allow teachers to have a more confident understanding of the theory and how to incorporate it in their classroom.

**Teacher Survey**

In order to better plan the teacher training course, a survey of English teachers was conducted at a Japanese high school (Appendix A) whose name will remain anonymous to protect privacy. The survey was intended to serve as a guide in terms of teacher experience, present teaching situation, as well as perceived needs in terms of development in that “teacher development as learning by teachers needs to take into account the existing knowledge, experiences, opinions and values of the teachers” (Bell & Gilbert in Roberts, 1998, p. 43). Reviewing questionnaire responses serves as a way to better anticipate the needs of each teacher as well as gain insight into the background knowledge they carry of MI theory. Reflecting upon questionnaire results thus serves to inform planning of the course in terms of a teacher’s particular teaching context, experience, and developmental needs as “in design(planning) we decide programme objectives and
structures by trading off between our approach, the purpose of the programme and the immediate, often conflicting, variables in our situation” (Roberts, 1998, p. 102). The survey was administered to twelve English teachers. The results are intended to serve as a general guide for course planning in terms of teacher background and developmental needs.

Survey Results (please refer to Appendix A for full questions):

1. Years of experience:
The teachers vary from two to twenty-one years of teaching experience.

2. Classes taught:
Teachers indicated that they were assigned to teach in separate areas of the English program; such as being in charge of either a Reading, Writing, or Oral Communication class. In developing a multiple intelligence course for these teachers it would therefore be necessary to address their needs in terms of the language skills area for which they are responsible.

3. Collaboration:
Only one of the teachers had indicated ever collaborating with another teacher.

4. Areas of improvement:
Responses to this and the following question are important in that “teachers should be involved in identifying what their learning needs are” (Roberts, 1998, p. 88). Most teachers indicated that they would like to improve their teaching in terms of the particular language area they taught; for example those teaching Writing would like to be able to improve their ability to teach writing. Two teachers indicated improving student motivation. One teacher wished to improve his ability to teach English by using only English in the classroom.

5. Short Course:
In terms of attending a short course the results indicated that half of the teachers would like to improve their English skills in terms of speaking or writing. The other half indicated that they would like to improve their skills in methodology. This was indicated in responses such as “Effective teaching procedures,” “A course in which we can learn how to make students understand more deeply,” and “Only English speaking class (course) without using Japanese.” One response indicated wishing to take part in a co-operative teacher development program in stating “I’d like to take a course in which I can hear how to treat the students from other teachers.”

6. Learning styles:
All teachers having undergone initial teacher training (ITE) had indicated that they had never been exposed to the concept of learning styles. The two teachers who indicated that they were aware of the concept of learning styles had both undertaken post-graduate studies.
7. Gardner’s theory:
Results were the same as in ‘Learning Styles’. Teachers who had undergone ITE were unaware of MI theory. Only the two teachers who had undergone post-graduate training were aware of Gardner’s theory. Although these two teachers had been exposed to MI theory in post-graduate training, further conversation indicated a lack of confident understanding of Gardner’s theory.

8. Freedom in teaching:
Six of the teachers indicated that they did not feel free in teaching their classes. Four responded that they did. Two teachers responded that their sense of restriction varied depending upon the particular class that they were teaching.

Types of restrictions:
All teachers face a number of restrictions which have a bearing on the content of their classes in that they are “bound by public requirements, whether to meet external accreditation criteria, or to fulfill the role that schools and society at large have constructed for them: they have only partial agency in their own development” (Roberts, 1998, p. 43). Teacher responses to this section of the questionnaire are therefore important in determining the appropriacy of course content in terms of the restrictions that the teachers feel they face. Those teachers that indicated that they felt restricted in their classroom teaching gave reasons such as “We have tests, so I always feel that I have to hurry,” “We always have to cover a large amount in each examination,” “I can’t sometimes get reaction from the students,” “It’s not easy to make students understand by using English,” “Fixed textbooks made in Japan,” “not enough time,” and “Because I always take notice of the students’ response.”

9. Supplementary material:
All except two of the teachers indicated that they use and/or have used supplementary material in their classes.

Types of supplementary material:
Responses in terms of the types of materials and activities which were used to supplement lessons included “cultural differences,” “maps or explanations of historical background of each lesson,” “pictures/postcards,” “articles from newspapers,” “videotapes,” “textbooks published in other countries,” and “detective stories.”

**Implications for Course Design**

In reviewing responses to the survey, the following conclusions were reached as to how to best address the needs of the teachers in designing the course:
1. In terms of the wide variety of teaching experience it would be beneficial to arrange the teachers in a way as to promote the exchange of ideas between more experienced teachers and those having recently completed their ITE training.

2. As teachers are responsible for different language skill areas such as Reading, Writing, and Oral Communication, it would be useful to address these different skill areas and give teachers opportunity to develop lesson material which reflects the needs of the course they are teaching.

3. As teachers predominantly indicated that they did not collaborate with one another, group and partner work activities may serve to create a sense of more open communication and contribute to bonding amongst the English teaching staff. Teachers may also become better aware of the benefits of collaboration in terms of the greater amount of ideas generated and opportunities for problem solving in the sharing of ideas with each other.

