

***A Proposed Integrated Program Based on the Theories of
Multiple Intelligences, Brain-Based Learning on the
Achievement and Motivation of 1st Intermediate Students
with Different Learning styles***

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Abstract

The current study aims at measuring the effectiveness of teaching through a proposed integrated program based on the Theories of Multiple Intelligences, Brain-Based Learning and Learning Styles on the Achievement and the motivation of first intermediate students. The study follows the experimental research that is represented in post control group design. The sample of the study consists of 40 first female intermediate students. Data are collected through Multiple Intelligences Questionnaire of First Intermediate Students in Learning English, Learning Styles Questionnaire of First Intermediate Students in Learning English, Motivation Questionnaire of First Intermediate Students towards English Learning, Evaluation Checklist of English Learning Skills and the achievement Test. Results indicate that there are statistically significant differences at level 0.05 in the effectiveness of teaching through the proposed instructional program on the development of multiple intelligences and learning styles of first intermediate students in learning English. There are also statistically significant differences at level 0.04 in the effectiveness of teaching through the proposed program on the achievement in English of first intermediate students. There are statistically significant differences at level 0.00 in the effectiveness of teaching through the proposed instructional program on the development of English skills of first intermediate students. There are statistically significant differences at level 0.03 in the effectiveness of teaching through the proposed instructional program on the motivation towards learning English of first intermediate students. It is recommended to use the Proposed Instructional program to designing curriculum. It is also recommended that the college students get trained to use this program during their practical training and it is recommended that the teachers and the supervisors get on-the-job training sessions on how to use this program in teaching. The study is concluded with some suggestions for further research.

Introduction and Theoretical Background:

Setting up a successful classroom is one of the most important tasks researchers and educators undertake (Prigge, 2002). Recent researches and theories in cognitive neuroscience (Fischer & Rose, 1996; Tachtcher, 1994; Case, 1993; as pointed in Fischer & Rose, 1998) have produced insight into how the development of the brain relates to the thinking and learning. These insights have important implications for educational practice and policy.

Cognitive neuroscience has also longstanding interest in the field of second and foreign language acquisition. Language learning is a natural phenomenon; it occurs even without intervention. By understanding how the brain naturally processes information, language teachers may be better able to enhance their effectiveness in the classroom (Genesee, 2006). They may also be able to consider the diverse range of students' abilities, learning needs as well as multiplicity of intelligences. These enable them to face the challenges to effectively preparing students for a technological and global society (Green, 1999; Genesee, 2006).

Extensive research over the past decade has shown that students' motivation and performance improve when instruction is adapted to the learning needs of students. In light of such evidence (Miller, 2001), teachers have the responsibility to understand the diversity of their students and to present information in a variety of ways in order to accommodate all learners' needs.

Recently, three educational theories, entitled as brain-based learning, multiple intelligences and learning styles have been put forward in an attempt to interpret students' diversity, and to design educational models around these diversities. These theories combine insight from biology, anthropology, psychology, neurophysiology and medical case studies (Danzi, 2008).

Specifically, brain-based learning is a comprehensive approach to instruction based on current research in neuroscience .Brain-based learning emphasizes how the brain naturally processes information in order to achieve learning, and bases on how we currently know about the actual structure and functions of human brain at a varying development stages. By using the latest neural researches, educational techniques, that are brain-friendly, provide a biological driven framework for creating effective instruction. The theory is "a meta-concept" that includes techniques allowing teachers to connect learning to students' real life and emotional experiences. It also encompasses educational concepts such as: mastery learning, learning styles, multiple intelligences, cooperative learning, experimental learning, problem-based learning, and movement education (Glasser, 2005).

A massive amount of studies (Fitzgerald, 1996; King-Friedrechs, 2001) in recent years shows that students' learning and retention can

be increased significantly through brain-based learning. As teachers gain awareness of the vastness, complexity and potential of human brains, they will grow exiting ideas about conditions and environment that can optimize learning (cain&cain, 2005). Neuroscience research foundation asserts that the brain can change its structure and functions in response to external experiences. Brain capacity to grow connections is maximized when a challenging and nurturing environment is provided (Cau,field et. al, 2006). Engineer et al (2004) also indicate that enriched environment increases brain thickness, the number of neurons, and the number of connections among neurons.

