MULTIPLE INTELLIGENCES FOR YOUNG ADULTS

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ABSTRACT

This study reveals how the concept of multiple intelligences can be integrated for young adults. Activities carried out were aimed at drawing upon the learners' more developed intelligences while working on their weaker ones. The methodology employed was an experimental comparison of scores of the same group of subjects under two different teaching styles; the first being the usual teaching styles that young adults are exposed to as opposed to one with the integration of visual animation and multiple intelligences. This is considered as a longitudinal study that incorporates a sample of 168 participants that is used to evaluate the efficiency of the usual and multiple intelligences teaching styles. The unit of analysis is individual (students) and self-administered questionnaires were considered for collecting data at an empirical level as proposed by Gardner (1993). This paper includes the analyses of average (mean) value of the scores and paired sample testing using the Statistical Package for Social Sciences (SPSS version 22). From the 168 sets of valid questionnaires collected, the findings showed that the use of multiple intelligences for young adults is more efficient as they record higher mean scores as compared to the usual teaching style.

Keywords: Teaching Style, Multiple Intelligences, Visual Animation, Young Adults

ABSTRAK

Kajian ini bertujuan untuk meneliti konsep 'multiple intelligences' yang boleh diintegrasikan kepada belia muda. Aktiviti-aktiviti yang dijalankan bertujuan untuk mengenal pasti 'intelligences' yang sudah dikuasai sambil berusaha dengan 'intelligences' yang masih belum dikuasai. Metodologi yang digunakan ialah experimentasi perbezaan markah kumpulan yang same dengan dua cara pengajaran yang berbeza; satu pengajaran yang biasa yang sering terdedah kepada belia muda dan dengan pengajaran yang berintegrasikan animasi visual dan 'multiple intelligences'. Ini adalah satu kajian jangka masa yang panjang yang juga dikenali sebagai 'longitudinal' yang menggunakan seramai 168 orang responden untuk menilai kecekapan cara pengajaran biasa dengan pengajaran menggunakan 'multiple intelligences'. Unit analysis yang digunakan ialah secara individual (belia muda) dan soal selidik yang diuruskan sendiri untuk mengumpulkan data pada sesi empirikal seperti dicadangkan oleh Gardner (1993). Kajian ini mengandungi analisis nilai min dan nilai ujian 'paired sample' dengan menggunakan perisian Statistical Package for Social Science (SPSS versi 22). Daripada 168 set soal selidik yang dikumpul, kajian menunjukkan penggunaan 'multiple intelligences' kepada belia muda adalah lebih efektif kerana mereka merekodkan nilai min yang lebih tinggi berbanding dengan cara pengajaran secara biasa.

INTRODUCTION

The vital aspect of teaching is to know who the young adults are, and what can they perform. Human learning is a complex occurrence and learning processes among individual learners are never identical. Illeris (2007) defines learning as a multifaceted human effort which consists of three main elements. These include learning outcomes, mental processes and interactive processes between learners and their social environment. Therefore, learning is both a person mental event and an interactive social event leading to learning outcomes. Young adults can be motivated to encounter gratifying learning experiences when lessons are planned to draw on learners' inherent intelligences and carried out in social environments that are favorable.

At Tunku Abdul Rahman University (UTAR), English is taught as an essential subject in the first and second year programmes recommended at the university. The young adults enrolled at the university have varying language backgrounds. These young adults' age range is usually between 19 to 21 years old. A majority of the young adults use Mandarin as their first language as they come from National Type schools where the language of instruction is Mandarin. A small minority of the young adults come from National schools where the medium of instruction is Bahasa Malaysia.

Upon entering university, these young adults find themselves within an environment where English is the medium of instruction where they have to complete their in English. They struggle as their English proficiency is limited. In addition, these young adults are expected to be able to write reports as part of their assignments. The sudden shift in the medium of instruction, coupled with having to write expository essays has posed a tremendous problem to these young adults. The difficulty arises as young adults have a poor grasp of the English language.