4. The desire for teachers to improve their English skills may be addressed in delivering the course in a manner which serves to develop oral communication skills by encouraging discussion in English, as well as developing reading and writing skills by providing a variety of contexts which require the use of these skills during the course.

5. In that most teachers had indicated previous use of supplementary material, they may be open to the use of such material in terms of MI theory; keeping in mind restrictions expressed.

Survey results may serve as being representative of teachers in similar teaching situations at Japanese high schools. The following training course incorporates teacher responses and may be used to introduce Gardner’s theory of multiple intelligences and ways it may be incorporated in classrooms by Japanese high school English teachers in similar situations.

The INSET (in service teacher education) training course proposed is approximately one week in duration with 3 sessions held every other day so as to give teachers time to reflect upon the content of each session and to complete homework assignments. Each session is approximately 2 hours in duration, although may last up to 2.5 hours at a more relaxed pace. The course may be administered after regular school hours or during school holidays.

In being an INSET course, the purpose and aim of the course is to develop the existing skills of teachers; this being in terms of methodology, as well as a better awareness of individual differences based on the model provided by Gardner’s theory. This goes with the aims of most INSET programs in that “INSET can address training or development needs” (Roberts, 1998, p. 221). The training aspect of the course, where training addresses “objectives that are defined by a deficit in language, teaching skills, curricular knowledge or some other area of expertise” (Roberts, 1998, p. 221) may be viewed in terms of the lack of training teachers have had in the area of learning styles, as evident in the survey results. The survey indicated that few teachers had heard of Gardner’s MI theory,
with those having done so in post-graduate studies. Results show that none of the teachers who had taken part in an ITE (initial teacher education) program had ever been exposed to the concept of learning styles or Gardner’s theory of multiple intelligences. The course serves as a basis for teacher development by introducing the theoretical aspects of Gardner’s theory in a way which may be used to address the needs of teachers within their teaching context.

Training Course Outline

In introducing the course to teachers, they are given a course outline so as to be able to anticipate the topics which will be covered (Appendix B).

First session

Concept of Intelligence

Purpose
The objective of the first session is to help teachers reflect on the concept of intelligence and to give a historical overview of the definition of intelligence from earlier to more recent interpretations. Gardner’s theory of multiple intelligences will be introduced within this historical backdrop. The instructor may choose to limit the amount of historical material covered depending on the interest level of teachers or the amount of time available.

Method
1. Seating is arranged to form a mix between less and more experienced teachers.
2. Before beginning the lecture teachers are asked to ‘brainstorm’ ideas about the concept of intelligence and to write down their ideas. Wallace defines ‘brainstorming’ as “a kind of activity intended to generate a lot of ideas. Participants are encouraged at the beginning to think up ideas no matter how unlikely or farfetched” (1991, p. 44). This is serves as an entry point to the short historical lecturette which follows as “If we want maximum teacher participation, then it is much better to begin not with a conventional talk or mini-lecture but with an activity that focuses on the participants and encourages equal participation and active listening” (Roberts, 1998, p. 240).
3. Ideas about intelligence are taken up. The ideas may be recorded on the board. A discussion or debate regarding the meaning of intelligence may be held.
4. A ‘lecturette’, defined by Wallace as “A shorter than usual lecture” (1991, p. 46) is given on the historical background of the concept of intelligence. The lecturette is not intended as an in depth survey of ‘intelligence’, nor a comprehensive historical overview, but is primarily intended to give teachers a better sense of the way in which the concept of intelligence has been interpreted in order to lead to more current views in terms of Gardner’s theory which is subsequently introduced.

Materials
1. Paper or notebook for teachers to take down ideas about what intelligence is.
2. Teacher-trainer’s notes outlining how intelligence has been viewed and interpreted (Appendix C). The contents are based on Fancher (1987) who gives an excellent overview of how intelligence has been defined over the ages. The trainer should become familiar with a general understanding of how intelligences has been viewed and defined so as to better anticipate and address the teachers’ views on the topic.
3. Sheet with each teacher’s names to arrange seating (optional).
4. Note taking sheet to take notes during presenter’s historical overview of the concept of ‘intelligence’ (Appendix D).

Procedure
1. Seating may be arranged by writing names at a particular sitting area. The teachers find their names and sit at their assigned seat. Alternatively the teachers may be re-arranged if having independently chosen their seating the arrangement proves unsatisfactory (i.e. experienced teachers sitting together in one group or if the teachers are too spread out for subsequent pair and group work).
2. Teachers are asked to think individually about ‘intelligence’ e.g. what it is, how it can be measured, how intelligence may be demonstrated, examples of intelligent people, etc.
3. Teachers form groups of 3 or 4 and discuss their ideas about intelligence.
4. A group secretary is appointed and records ideas about what constitutes intelligence.
5. Teacher-trainer writes and records group responses on the board in the manner of a ‘mind map’.
6. Note taking sheet is handed out (Appendix D).
7. Historical overview lecturette about intelligence is given (presenter may refer to Appendix C).
8. Teachers are asked to count off in fours (if an uneven match occurs then there can be a group of three teachers that discuss together the missing member’s area).
9. ‘Ones’ recount to the rest of their group the 18th century view of intelligence. ‘Twos’ recount the 19th century view. ‘Threes’ recount the late 19th/early 20th century view. ‘Fours’ recount the 20th century view. This ‘buzz-group’ activity serves to process the lecture material in a manner
in which “participants have a chance to restate lecture content, ask questions and offer comments, thus developing oral and recall skills, and confidence and flexibility with the subject matter. This is especially good for non-native speaker trainees since they have more than one chance to catch things and plenty of opportunity to find out from peers whether they have understood or not” (Woodward, 1992, p. 25).