The theory of Multiple Intelligences; developed by Howard Gardner gains tremendous interest among researchers and educators. It brings a pragmatic approach to how intelligence is defined. It allows using students' strength to help them learn. Through multiple intelligences, classrooms become settings in which a variety of skills and abilities can be used to learn and solve problems. Being smart is no longer determined by a score on a test, being smart is determined by how well students learn in a variety of ways (Hoerr, 2006). According to Gardner (2009:33), he conceptualizes the theory of multiple intelligences as a "biopsychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture".

In his theory, Gardner, originally, proposes the existence of seven separate human intelligences. These are stated by Armstrong (2005) as follows:

- 1. Linguistic intelligence; involves the capacity to use words effectively, whether orally or written.*
- 2. Logical-mathematical intelligence; encompasses the capacity to use numbers effectively.*
- 3. Spatial Intelligence; focuses on the ability to perceive the visual-spatial world accurately.*
- 4. Bodily-Kinesthetic Intelligence; expertise in using one's whole body to express ideas and feelings.*
- 5. Musical Intelligence; includes the capacity to perceive, discriminate, transform, and express musical forms.*
- 6. Interpersonal Intelligence; encompasses the ability to perceive, make distinction in the moods and intentions, motivations, and feelings of other people.*
- 7. Intrapersonal Intelligence; involves the ability to self-knowledge and the ability to act adaptively on the basis of the knowledge.*

Lately, Gardner introduces two intelligences as follows:

1. *Naturalist Intelligence*; expertises in the recognition and classification of numerous species of an individual's environment. It is found in those who are highly attuned to the natural world of plants and animals, as well as natural geography and natural objects like rocks, clouds and stars.
2. *Existential/Spiritual Intelligence*; involves the capacity to locate oneself with respect to the existential features of human conditions as the significance of life, the meaning of death, and the ultimate fate of the physical and the psychological world.

The theory of multiple intelligences has evidently been proven to be valid at raising students' motivation for learning (Cialdella, 2002; Herbe, 2002; Cluck, 2003). It also stimulates students to accomplish their assigned tasks, and to participate in the classroom. Significant relationship is indicated as well between the use of multiple intelligences and students' achievement, especially in reading, speaking spelling, and grammar (Bednar, 2002; Hutchinson, 2002; Shah, 2002; Burman, 2003;; Uhler, 2003; Walker, 2005).

The theory of learning styles is determined by the combination of how one perceives and processes information (Kolb, 2006). People do this in a variety of ways. Jensen (2006) proposes that in order to accommodate this variety of learning styles, effective instruction must involve all the senses and must require teachers to immerse students in a variety of instruction. If this is not done, conflict may arise when the instructional style of teachers is different from the learning styles of their students. According to Giesen (2004) knowledge of learning styles could help teachers understand and appreciate individual differences among students. It is suggested that students will learn faster and easier when teachers accommodate instruction to the learning styles.

Oxford (2003:3-7) cites four major style dimensions. Each dimension consists of number of styles as follows:

1. *Sensory preference* that can be broken down into four main areas: Visually, auditory, Kinesthetic and tactile.
2. *Personality Types*, consists of four strands: extroverted vs. introverted; intuitive random vs. sensing sequential; thinking vs. feeling; and closure-oriented, judging vs. open/perceiving.
3. *Desired degree of generality*, involves global students and analytic students.
4. *Biological differences*; encompasses biorhythm students that reveals the time of day when students feel good to perform their best, and sustenance students that refers to the need for food or drink while learning.

Each student processes information in a different way. Identifying learning styles, and teaching to those learning styles can increase academic achievement, and improve attitudes towards learning (Lane, 2006).

Considerably, the three theories have areas of diverging; brain-based learning deals with classroom-relevant concern such as sensory perception, attention, memory, and how emotions affect learning. Learning as a brain function is "a biological process invented for survival. It is the organism responding to its environment. Indeed, learning is the formation of new synapses and dendrite branching." (Madrado&Motz, 2005: P.56). Multiple intelligences, on the other hand, center on the content and products of learning. They also influence curriculum development and classroom methodology, and they are medium to understand how cultures and disciplines shape human potential (Snyder, 1999). Learning styles, on the other hand, concern with the differences in the process of learning. They emphasize the different ways people think and feel as they solve problems, create products and interact (Hunte, 2006).