LITERATURE REVIEW

Multiple Intelligences

A tenet of Multiple Intelligence (MI) theory is that people learn and utilize knowledge in many different ways. These differences challenge an educational system which assumes that everyone can learn the same materials in the same way. Students who cannot master the competence of the language reveal significant mastery and understanding when the lesson is conducted using Multiple Intelligences. If MI theory is implemented in usual education, it is likely to strengthen student learning and build their self-esteem (Gardner, 1991). The researchers agree that appropriate tasks created to stimulate individual intelligences (MI) in the natural classroom setting will create situations for enjoyable learning. The eight intelligences are

Linguistic, Logical-mathematical, Spatial, Bodily Kinesthetic, Musical, Naturalist, Interpersonal and Intrapersonal (Gardner, 1993). Of these eight, Linguistic and Logical-mathematical intelligences are the most associated with academic accomplishment which is the traditional notion. Opposing to this belief, the scholars opine that all eight intelligences can be used in the English classroom education. A lesson was conducted in an English class which culminated in a report writing activity. In this lesson divergent thinking was encouraged in the various activities, while convergent aspects of linguistics were used for the completion of tasks at hand. To further encourage enjoyment in learning visual animation concepts were used.

Multimedia

According to Mayer & Sims (1994), multimedia learning arises when students utilize information presented in two or more formats i.e. visually presented animation and verbally presented narration in the process of constructing knowledge that is, visual and verbal processing of two different senses of modalities. Wright (1989) and Wallace (1988) are also in agreement that image like diagrams and animation offer learners with invaluable information in helping them to create visual information in their working memory. Mayer & Sims (1994) added that performance that is produced by students at the end of this process illustrates the learner's response to tests of retention and transfer. Consequently the researchers incorporated visual animation elements as one of the vital approaches in this lesson. The lesson was designed with the assistance from a visually presented animation and verbally presented narration on Global Warming entitled 'An Inconvenient Truth'. Besides, the lesson also included music as a part of the multimedia element whereby young adults were asked to listen to the theme song of 'An Inconvenient Truth' by Melissa Etheridge. All these created a gratifying learning environment for the young adults.

Gender

The issue of gender differences in various domains of life has been studied extensively. These comprise learning styles (Honigsfeld & Dunn, 2003), general knowledge (Lynn, Irwing, & Cammock, 2001), attitudes towards mathematics and mathematical achievement (Royster, Hariis, & Schoeps, 1999), and intelligence (Bennet, 1996; Furnham, Clark, & Bailey, 1999; Furnham & Fong, 2000). According to Honigsfeld & Dunn, 2003, preferences for learning styles differ according to the gender type. Their study revealed that males are peer oriented and more kinesthetic whereas females are more self-motivated, persistent and responsible. Loori (2005) is also in the same wave length that there are significant differences between male and female preferences of intelligences. In his research, the differences on intelligences preferences of male and female students learning English as a second language at higher institution in the United States, reports that males prefer learning activities involving logical and mathematical intelligences, on the other hand, females prefer learning activities involving intrapersonal intelligences. However, this study also reveals that there are no gender differences in the participants' preferences for Linguistic, Spatial, Musical, Bodily-Kinesthetic and Interpersonal

Intelligence. This result shows that both male and female English as second Language (ELS) students in the U.S.A. prefer learning activities that involve verbal or written language, graphs and puzzles, musical instruments or products or words that rhyme, movement, acting and dancing and cooperative tasks and presentations. In conjunction with different preferences between males and females, this paper makes an attempt to discover out whether gender plays a role in the use of multiple intelligences and multimedia in the English classroom. This research will look into the scores obtained via usual teaching with the multiple intelligences teaching style to draw a conclusion on the significant differences between male and female with regard to scores obtained based on both teaching style.

Research Questions
In line with the above research problem, several important research questions were outlined. They are as follows;
1. Does knowing young adults' intelligence profile enhance their English language ability?
2. How does the use of visual animation with the incorporation of MI bring about enjoyable learning to learners?
3. Does young adults' writing performance improve when MI is incorporated in their English lesson?
4. Does gender play a role in the use of multiple intelligences and visual animation in the English classroom?