Gardner’s theory of multiple intelligences

Method
2. An overview of MI theory and how Gardner he came up with his theory is described (Appendix F may be used as a reference).
3. The eight identified intelligences are discussed.

Materials
2. Hand out containing fill in gap task and space for mind map (Appendix E).
3. Definition match sheets (Appendix G).

Procedure
2. An informal lecturette is given on how Gardner interprets and identifies intelligence (with reference to Appendix F). The lecturette may be open to question and debate.
3. Fill in gap sheet (Appendix E) is handed out to teachers which is based on the main points of the lecturette. Teachers may work in groups of 3 or 4 to complete the sheet. The sheet is ultimately designed to serve as a handout based on recalling and reflecting upon the content of the lecturette.
4. Teachers are instructed to prepare a mind map as indicated on the handout sheet. The use of a mind map is a good way for teachers to develop their own handout in that “Mind maps are visually appealing, easy to rewrite or reorganize if too disorderly and they provide good support for non-native speakers who can thus gain the same message in two different media” (Woodward, 1992, p. 33). The use of mind maps also provides a context for visual/spatial intelligence. The teacher trainer draws a mind map outline on the board to serve as a model.
5. Teachers are instructed to listen for the eight types of intelligences Gardner has identified and write them in the boxes on their mind map during the lecturette. These need not be written in any particular order.
6. Lecturette outlining the eight intelligences is given.

7. Teachers check and compare in groups that they have correctly heard and written in the eight identified intelligences.

8. Teachers are instructed to brainstorm in groups and write on the branches of the mind map items related to the description of the intelligences. These may be things such as the type of ability demonstrated, examples of the ability, and professions which require the use of a particular kind of intelligence. The instructor may give a few examples on each branch. Alternatively the instructor may give the class a list describing different abilities and professions and ask teachers to attach these to the appropriate branch.

9. Teachers share and compare their mind maps.

10. Intelligence definition match up (Appendix G) activity is given using the following procedure:
   a) Sheets are cut up before session.
   b) One envelope containing cut up intelligences and their descriptions is given to each group.
   c) In groups the teachers match each intelligence to its definition (side by side).

11. Teachers look over the matched items and go back to their mind map sheets to add any new items to branches.

12. Closing. Homework. Teachers are asked to think about the eight intelligences, their definition, and the abilities demonstrated in each intelligence area. They are asked to consider how one would go about determining a student’s cognitive profile in terms of assessment and to write down any ideas as preparation for the next session.

13. Teachers may be given a bibliography of recent books related to MI theory.

Second Session

Assessment

Purpose
To develop better awareness of individual differences in one’s teaching context in terms of MI theory and the use of assessment devices as a means to better understand these differences as “developing professional competence involves teachers in investigating the ways in which their students are disposed to learn and the purposes for which they are learning. It involves teachers in exploring their own dispositions on the one hand and more external factors in their working environments on the other” (Parrott, 1993, p. 1).
Method
1. Teachers consider the role of assessment in MI theory.
2. The use of assessment devices and their application is described.
3. Teachers assess their own cognitive profiles.

Materials
1. Blank paper to draw assessment mind map.
2. Teacher-trainer’s notes regarding assessment in MI (Appendix I).
4. Slips of paper for kinesthetic activity (to write down intelligences).

Procedure:
1. Teachers discuss ideas related to assessing students in terms of MI theory which was part of the homework assignment.
2. A group secretary is appointed to record ideas.
3. Teacher-trainer writes group responses on board and provides feedback.
4. Teachers create mind map of ideas gathered from groups. They are instructed to try to group ideas into categories, eg. ideas concerning how to assess, why to assess, difficulties in assessing etc.; these each being assigned to a different branch. Teachers are encouraged to create at least four branches to keep open the possibility of the addition of other categories arising from the lecturette.
5. Lecturette is given concerning views and issues involving assessment (based on Appendix I). The following is a basic outline of topics covered in the notes:

- assessment rather than testing
- Gardner’s view of intelligence fair devices
- input from parents
- dangers and misuses of assessment eg. pigeonholing, stereotyping, misprofiling

6. Teachers add new items or new category branches to their mind maps during the course of the lecturette.
7. Teachers discuss the lecturette and compare their maps.
8. Teachers are given questionnaire to assess their cognitive profiles.
9. Teachers discuss in groups the results of the questionnaires. They are also encouraged to discuss the format of the questionnaire.
10. Teacher-trainer describes possibilities in terms of graphing and comparing profiles eg. strengths
and weaknesses etc.

11. The following activity provides a bodily/kinesthetic context in delivering the course material. The activity also serves as a way to make teachers better aware of the abilities required of a particular intelligence as well as how the intelligences may manifest themselves. This may serve to sensitize teachers in observing and assessing behaviour related to an intelligence area.