Although the theories of multiple intelligences, brain based learning, and learning styles have discrete theoretical constructs, research bases and applications, they share similar outcomes in practical classrooms environment. Guild (1997) indicates that students who believe in the concepts of learning styles, brain based learning, and multiple intelligences bring an approach and attitude to their teaching on how students learn and the unique qualities of each student. Each of these theories offers comprehensive approach to learning and teaching. Each can be a catalyst for positive students' learning. Each enthuses teachers to examine values about people, learning and education to make decisions that put beliefs into practice. Silver et al (2006) also negotiate that there are some commonalities among the three theories. They overlap in many aspects. Among these aspects is that each theory is learning and learner-centered, and each promotes diversity. Specifically, the theories of multiple intelligences and learning styles can be integrated at their focal points. In this sense, Silver et al (2000, 41) state that "Multiple intelligences theory is centered around the content of learning and the relationship between learning and eight fields of knowledge and disciplines of study. However, multiple intelligences pay little attention to how people perceive and process information. The converse is true for learning styles. Learning styles revolve around the individualized process of learning, but do not directly address the content of that learning. Clearly multiple intelligences and learning styles need one another.

Without Multiple intelligences, learning styles cannot fully account for the content of learning. Without learning styles, multiple intelligences is unable to account for different processes of thought and feeling. Each theory responds directly to the limitation of the other". Sprenger (2005) describes the process that is used to connect the three theories. This process includes three steps:

- 1. Using multiple intelligences theory as a starting point, we divide each intelligence four ways according to each learning style. This means that for an intelligence four separate ways are described.*
- 2. Identify and differentiate the teaching strategies and learning activities that suit each learning style within each intelligence.*
- 3. Prepare the learning environment that aims to enrich learners' brain through principles such as comfort, challenge, depth and motivation.*

In accordance, Since many EFL students are not learning successfully in our schools, integrating the theories of multiple intelligences, brain-base learning, and learning styles into an instructional program would offer more students the opportunity to succeed by focusing attention to how they learn

Statement of the Problem:

First Intermediate Female Students in Jeddah demonstrate deficiencies in acquiring skills of English as a foreign language. Due to these deficiencies, students exhibit low achievement, and therefore difficulties in retaining information and communicating in English. There are various reasons that may cause these deficiencies including teaching style that is dominant in the classrooms. Students are taught English directly from textbooks as the only instructional resource. Teachers rely on traditional instructional methods.

In order to evidence the problem, a pilot study is conducted in purpose of evaluating students' achievement. The study is designed in a form of a test that consists of six questions, covering the English skills. Reliability of the test is computed. The test is reliable. It scores (.84) according Cronbach's Alpha. Validity of the test is considered through submitting it to ten English supervisors. The panels of jury suggest some comments that have been taken into consideration. The test is administered to thirty three EFL intermediate students. Results of the test are statistically analyzed by using frequencies, percentages and means of the gathered data as indicated in the table below:

Table (1) Statistical Analysis for the Achievement in the Four English Skills

NO	TYPE OF QUESTIONS	LEVEL OF ACHIEVEMENT								MEAN	RANK
		HIGH		MODERATE		ACCEPTABLE		LOW			
		Freq	%	Freq	%	Freq	%	Freq	%		
1	Reading	1	3	1	3	6	18.2	25	75.8	1.2	4
2	Writing	1	3	0	0	2	6.1	30	90.9	0.5	6
3	Listening	33	100	0	0	0	0	0	0	4.7	1
4	Speaking	1	3	0	0	2	6.1	30	90.9	0.5	5
5	Grammar	3	9.1	2	6.1	6	18.2	22	66.7	1.7	3
6	Vocabulary	4	12.1	9	27.3	7	21.2	13	39.4	2.5	2
7	Total	1	3.1	1	3.1	9	27.3	22	66.7	11.0	

The table above indicates that listening skill is the most frequently used (n,4.7) in comparison to writing and speaking skills (n, 0.5) that are equally the least frequently used. Vocabulary is used in a moderate level of frequency (n, 2.5) while Grammar (n, 1.7) and reading skills (n,1.2) have both got low level of frequency use. In general, the total score of the test (n, 11.6) illustrates that student are low achievers in English. To sum up, The data analysis asserts the existence of the problem that must be addressed.