OBJECTIVE OF THE STUDY

This study hopes to investigate how young adults can be empowered to learn English by identifying their intelligence profile. It will further determine whether using visual animation together with the incorporation of Multiple Intelligences (MI) will make learning enjoyable. Thus, it is hoped that the infusion of the multifaceted tasks using MI will enable young adults to write well in their report writing class assignment. Specifically, this study investigates the extent to which the multiple intelligence teaching style has a positive impact on the performance of young adults. Significance of the Study

This study will have an impact on the design of lessons for the English language subject. English language learning is difficult for these young adults as learners have minimal language proficiency and the sudden change in the medium of instruction from Mandarin or Bahasa Malaysia in schools to English at the university poses a problem to them. Faced with these problems, young adults find English language learning boring. Lessons can only be interesting and pleasurable if learners are aware of their intelligence profile and teachers design the English lessons based on young adults' intelligence profile. This study may have significant implications on young adults' learning and lecturers' teaching styles at UTAR.

METHODOLOGY

Since the objective of the study required an empirical work that involved a comparative analysis of the usual and multiple intelligence teaching styles, methods and procedures adopted in the study must first be clarified. This study should be regarded as a longitudinal study (data collection was carried out at two different points of time) that incorporated sample of 168 participants. This study was intended to evaluate the effectiveness of the usual and multiple intelligences teaching styles. All the 168 students were pursuing Business Studies at Tunku Abdul Rahman University. The unit of analysis is individual (young adults) and self-administered questionnaires were considered for gathering data at empirical level. First, adopted multiple intelligences quiz (Piper, 2002 and Gardner, 2001) was used to identify the young adults' multiple intelligences' profile. Second, it was followed by combination of closed-ended and open-ended questions based on Gardner's (1993) multiple intelligences idea. This set of questions also included 1 to 7 point measurement using the Likert scale approach (1-Extremely Agree, 2-Quite Agree, 3- Slightly Agree, 4- Neither, 5- Extremely Disagree, 6-Quite Disagree, 7 Slightly Disagree). Besides, the researchers also have designed a set of question on the frequency of use of each of the intelligences in the lesson. As to meet the requirements, a paired sample test was used to compare mean scores of the usual and MI teaching styles with regard to young adults' performance in report writing.

The 168 participants chosen for the study were required to go through two different assessments at different periods of time. First, they were given the usual teaching exposures and then assessment was carried out accordingly. After obtaining their scores, the same group was given the multiple intelligences exposure followed by another assessment. It should be noted here that the method of assessment was highly structured and standardized for both exposures as to maintain high degree of consistency in this inferential study. The details of the assessment method are as follows;

Method of Assessment

Each of the participants was required to write a report (short/informal report) on a variety of issues. For example, it could be a progress report on work progress on a new product campaign, or even a recommendation or problem solving report on the frequency of accidents at a university, etc. The total marks of 15% were awarded for language (7%), content (6%) and format & organization (2%) respectively. In particular, the report was evaluated based on the following criteria:
- The ability to understand and identify the business or management-related issues
- Originality of analysis and ideas
- The ability to present content in a logical, coherent and well-structured report
- Written language competency

In addition, the guidelines for the report were as follows;
- Length of report: 3-4 pages
- Computer-typed
- 1.5 – space within the paragraph and double-space between paragraphs
- Font size: Times New Roman
- A4 sized paper
- Printed only on one side of the paper
- Stapled at top left hand corner

In view of the objective of the study, more methodical approaches were adopted in offering the multiple intelligences exposures to the 168 participants who already experienced the traditional teaching style. As explained above, the participants were then required to write a report as instructed in the question paper. The whole idea of doing this was to examine the extent to which these multiple exposures would help the participants (young adults) to improve on report writing. Then, their marks (over 15%) were recorded based on the usual teaching style. This was then followed by the marks based on the multiple intelligences teaching style. Finally, two sets of data series were obtained from the same sample of 168 participants. The content of the lesson, (course outline) on multiple intelligences were distributed to the participants. In addition, the participants were also required to answer multiple intelligences quiz. The details are as follows;

Multiple Intelligences
Lesson Plan
Topic: An Inconvenient Truth: Incorporating MI in the ESP Classroom
Objectives:
At the end of the lesson, young adults will be able to:
1) Write a memo report on the problem of global warming in Malaysia, stating the causes and making recommendations to this problem

MATERIALS:
Visual animation presentation on global warming – An Inconvenient Truth and corresponding materials, power point presentation, discussion, theme song of An Inconvenient truth.