1) teachers write an intelligence on a slip of paper eg. ‘visual/spatial’, ‘logical/mathematical’, etc.
2) the slips of paper are collected and placed in a bag.
3) one member from each group comes up to the teacher-trainer.
4) the rest of the group members stand up and remain standing.
5) the teacher-trainer draws one of the collected slips of paper and shows it to the group members who have come up.
6) the group member who has been shown the slip of paper ‘acts out’ their particular intelligence (eg. based on a profession requiring that intelligence, demonstrating a skill requiring that intelligence, etc.).
7) other members of the group guess which particular intelligence is being portrayed.
8) once having guessed, all members of the group sit down.
9) a different member of the group comes up to the teacher-trainer and the process is repeated until every member has had a chance to act out an intelligence.

12. Homework is given. Teachers are asked to administer the previous questionnaire to their students if possible and reflect upon differences between student profiles, as well as their own profile and what bearing this may have on their classroom situation.

Third session

Methodology

Purpose
The practical application of Gardner’s theory in terms of lesson material.

Method
1. Teachers are introduced to options in terms of addressing the various cognitive profiles in their classroom through supplementary and adaptive approaches to lesson material.
2. Teachers adapt material in ways which can address a variety of cognitive profiles in their teaching area.

Materials
1. music
2. multiple intelligence activity sheets (Appendix K) which have been cut up and placed in envelopes
3. blank paper to draw methodology mind map
4. lesson material used in English courses (to be determined in consultation with teachers)

Teacher-trainer’s notes:

supplementary approach
-the use of material in addition to syllabus
-the supplementation of current course material in a way which balances content in terms of addressing the variety of cognitive profiles in the classroom

adaptive approach
-adapting lesson material in ways which address the variety of cognitive profiles in the classroom
-although ultimately it is best to adapt lesson material in a way which addresses all the cognitive profiles in the classroom in terms of the eight intelligences, it may not be realistic to do so (although a teacher should be aware of the fact that a particular intelligence is not being addressed which may later be addressed through additional material)
-an adaptive approach is probably the most convenient way to introduce MI theory into the classroom due to restrictions teachers face in terms of time and the amount of content they must cover (as expressed in survey results)

Part 1 (supplementary approach)

Procedure
1. As teachers enter the room music is played (any type of music may be used to create a particular atmosphere or for the ‘catchiness’ of its melody. The use of music is intended to model a context for musical/rhythmic intelligence. Baroque music may be used to reduce anxiety as in Suggestopadic methods (Richards & Rodgers, 2001, p.104).
2. Teachers are asked to write one sentence describing how the music makes them feel. This type
of personal self-expression may appeal to intrapersonal learners.

3. Teachers try to identify the type of music and the composer or band (if fairly well known). This may appeal to not only those with musical/rhythmic intelligence, but also those with naturalist intelligence who are quite skilled at recognizing certain classifications and categories.

4. Teachers stand up and move to the music (if they feel embarrassed or express reservations about this then they may think of a simple gesture to go with the music or write a private description of the way they would move to the music).

5. Teachers draw a simple abstract shape or line which expresses the feeling which the music evokes. This may appeal to those with proclivity towards visual/spatial intelligence.

6. Teachers stand up and walk around to find two people whose descriptive sentences they copy down. Once having completed this they sit down.

7. Teachers are asked to get into buzz groups to discuss and analyse the types of intelligences which were addressed in the activity. This activity reflects Woodward’s view that “questions can be in what has happened and not in the texts or in words coming from the trainer’s mouth” (Woodward, 1988, p. 55). This type of group work may appeal to interpersonal learners.

8. Teacher-trainer describes the previous activity as a supplementary approach. An informal lecturette is given about the possibilities of using a supplementary approach. The input representing a supplementary material would be based on the context in which the teachers teach. As the high school students where the initial teacher survey was conducted were considered to be generally at the beginning level of English, the type of supplementary material used would take place in the context of addressing the interests of this particular age group, their level of English, as well as how the use of such material conforms to material covered in the current syllabus.

9. Teachers are asked to draw a mind map similar to their first one which involved labelling each box with a particular intelligence (eight branches with a labelled box at the end).

10. Teachers label the branches using some of the ideas used in the opening activity as well as ideas discussed in the informal lecturette to create an activity mind map.