Questions of the Study:

The current study tends to answer the following questions:

- 1. What is the effectiveness of teaching through the integrated program based on the theories of Multiple Intelligences and brain-based learning on the Achievement of 1st intermediate students with different learning styles?*
- 2. What is the effectiveness of teaching through the integrated program based on the theories of Multiple Intelligences and brain-based learning on the motivation of first intermediate students with different learning styles?*

Purpose of the Study:

The current study aims at:

- 1. Measuring the effectiveness of teaching through the integrated program based on the theories of Multiple Intelligences and brain-based learning on the Achievement in English of first intermediate students with different learning styles.*
- 2. Measuring the effectiveness of teaching through the integrated program based on the theories of Multiple Intelligences and brain-based learning on the motivation of first intermediate students with different learning styles.*

Significance of the Study:

*Foreign language learning has longstanding relationship with the way the brain works (Deveci, 2002). It is also proposed that multiple intelligences theory as well as learning styles theory contribute to language learning (Denig, 2004). **Accordingly, this study is significant for the following reasons:***

- 1. To the best knowledge of the researcher, this study is the only study that tempts to integrate the theories of multiple intelligences, brain-based learning and learning styles as a goal to increase achievement and motivation in learning English as a foreign language in Saudi Arabia.*
- 2. It presents some pedagogical implications that give EFL teachers an insight into effective teaching and evaluating methods in order to teach effectively in a way to improve students' achievement.*
- 3. The results of the study are beneficial for teachers and supervisors to develop teaching/learning strategies based on the theories of multiple intelligences, brain-based learning and learning styles in a way that suits students' needs and ability.*
- 4. Teachers outside the field of language learning would benefit from the proposed program to improve their teaching strategies.*

Subject of the Study:

Population of the Study:

The populations of the current study are EFL first intermediate female students at the public schools in Jeddah.

Sample of the study:

EFL first intermediate female students in the 89th Intermediate School in north Jeddah represent the sample of the study. The school is selected intentionally because the school's administrators as well as the teachers offer remarkable readiness to cooperate with the researcher. Classes' selection is arranged by the vice principal of the school. Class (2) is selected as control group while class (3) is selected as experimental group.

Research Design:

The current study follows the experimental research. It bases on assessing the impact of the independent variable (the proposed instructional program) on the dependent one (students' achievement and motivation). The other extraneous variables, such as the teacher, the teaching time and the instructional environment, are controlled. In addition, the researcher implements group equivalence. Accordingly, posttest equivalent control group design (refer to Al-Qahtani, 2006) is

Table (3) Group Equivalence According to Students' Age Group

Age	Experimental group	Control group
12	3	3
13	10	10
14	7	7

The data in table 3 reveals that there are three students in the experimental group and three students in the control group that are within age group 12. It is also indicated that there are ten students in the experimental group and 10 students in the control group that are within age group 13. Also, there are 7 students in the experimental group and seven students in the control group that are within age group 14. Totally, there are 20 students in the experimental group and 20 students in the control group

Designing the Instructional Program:

The integrated Instructional program is an EFL model that is designed by the researcher to teach EFL intermediate students via the integration of the theories of multiple intelligences, brain-based learning and learning styles. Integration in this model is an approach to instruction and assessment designed to help teachers fuse the three theories in a meaningful practical way. According to Quetami et al (2006), designing an instructional program involves five sequenced stages. These stages are analysis, designing, developing, implementing and evaluation. These stages are applied in the current model as follows:

Analysis (Planning) stage:

This stage consists of three important steps. They are as follows:

Identifying Students' Characteristics:

In the current study, the subjects who are participating in this program consist of 38 female first intermediate students. They are ranged from ages 12-13. According to the results of the pilot study, the subjects demonstrate deficiencies in acquiring skills of English as a foreign language. Due to these deficiencies, students exhibit low achievement, and therefore difficulties in retaining information and communicating in English.