Set Induction:
Listening to theme song: Activity with song- Discussion and filling in the blanks and sing along

[MI- verbal linguistic, music, logical and bodily kinaesthetic]
1. Show clip on Global warming and elicit understanding of the clip.
2. Discussion on the clip :
   a) What was the clip about?
   b) How does global warming happen?
   c) Do you think dropping the ice into the sea will solve global warming?

    d)   Why do you think the man yelled at Suzie?
    [MI- verbal linguistic and visual spatial]

3. Name or come out with the best title for this clip in groups– Give reasons (Why)
   [MI- logical, verbal linguistic and interpersonal]

4. Discussion on which of the given titles is best suited for this clip?

5. Ask the participants to close their eyes and imagine some of the consequences of global warming. Question: Tell us what you imagined
   [MI- verbal linguistic, visual spatial and intrapersonal]

6. Group Activity: Discussion on global warming in Malaysian context- How does Malaysia contribute to global warming?
   [MI- verbal linguistic, logical and interpersonal]

7. Come up with a TV advertisement to inform people about the consequences of global warming. Come up with two line rhymes. The students may add music to the jingle to make it interesting. They will present this as a form of a TV advertisement.
   [MI- verbal linguistic, logical, music, bodily kinaesthetic and interpersonal]

8. Draft a memo: 1. Introduction 2. Problem 3. Findings 4. Conclusion 5. Recommendation
   [MI- verbal linguistic, logical and interpersonal]

9. Homework – to write a recommendation report detailing the cause and recommendations to solve the problem of global warming in Malaysia.
   [MI- verbal linguistic, logical and intrapersonal]

10. The lecturer has to evaluate their scores based on their language, content and organisation

Multiple Intelligences Quiz

This quiz will help you identify your most effective learning styles. Read each statement. If it expresses some of your characteristics and sounds true for the most part, jot down a "T". If it doesn't, mark an "F". If the statement is sometimes true, sometimes false, leave it blank. There are 40 statements in total.

1.	I'd rather draw a map than give someone verbal directions.	
2.	If I am angry or happy, I usually know exactly why.	
3.	I can play (or used to play) a musical instrument.	
4.	I can associate music with my moods.	
5.	I can add or multiply quickly in my head.	
6.	I keep or would like to keep pets.	
7.	I can help a friend sort out strong feelings because I have successfully dealt with similar feelings myself.	
8.	I like to work with calculators and computers.	
9.	I pick up new dance steps fast.	
10.	It's easy for me to say what I think in an argument or debate.	
11.	I enjoy a good lecture, speech or sermon.	
12.	I always know north from south no matter where I am.	
13.	I like to gather groups of people for parties or special events.	
14.	Life seems empty without music.	
15	I can recognize and name many different types of trees, flowers and plants.	
16.	I always understand the drawings that come with new gadgets or appliances.	
17.	I like to work on puzzles and play games.	
18.	Learning to ride a bike (or skates) is easy.	
19.	I am irritated when I hear an argument, or statement that sounds illogical.	
20.	I can convince other people to follow my plans.	
21.	I am conscious of tracks, nests, birds or butterflies while on a walk.	
22.	My sense of balance and coordination is good.	
23.	I often see patterns and relationships between numbers faster and more easily than others.	
24.	I enjoy building models (or sculpting).	
25.	I'm good at understanding the fine points of word meanings.	
26.	I can look at an object one way and see it turned sideways or backwards just as easily.	
27.	I often connect a piece of music with some event in my life.	
28.	I like to work with numbers and figures.	
29.	I like to sit quietly and reflect on my inner feelings.	
30.	I have an understanding of, and an interest in global environmental issues.	
31.	I find it pleasurable to look at shapes of buildings and structures.	
32.	I like to hum, whistle and sing in the shower or when I'm alone.	
33.	I'm good at athletics.	
34.	I enjoy writing detailed letters to friends.	
35.	I am a keen gardener.	
36.	I'm usually aware of the expression on my face.	
37.	I'm sensitive to the expressions on other people's faces.	
38.	I stay "in touch" with my moods. I have no trouble identifying them.	
39.	I am sensitive to the moods of others.	
40.	I have a good sense of what others think of me.	