11. Sheets describing activities are cut up and placed in envelopes.

12. The envelopes are distributed and teachers attempt to match activities to the appropriate intelligence.

13. Teachers add these activities to their activity mind map.
Part 2 (adapting lesson material)

Procedure
1. Sample lesson is handed out (actual lesson material used at particular school eg. from the Reading, Writing, or Oral Communication course).
2. Teachers are handed a sheet of paper in groups of four (if numbers of teachers present is uneven then one teacher can be an expert to two groups).
3. Each teacher writes a number from one to four on the top right hand corner of their sheet (so that there is a number 1, 2, 3, and 4 in each group) to set up a ‘jigsaw’ activity. Wallace defines the use of a ‘jigsaw’ activity as “A form of teaching or learning in which different students cover different areas of a topic” (1991, p. 45).
4. The above groups are considered ‘expert’ groups.
5. Each expert group is assigned a particular intelligence i.e. visual/spatial, musical/rhythmic, etc.
6. The groups are to discuss and write down ideas about how the lesson material could be better adapted in terms of their area of expertise (the intelligence they’ve been assigned). This allows teachers to experience the benefits of collaboration which may lead to further such instances in lesson planning in relation to the lack of such collaborative work expressed in the course planning survey.
7. Teacher-trainer serves as a facilitator between groups in terms of discussing problem areas and giving advice.
8. Teacher trainer re-forms groups by asking all ‘ones,’ ‘twos,’ ‘threes,’ and ‘fours’ to sit together.
9. Each member of the newly formed groups shares their ‘expertise’ with the others. This allows members from the ‘expert’ groups to interact with teachers outside the group with which they’ve been previously working.
10. Other members take notes (possibly on the back of the handed out lesson material).
11. The process is repeated until all eight intelligences have been covered using expert groups (this will ultimately depend on the number of teachers present with the activity being adjusted accordingly).

Feedback

A course feedback sheet is provided (Appendix L) in order to gain better insight into the participating teachers views as to how the course went. The feedback sheet contains questions incorporating a Likert scale from 1 to 5 to gauge the trainees’ impressions of the course as well as more open ended questions where further opinions and suggestions may be expressed. The scaled questions serve as
a way in which to gain a sense of the participants’ impressions of the course in terms of their level of satisfaction, while the more open ended questions serve as a way to express views as to the content of the course. Responses may be used in considering future administration of the course as well as in assisting teachers in implementing the course in their classrooms.

Evaluation (as an option)

The course may include teacher evaluation. The course is primarily intended as a way to further teacher development in becoming aware of individual differences presented by Gardner’s theory and ways in which one’s teaching repertoire could be extended to deal with these differences. Teacher development could extend throughout the school year through support mechanisms such as reflective workshops or voluntary teacher observations where any problems in terms of implementation could be addressed and/or ideas could be shared and generated. A trusting, non-judgmental climate would thereby be required; evaluation possibly raising fears of meeting certain expectations and a feeling of disempowerment in that the locus of power would be shifted more towards the trainer. A scheme based on evaluation could therefore be counterproductive in allowing teachers to feel free to express their own needs and ideas. If the course were adapted as part of a programme requiring evaluation, trainees could be asked to create a lesson or to adapt commercially available material in terms of MI theory. Depending on class size and time available the material could also be evaluated in terms of a presentation.

Conclusion

The course outlined provides a way for teachers to become aware of the individual differences in their classroom in that “Teachers need to take account of the ways in which students are predisposed to learn and to recognize the range of different predispositions which may be found in most groups of learners” (Parrott, 1993, p. 1). The course also provides opportunity for greater self awareness in reflecting on one’s own cognitive profile in that teachers “equally need to recognize and take account of their own individual preferences” (Parrott, 1993, p. 1). The practical application of Gardner’s theory of multiple intelligences provides a basis by which these differences may be addressed. It allows students to have the opportunity to use skills which they may be naturally predisposed to as well as develop skills in areas in which they may be weak. The application of Gardner’s theory in terms of methodology also provides a way for teachers to expand and develop their teaching repertoire. The course has been presented in a style consistent with MI theory in terms of the variety of approaches used to present the material, such as the visual/spatial basis of mind maps, collaborative expert groups involving interpersonal intelligence, MI assessment involving
logical/mathematical intelligence, reflecting upon one’s own knowledge involving intrapersonal intelligence, a charades activity involving bodily/kinesthetic intelligence, as well as the experiential activity which involved the use of a number of intelligences. This serves to support the credibility of the course in that “teacher educators should practise what they preach” (Wallace, 1991, p. 18).

Appendix A

Teacher Survey

Teacher’s name: __________________________________________
Please circle your answer or fill it in on the provided blank lines
1. How many years have you been teaching?

____________________________________________________________________

2. What class(es) do you teach?

____________________________________________________________________

3. Have you ever collaborated with another teacher on a lesson?
   yes / no

4. What area of your teaching would you like to improve most?

____________________________________________________________________

5. If you could take a short course in relation to teaching (about one week long) what kind of course would you like to take?

____________________________________________________________________

6. During your teacher training did you ever study about student learning styles?
   yes / no

7. Have you ever heard about or read about Gardner’s theory of multiple intelligences?
   yes / no

8. Do you feel free in teaching your classes?
   yes / no
   If not, why not (what restrictions do you face)?

____________________________________________________________________

9. Do you have time to introduce supplemental material in your classes?
   yes / no
   If so what types of material have you used / do you plan to use?

____________________________________________________________________
Appendix B

Course Outline

1. Introduction (2.5 hours)

2. Assessment (2.5 hours)
Assessment of cognitive profiles in terms of MI theory and the implications of assessment.

3. Methodology Workshop (2.5 hours)
The application of Gardner’s theory to the classroom. Supplementing and adapting lesson material.