2-Identifying learners' Needs:

Many teachers tend to explore ways to encourage active learning and discourage students' passivity (Silver et al, 2006). Traditionally, EFL classrooms in our schools concentrate on the communicative trend along with verbal/linguistic intelligence. This gravitation towards specific style and intelligence makes it difficult for students with multiple styles and intelligences to relate to what they learn and therefore makes it difficult for teachers to manage diversity. So, it is required to create a classroom environment that allows students to

Table (4) Matrix of Identification of the objectives according to the integration of multiple intelligences and Bloom's taxonomy (Unit 14/1)

M I	Unit Fourteen /One					
	BLOOM'S TAXONOMY					
	Knowledge	COMPREHENSION	APPLICATION	ANALYSIS	SYNTHESIS	EVALUATION
V	Recognize names of food items	Discuss why some food are liked while others are disliked				
L			Classify countable and uncountable nouns	Categorize food items according to the use of a/an		
S					Compose a shopping list	
M						
B						
P					Formulate a decision about food preference	Mention some recommendations about good eating habits
I						
N						

Table (5) Identification of the objectives according to the integration of multiple intelligences and Bloom's

MI	Unit Fourteen / Two					
	BLOOM'S TAXONOMY					
	Knowledge	COMPREHENSION	APPLICATION	ANALYSIS	SYNTHESIS	EVALUATION
V	Recognize places where food can be bought from	Discuss ideas related to the reading passage	Develop food items related to shops they are sold at			
L		Differentiate between the uses of some and any				
S					Create a list of balanced diet	Summarize the learned information in a concept map
M						
B						
P						
I						
N						

Table (6) Identification of the objectives according to the integration of multiple intelligences and Bloom's

MI	Unit Fourteen / Three					
	BLOOM'S TAXONOMY					
	Knowledge	COMPREHENSION	APPLICATION	ANALYSIS	SYNTHESIS	EVALUATION
V	Describe different eating habits				Write a paragraph about eating habits Synthesize phrases about some food items	
L			Form sentences with frequency adverbs			Decide the good and bad eating habits
S						
M						
B			Practice ordering from a menu			
P						
I						
N						

Table (7) Identification of the objectives according to the integration of multiple intelligences and Bloom's

MI	Unit Fifteen / One					
	BLOOM'S TAXONOMY					
	Knowledge	COMPREHENSION	APPLICATION	ANALYSIS	SYNTHESIS	EVALUATION
V	Identify names of countries and their capital cities	Distinguish between countries and cities				
L				Distinguish between questions	Compose where-questions	
S			Apply information heard to the assigned chart	Outline countries to their locations, languages, capital cities and nicknames		
M						
B						
P						
I						
N						

Table (8) Identification of the objectives according to the integration of multiple intelligences and Bloom's taxonomy

MI	Unit Fifteen Lesson Two					
	BLOOM'S TAXONOMY					
	Knowledge	COMPREHENSION	APPLICATION	ANALYSIS	SYNTHESIS	EVALUATION
V	Label adjectives related to the weather	Interpret signs related to the seasons			Summarize the story in the reading passage	
L			Form questions about the weather			
S						Summarize the learned information through a concept map
M						
B						
P						
I						
N						

Table(9) Identification of the Objectives According to Integration of multiple intelligences and Bloom's taxonomy into Instructional Objectives

MI	Unit Fifteen Lesson Three					
	BLOOM'S TAXONOMY					
	Knowledge	COMPREHENSION	APPLICATION	ANALYSIS	SYNTHESIS	EVALUATION
V	Recite the Gregorian months					
L		Differentiate between the ordinal numbers and the serial numbers				
S			Relate the weather conditions to the Gregorian months	Fill in a chart with listened information about the weather in different countries		
M						
B						
P						
I					Write a paragraph about personal information	
N						

The outcomes that are expected to be achieved at the end of unit fourteen and fifteen are as follow:

Table (10) Outcomes of Unit fourteen

No	Outcomes
	At the end of unit fourteen students will be able to
1	Name some countries and their capital cities.
2	Ask and answer questions about language and nationalities
3	Understand the weather forecast.
4	Ask and answer questions related to the weather conditions.
5	Ask and answer where-questions.
6	Recognize the months of the Gregorian year.
7	Relate months of the year to the four seasons.
8	Name the four directions.
9	Answer questions through listening
10	Write a short paragraph.
11	Name some countries and their capital cities.