Source: Adopted from Carla Piper[2], 2002 and Howard Gardner, 2001[3],

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    [2] *Piper,C.(2002). Multiple Intelligence Quiz. Retrieved Jan. 13, 2014, from http://www1. chapman.edu/soe/faculty/piper/teachtech/miquiz.htm*

Score Sheet

Circle each item that you marked "True" and tally from the list below. Add your totals. A total of four in any of the categories indicates strong ability.

A	B	C	D	E	F	G	H
Verbal-Linguistic	Logical-Mathematical	Visual-Spatial	Bodily-Kinaesthetic	Musical	Intra-personal	Inter-personal	Naturalistic
10	5	1	9	3	2	13	6
11	8	12	18	4	7	20	15
19	17	16	22	14	29	37	21
25	23	26	24	27	36	39	30
34	28	31	33	32	38	40	35

Source: Carla Piper, 2002 and Harward Gardner, 2001

Questionnaire (MI)

1. Does knowing your intelligences help in your learning?
   Explain why? _____

2. Which of the intelligences did you use the most during the lesson? Please indicate them
   (1-8), accords to frequency of use of each of these intelligences in the lesson.
   1. Verbal- linguistic   _____
   2. Interpersonal   _____
   3. Music   _____
   4. Bodily Kinaesthetic   _____
   5. Visual- spatial   _____
   6. Intrapersonal   _____
   7. Logical Mathematical   _____
   8. Naturalistic   _____

3. What are the differences between the lesson using MI and the normal English classes?
   (You may tick more than one in the given boxes below)
   1. (a) MI lesson was interesting _____
      (b) Normal English lesson was interesting _____
   2. (a) MI lesson had more varied activities _____
      (b) Normal English lesson had more varied activities_____
   3. (a) MI lesson was student-centred (more student participation)
          _____
      (b) Normal English lesson was student-centred (more student participation)
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[3] *Gardner.H.(2001). Multiple Intelligence Quiz. Retrieved Jan. 15, 2014, from http://psychology.about.com/library/quiz/bl-mi-quiz.htm*

4. Do you find learning English pleasurable?
    Yes, Why? _____
    No, Why? _____

5. Does incorporating MI increase your pleasure in learning?
    Yes, Why? _____
    No, Why? _____

    Likert-scaling questions (1-Extremely Agree, 2-Quite Agree, 3- Slightly Agree, 4- Neither, 5- Extremely Disagree, 6-Quite Disagree, 7 Slightly Disagree)

6. Does incorporating MI help you in your learning?

7. Did incorporating MI help you in your memo writing activity?

FINDINGS AND DISCUSSIONS

Young Adults' MI Profile
Howard Gardner (1993,1999a) in his book 'Frames of Mind: The Theory of Multiple Intelligences' posited that human beings have multifaceted intelligences which can be drawn upon to work effectively to solve problems or create products in a cultural setting. Gardner uses eight criteria to recognize these intelligences, which can be activated when exposed to suitable stimuli in the right cultural setting. In addition, Armstrong (1994) states MI serves "…as a template in constructing strategies for student success". As a result, the young adults' profiles were identified through a quiz.

Findings indicated that a majority (104) of the young adults fell under the intelligences profile of Verbal Linguistics, Interpersonal and Musical (VLIM) categories while there were 56 young adults with Logical Mathematical and Intrapersonal (LMI) intelligences. The remaining 8 young adults fell under the Bodily Kinesthetic (BKI – 4) and Visual Spatial intelligences (VSP – 4). According to Gardner (1983) opportunities should be given to students to learn through their own learning profiles so that they may become more successful at learning. Hence, identifying young adults' profile helped the lecturers to explore, design, construct, select appropriate materials and encourage effective team-work skills in conducting the lesson.