Appendix C

What is Intelligence? A Brief Historical Overview (teacher-trainer’s notes)

18th century

-Phrenology
-‘discovered’ by Franz Joseph Gall
-brain is made up of many parts, each with a special faculty
-variations in size and shape of skull as a way to interpret characteristics of individuals
-identified 37 different powers e.g. affective capacities, sentiments such as hope and self-esteem, perceptual capacities including language and music as well as sensitivity to visual properties such as shape and colour -considered as ‘contents’ of an individual

19th century

-John Stuart Mill- Intelligence due to environmental influences
  -general mental ability susceptible to molding by circumstances
-Sir Francis Galton
-major psychological characteristics are inherited as well as innate
-powers of intellect estimated through sensory discrimination such as by
distinguishing among lights, weights, tones
-learned individuals characterized by keen sensory capacities

late 19th early 20th Century

-Alfred Binet -intelligence testing and the concept of IQ
 -used for prediction and placement
 -doubted usefulness of sensory tests
-Spearman- ‘g’ factor- single common factor in intelligence
-William Stern -introduced notion of the ‘intelligence quotient’
 -qualitative differences
-Philip Vernon -similar to Spearman’s ‘g’ factor under which is a verbal,
academic sort of intelligence and the other mechanical
-Robert Sternberg -how one uses intellectual abilities rather than describing them
 -a reflection of three different processes:
  1. skills used to solve a problem
  2. combining elements in new, unusual, and useful ways and how one reacts to new
     situations
  3. ‘street smarts’- getting along with others, managing to adapt

-Piaget- cognitive stages
-Howard Gardner- multiple intelligences theory: “‘multiple’ to stress an unknown number of separate
human capacities, ranging from musical intelligence to the intelligence involved in understanding
oneself; ‘intelligences’ to underscore that these capacities were as fundamental as those historically
captured within the I.Q. test” (Gardner, 1993, xi). His theory is outlined in Frames of Mind (1993).
In Multiple Intelligences: The Theory in Practice (1993) he describes his theory in an educational
setting.

Appendix D

Historical Views of Intelligence
Please take notes using the following headings. You may use a separate sheet of paper if you run out of space.

18th century view

19th century view

late 19th / early 20th century view

20th century view

Appendix E

MI Theory Introduction

1. After listening to the lecturette, fill in the paragraph summarizing Gardner’s theory:
The theory of __________________ was developed by __________________ in his book titled __________________. His theory was based on evidence such as __________________, __________________, and __________________. He has identified __________________ intelligences.

2. Draw a mind map describing Gardner’s theory on a separate sheet of paper.
Appendix F

Teacher-trainer’s notes which may be used to give an overview of MI theory and how Gardner he came up with his theory

Identification of Intelligences

How: Gardner’s identification of each of the eight intelligences is based on evidence drawn from a variety of sources; these being primarily based on his studies of the breakdown of cognitive skills under conditions of brain damage and studies of exceptional people, including prodigies, idiots savants. Gardner also determined each particular intelligence based on their manifestation in culturally valued capacities such as various types of jobs and professions which require a particular skill or ability. Gardner has established eight ‘signs’ in identifying an intelligence:

Eight Signs of an Intelligence

1. POTENTIAL ISOLATION BY BRAIN DAMAGE
Examples of such evidence may be found in areas of the brain which are concerned with linguistic/verbal processing where damage in one area may result in difficulty in producing grammatical speech, yet having no effect upon comprehension; while damage to another may lead to difficulty in comprehension yet allowing for relatively fluent speech. In terms of visual/spatial intelligence, damage to the right posterior region may cause impairment of the ability to find one’s way around a site, to recognize faces or scenes, or to notice fine details. In the area of intrapersonal and interpersonal intelligence the frontal lobes may play a role as damage to this area often results in profound personality changes yet leaves other forms of problem solving relatively unharmed. In his study of brain damage victims Gardner found that individuals who lost abilities in one area could still retain abilities in another, leading him to conclude that there was not one intelligence but several.

2. THE EXISTENCE OF IDIOTS SAVANTS, PRODIGIES, AND OTHER EXCEPTIONAL INDIVIDUALS
Gardner gives examples of prodigious ability in people such as Mozart in the area of musical/rhythmic intelligence, Einstein in the area of logical/mathematical intelligence (1993, pp. 149-151) and Marcel Marceau in the area of bodily/kinesthetic intelligence (1993, p. 206). The example of idiot savants as well as other developmentally challenged or exceptional individuals including
autistics who display unique ability against a background of mediocre or extremely low function ability in other areas also serves as evidence of a particular intelligence.

3. AN IDENTIFIABLE CORE OPERATION OR SET OF OPERATIONS
Central to Gardner’s theory is the ability of a particular intelligence to process certain kinds of information. Examples of such core operations include sensitivity to pitch relations as one core of musical intelligence and the ability to imitate movement as one core of bodily intelligence.

4. A DISTINCTIVE DEVELOPMENTAL HISTORY
Ability in a particular intelligence may go through various levels of development. Both normal as well as gifted individuals may pass through these levels of ability. This ranges from levels through which every novice passes to exceedingly high levels of competence achieved only by individuals with unusual talent and or special forms of training.