Table (11) Outcomes of Unit fifteen

No	Outcomes
	At the end of unit fourteen students will be able to
1	Name different kinds of food.
2	Classify food items into the correct categories (vegetables, fruits, meat)
3	Classify beverages to the correct categories (hot / cold beverages).
4	Discuss food liked and disliked.
5	Realize places where some food items are bought from.
6	Differentiate between countable and uncountable nouns.
7	Form questions and answers with some and any.
8	Use frequency adverbs in contexts.
9	Describe some good eating habits.
10	Order from a menu.
11	Answer questions through listening.
12	Write a short paragraph

2-Listing the assessment tasks, processing activities, and instructional episodes that students will engage in throughout the units; this is demonstrated in the table below:

Table (12) Assessment Tasks, Processing Activities and instructional Episodes of Units 14-15

Assessment Tasks	Processing Activities	Instructional Episodes
- Construct a healthy diet list with moderate number of calories - Synthesize a play about healthy diet - Form a debate between junk and healthy food - Compose a song - Participate in a game where they act out the roles of a healthy person and an unhealthy person - Form a diet list for kindergarten	- Match images of food and drink items to their names - Identify food and drink items that have similar names in Arabic - Classify food and drink items into the suitable categories - Lost-in-the jungle game - Cross-word game - Word grid game - Complete a word web by brainstorming the ingredients of a recipe	New American lecture: information are presented by using visual organizer, deep processing and style questions to maximize memory. This strategy reinforces verbal, logical and spatial intelligence Instructional game: Information are presented through instructional games which primarily reinforce interpersonal intelligence. Other intelligences and styles are reinforced according to the type of the game Drawing and Artwork: This strategy reinforces both spatial intelligence as well as bodily kinesthetic style
Assessment Tasks	Processing Activities	Instructional episodes
- Your father wants to spend the holiday outside the country. He did not choose a country yet. Present some information about one of the countries listed below: - Britain- America- Egypt- China- Italy- Turkey- France- Japan - Create a personal picture dictionary	- Play a jigsaw game - about food pyramid - Word cards - Fill in eating habit questionnaire - Complete a concept map about assigned countries - Act roles through which some countries are represented - Guessing game to identify countries - Wheel of fortune game - Fill in a chart to compare between assigned countries	Proceduralizing, A strategy used to teach the steps in a skill by breaking it down into step actions and then visualizing and practicing the skill until it becomes automatic. This strategy reinforces visual, spatial and bodily/ kinesthetic intelligences. It also reinforces kinesthetic and visual styles Do you hear what I hear: Students listen to a text twice, to get the gist of the reading and to record notes students meet in groups to discuss the text. This strategy reinforces verbal, spatial, interpersonal and intrapersonal intelligences. It also reinforces auditory and read / write learning styles Role playing: Students act out roles to reflect a thought about an issue. This strategy
- Daily quizzes - Self-test at the end of each unit	- Fill in chart about information in a map - Scrambled letters game to identify names of the months - Word-puzzle game to identify names of the months and weather conditions - Compose a song about Gregorian months - Prepare for the English magazine	reinforces verbal, interpersonal, intrapersonal and spatial intelligences. It also reinforces kinesthetic style I teach you teach: The class is broken into threes. One student is assigned as a teacher for each group. The student teachers meet with the leader teacher, who introduces the new learning. The student teacher returns to the groups and provide them with the information. Freshkids are given tasks to assess the mastery of learning. This strategy reinforces verbal, logical, Spatial, interpersonal and intrapersonal intelligences. It also reinforces abstract reflective as well as active experimental learning styles Visuals: Information are visualized to facilitate their acquisition. This strategy reinforce spatial intelligence and visual learning style Graphic organizer and semantic mappings: This strategy reinforces logical and spatial intelligences. It also reinforces visual and kinesthetic styles. It is visual representations that benefits both left and right hemispheres of the brain Brain storming: This strategy reinforces verbal intelligence and auditory learning style Story telling: It reinforces verbal intelligence and auditory learning styles and abstract conceptualization Cooperative learning: It reinforces verbal, interpersonal intelligences. It also reinforces auditory learning styles Reciprocal learning: It reinforces verbal, interpersonal and intrapersonal intelligences. It also reinforces auditory styles Extrapolation: Students extracts the structure from one content and apply e to another