Analysis of Questionnaire
The questionnaire enquired into young adults' knowledge of their own profiles and whether knowing it assisted them in their learning. 90 % of the young adults stated that knowing their intelligences helped them to enjoy the lesson, as well as helping them to concentrate on their strengths. Besides, all the participants (100%) indicated that the MI lesson incorporated with visual animation was enjoyable mainly because it had more varied activities catering to their individual intelligences. According

to Mayer, E & Richard B. Anderson (1992), value and effect of multimedia presentations facilitate the language learning environments. This is related to the generative theory of multimedia learning drawn from Paivio's dual coding theory where learners learn to construct referential connections between two forms of mental representation systems, the verbal and the visual representation system.

Report Writing Scores

The main purpose of the study was to identify whether the use of multiple intelligences provided a different outcome in the global understanding of the lesson. This also indicated young adults' performances in terms of scores in determining whether there was a significant difference when multiple intelligences task was used. Thus, a paired samples test was performed and the results are presented in Tables 1, 2 and 3 below.

Table 1 show the means cores of usual lesson and MI using the 168 participants. Standard deviation and standard errors are also given in Table 1. Table 2 shows paired differences on mean scores, Standard deviation and standard errors based on the two teaching styles. Table 3 presents the significance of the results indicating whether MI scores significantly differ from usual scores based on t-statistics.

Table 1: Paired Samples Statistics

Pair 1	Mean	N	Std Deviation	Std. Error Mean
Usual lesson	10.8512	168	1.58356	.12217
MI & Visual Animation	11.7321	168	1.35683	.10468

Table 2: Paired Samples Difference

	Paired Differences				
	Mean	Std. Deviation	Std Error Mean	95% Confidence interval of the Difference	
				Lower	Upper
Pair 1 Usual & MI	-.88095	.86384	.06665	-1.01263	-.74937

Table 3: Paired Samples Test

	t	df	Significance (p-value)
Pair 1 Usual & MI	-13.218	167	.000

It seemed that there was a significant difference in the performance level of young adults when scores were compared for the usual report writing, and a similar task done after multiple intelligences lesson. Mean score obtained for the usual lesson was only 10.85 compared to 11.73 for multiple intelligences task. The mean differences were 0.8809 while the p value was less than significance level 0.05 (confidence level 95 per cent). Obviously, it can be concluded that there was a significant difference in the scores for the report writing tasks. This showed that multiple intelligences task had a significant impact on young adults' performance.

Table 4 below presents the results of the independent t-tests that incorporate the gender effect on the usual and Multiple Intelligences (MI) teaching styles. The earlier sample size of 168 participants was further reviewed due to incomplete information on gender. Thus, only 164 participants comprising of 56 males and 108 females, were taken for this analysis. It seemed that there was no significant difference between males and females with regard to scores obtained via usual teaching (p-value = 0.162). Findings also indicated that the scores registered by males and females on the MI teaching style were statistically indifferent (p-value = 0.239). Thus, males and females did not show any significant difference on the scores based on the MI teaching style. However, an important point that should taken into consideration where, male young adults registered higher scores as compared to female young adults on both usual (11.1339 compared to 10.7685) and MI teaching methods (11.9286 compared to 11.6620).

Gender Effect
Table 4: Independent T-Test Results of the Effect of Gender on Regular and MI Methods

Teaching Methods	Gender	N	Mean	Significance *
Usual Method	Male	56	11.1339	**0.162**
	Female	108	10.7685	
MI Method	Male	56	11.9286	**0.239**
	Female	108	11.6620	

*Significance level 0.05

CONCLUSION AND IMPLICATIONS

The main objective of this research was to incorporate MI and visual animation in the English lesson. One important finding that should be noted from this study is how the use of MI and visual animation made the English language lesson a more enjoyable one. MI played a significant role in facilitating the lecturers to teach an English language lesson in a lively and practical way consequently resulting in better young adults' performance in their report writing. Undoubtedly, this study reiterates the fact that the infusion of MI and visual animation in the teaching process tends

to result in more fruitful results in terms of attaining greater participation of young adults and this in turn offers valuable skills on report writing. Therefore, it can argued that MI method tends improve writing skills of both male and female young adults. However, it should be clearly understood that both males and females do not hold any significant difference on the scores be it on regular or MI methods. In brief, incorporating multiple intelligences and visual animation in the teaching of English for young adults does play an important role.

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