5. AN EVOLUTIONARY HISTORY AND EVOLUTIONARY PLAUSIBILITY
The appearance of particular kind of intelligences throughout the evolutionary history of mankind, in comparison to their manifestation in other areas of the animal kingdom such as primate social organization, may prove the plausibility of a specific intelligence to the extent that one can locate its evolutionary antecedents. Gardner advances this evolutionary tract of the intelligences in that linguistic and musical expression and communication may have had common origins such as found in the discovery of musical instruments from the Stone Age which may have been used as a way to organize work groups, hunting parties, and religious rights (1993, p. 115); the increased sophistication of tool use in comparison to other animal species which may require bodily/kinesthetic intelligence, and human social organization requiring interpersonal intelligence.

6. SUPPORT FROM EXPERIMENTAL PSYCHOLOGICAL TASKS
Psychological tasks may be used to determine the relative autonomy of a particular intelligence. Such tasks may involve determining factors that interfere (or fail to interfere) with one another, tasks that transfer (and those that do not) across different contexts, and the identification of forms of memory, attention, or perception that may be particular to one kind of input.

7. PSYCHOMETRIC FINDINGS
Although Gardner questions psychometric tests which base themselves on a unitary view of intelligence and are generally limited to a range of abilities such as verbal/linguistic and logical/mathematical areas, he believes that such testing may prove the relative autonomy of the
intelligences he has identified if they take into consideration different types of skills and abilities using an ‘intelligence fair’ approach.

8. SUSCEPTIBILITY TO ENCODING IN A SYMBOL SYSTEM

Although Gardner states that it may be possible for an intelligence to proceed without an accompanying symbol system, he stresses that a primary characteristic of human intelligence may be its gravitation towards embodiment in a symbol system (1993, p.16). Symbols may also be used to convey thoughts or feelings. Some examples of such symbol systems include language, picturing, and mathematics. Gardner also stresses that the way in which a particular intelligence manifests itself in a symbol system may be a product of culture (1993, p.279). Examples of such cultural manifestations of intelligence include the ability of a young child in Kenya to recognize every head of livestock in his family's herd from its colour, markings, and size and type of its horns (1993, p. 201); a fifteen-year old Iranian youth who can orally recite the entire Koran (1993, p.4).

Appendix G

Howard Gardner's Intelligences Defined

Intelligence match up activity (to be cut up and placed in envelopes before start of session).
Each group of 3 or 4 teachers receives one set.

<table>
<thead>
<tr>
<th>intelligence</th>
<th>definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>linguistic/verbal</td>
<td>The ability to use language in either written or oral form. Poets, writers, orators, lawyers, or anyone with a particular skill in using language demonstrates this intelligence.</td>
</tr>
<tr>
<td>logical/mathematical</td>
<td>The ability to manipulate numbers, quantities, and operations. May also be expressed in the ability to reason well. Mathematicians demonstrate this intelligence.</td>
</tr>
<tr>
<td>visual/spatial</td>
<td>The ability to visualize the spatial world internally. The ability to manipulate visual means of representation in terms of line, form, space, and colour. Those involved in the visual arts, navigation, architecture and certain games such as chess show particular disposition towards this intelligence.</td>
</tr>
<tr>
<td>bodily/kinesthetic</td>
<td>An understanding of the body in terms of physical movement and body language as well as the ability to interpret physical sensations. Those involved in the performing arts and sports demonstrate this intelligence.</td>
</tr>
<tr>
<td>musical/rhythmic</td>
<td>The capacity to think musically. The ability to recognize and manipulate musical elements. Sensitivity to pitch, melody, rhythm and beat involving musical instruments, the human voice, or environmental sounds. Musicians are an obvious example of those having this intelligence.</td>
</tr>
</tbody>
</table>
naturalist | The ability to discriminate among living things (plants, animals) as well as other features of the natural world. Botanists, farmers, and chefs demonstrate naturalist intelligence.
---|---
interpersonal | The ability to understand and empathize with other people. Skilled at working and cooperating with other people. People who deal with other people must demonstrate interpersonal intelligence. Examples of those who require and demonstrate skill in this intelligence are teachers, social workers, counselors, politicians, and salespeople.
---|---
intrapersonal | An ability to understand oneself and one’s innermost feelings. May demonstrate skill in terms of self-discipline and the ability to delay gratification. May prefer and be particular adept at independent work. Examples of those who demonstrate this intelligence include psychotherapists and religious leaders.

Appendix H

*Gardner’s Eight Intelligences Visual/Spatial Activity*

Draw a symbol for each of the eight intelligences beside each set of lines. Write a description of the ‘intelligence’ you have drawn.

1. 

2. 

3. 

4. 

5. 

6. 
Appendix I

Teacher-trainer’s notes which may be used to give an overview of assessment in MI theory

Assessment

Why: To develop better awareness of individual differences in one’s teaching context in terms of MI theory. The importance of assessment in terms of MI theory has wide implications from the view of not only assessing an individual’s cognitive profile, but also in determining areas of cognitive strength and weakness that may need to be addressed in the classroom. Teachers should also be aware of their own cognitive profile as teaching methods may be biased in terms of their own particular strength or weakness. Assessment may serve as a guide in determining appropriate methodology and types of teaching material used in the classroom.

How: Gardner’s view of assessment is in terms of ‘intelligence-fair instruments’, giving examples such as spatial intelligence being assessed by observing an individual navigate around unfamiliar territory; bodily intelligence by seeing how a person learns and remembers a new dance or physical exercise and interpersonal intelligence being assessed by watching an individual handle a dispute with a sales clerk or navigate through a difficult committee meeting. In a school setting where students progress through different levels, year by year, and are taught by different teachers at each stage, records of observations may be kept which could serve as a historical guide to an individual’s particular strength or weakness in an intelligence area. Although such observations may be ‘intelligence-fair’ in comparison to traditional paper and pencil IQ tests, it may not be feasible in many types of teaching situations where such observations may prove time consuming. In face of such restrictions a survey style questionnaire may serve as a convenient instrument by which to raise awareness of the various cognitive profiles in classrooms.
Appendix J

Multiple Intelligences Survey

Name: _______________________

Please rate the following. Write a number from 5 (strongly agree) to 0 (strongly disagree) on the blank (___).

Linguistic/Verbal Intelligence
1. I enjoy reading magazines. ___
2. I enjoy talking. ___
3. I enjoy reading articles on the internet. ___
4. I like writing. ___

   total: ___

Logical/Mathematical Intelligence
1. I can add numbers easily in my head. ___
2. I like to play number games. ___
3. I like to figure out how things work. ___
4. When paying for something I know how much change I will receive. ___

   total: ___

Visual/Spatial Intelligence
1. I like to visit art museums. ___
2. I can draw. ___
3. I like looking at pictures or photographs. ___
4. I have a good sense of direction. ___

   total: ___

Musical/Rhythmic Intelligence
1. I enjoy listening to music. ___
2. I like to visit music stores/CD shops. ___
3. I often hum melodies to myself. ___
4. I can play a musical instrument and/or sing. ___

   total: ___
Bodily/Kinesthetic Intelligence
1. I like to dance. ____
2. I enjoy sports. ____
3. I like to make things/work with my hands. ____
4. I like outdoor activities. ____
   total: ____

Interpersonal Intelligence
1. I enjoy social events. ____
2. People often ask me for advice. ____
3. I enjoy working together with someone. ____
4. I dislike being alone. ____
   total: ____

Intrapersonal Intelligence
1. I like to have private time. ____
2. I work better alone. ____
3. I like to daydream/fantasize. ____
4. I know what I like or dislike. ____
   total: ____

Naturalist Intelligence
1. I am interested in biology. ____
2. I like animals. ____
3. I know the breeds of different types of animals (such as dogs) and/or the names of different types of flowers. ____
4. I like nature. ____
   total: ____

In which intelligence did you score the highest?
__________________________________________________________

In which intelligence did you score the second highest?
__________________________________________________________
Do you agree with the results?

Appendix K

**Methodology**

Methodology match-up activity (to be cut up and placed in envelopes before start of session). Each group of 3 or 4 teachers receives one set.

<table>
<thead>
<tr>
<th>Intelligence</th>
<th>Activities involving this intelligence include reading, writing, speaking, and listening. This may be in the form of stories, poems, recordings of authors, conversation activities, and word games.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>linguistic/verbal</strong></td>
<td>Sequential word/story games e.g. ‘What happens next?’, mysteries, word problem activities, language analysis, planning schedules, giving and receiving change in a variety of situations involving the exchange of money.</td>
</tr>
<tr>
<td><strong>logical/mathematical</strong></td>
<td>The use and creation of maps, charts, illustrations/artwork, films, videos, posters, overheads, models.</td>
</tr>
<tr>
<td><strong>visual/spatial</strong></td>
<td>Tapes, records, CDs of songs, ballads. Musical instruments may be used to accompany stories, poems etc. Students may write and perform their own songs. Students may listen to musical passages and discuss and/or write about feelings and images which are invoked.</td>
</tr>
<tr>
<td><strong>bodily/kinesthetic</strong></td>
<td>The study of various types of living things such as plants and animals. Field trips to parks and/or shopping malls where students identify and categorize things.</td>
</tr>
<tr>
<td><strong>musical/rhythmic</strong></td>
<td>Activities involving students working cooperatively with each other. Lesson material may be adapted in ways which require working with a partner or in small groups such as interviews, jigsaw tasks, and ‘missing information’ sheets. Activities which require the interpretation of another person’s feelings or personal perspective. Drama and role play activities may also be of benefit.</td>
</tr>
<tr>
<td><strong>naturalist</strong></td>
<td>Projects and activities which require students to assume responsibility in terms of planning and independent research. The exploration of one’s own feelings. Fantasy type activities. Show and tell involving presentations of one’s interests and hobbies.</td>
</tr>
</tbody>
</table>
Appendix L

Course Feedback
Please fill out the following information about your experience of the course.

1. How interesting was the course?
   1  2  3  4  5
   not very  very

2. How useful was the methodological material to your lesson planning?
   1  2  3  4  5
   not very  very

3. Please add any comments on how the material could better address your teaching situation.

   ______________________________________________________

   ______________________________________________________

   ______________________________________________________

4. How well do you now understand Gardner’s theory?
   1  2  3  4  5
   not very  very

5. How clearly was the material presented?
   1  2  3  4  5
   not very  very

6. Please add any further comments.

   ______________________________________________________

   ______________________________________________________

   ______________________________________________________
Bibliography