3-Using the Learning Styles, Multiple Intelligences and Brain based Matrix to analyze students learning styles and multiple intelligences, and to adapt the styles, the intelligences and brain-based principles to the processing activities, the instructional episodes and the assessment tasks. Some of the activities, the instructional episodes and the assessment tasks can be placed in more than one box. This can be seen in the matrix below:

Table (13) Multiple Intelligences, Learning Styles Matrix of Unit Fourteen

		Visual	Auditory	Read / Write	Kinesthetic
V	Teaching Strategies	New American Lecture . Proceduralizing	Do you hear what I hear. Brain Storming	Brain storming	
	Assessment	Identify food items that have similar names in Arabic. Synthesize a play about the importance of different types of fruit and vegetables		Form a debate about junk food and healthy food Write a paragraph about dinner meal	Synthesize a play about the importance of different types of fruit and vegetables
	Activities	Cross-word	A student reads the new vocabulary at the screen. The rest reiterate them.		
L	Teaching Strategies		I teach you teach Extrapolation Story telling		
	Assessment	Construct a healthy diet list with moderate number of calories Form a health diet list for kindergarten kids. Form an eating habit list with frequency adverbs			
	Activities	Word grid	Ask and answer questions about some / any		
	Teaching Strategies	Visuals Graphic organizer and semantic mapping Word web		Information search	Drawing and Artwork
	Assessment	Classifying food items to the correct category Form a shopping list Construct a concept map about information that students know as a way to present new information.	Fill in a shopping list through listening	Fill in a chart with information about food they like and dislike.	Creating a picture dictionary
	Activities	Lost-in-the-jungle game. Matching food vocabulary to their pictures. Food-card game		forming sentences from the chart	Do a jigsaw game which aims at arranging jigsaw part of food pyramid

M	Teaching Strategies				
	Assessment	Create a song about good eating habits			
	Activities				
B	Teaching Strategies				Role playing
	Assessment				
	Activities				Acting a scene about food preference
P	Teaching Strategies		I teach you teach		Instructional games
	Assessment				
	Activities			Practice reading the conversations in pair	
	Teaching Strategies		I teach you teach		
	Assessment	Construct a healthy diet list with moderate number of calories			
	Activities				

Z	Teaching strategies				
	Assessment			Write five sentences about how to conserve the green environment	
	Activities		Arrange the steps of taking care of the plants after the listening session		Plant seeds of grains or vegetables. Students are responsible for the plants they grow.

Table (14) Multiple Intelligences, Learning Styles Matrix (Unit Fifteen)

		Visual	Auditory	Read / Write	Kinesthetic
V	Teaching Strategies	Direct instruction Proceduralizing	Direct instruction Brain storming		
	Assessment	Your father wants to spend the holiday outside the country. He did not choose a country yet. Ask some information about one of the countries listed: Britain- America- Egypt- China- Italy- Turkey- France- Japan Ask and answer questions about the weather condition			Match the weather conditions to the seasons corresponding to them
	Activities				
	Teaching Strategies	Compare and contrast		Extract the main ideas of each paragraph in the reading passage	
	Assessment	Sort ordinal numbers in ascending and descending manners Arrange the Gregorian months according to the ordinal numbers		Form a graph that indicates temperature in Jeddah during different seasons	
	Activities		Sequenced-number game		

S	Teaching Strategies	Visuals Story telling	Instructional Game		Instructional Games
	Assessment	Form a diagram about animal residence, and form questions and answers about the homeland of these animals Fill in a chart with information about three multinational people	Fill in a chart with information of the homeland of two people chatting Fill in a chart about the weather conditions of specified seasons	Form a diagram about animal residence They form questions and answers about the homeland of these animals Write a paragraph about an imagery trip	Form a brochure about a specific city Complete concept maps with information about countries
	Activities	Give brief description of the countries that are displayed on the map Categorize the weather conditions to the Gregorian months Scrambled-letters game Word-puzzle game Scan maps of the specific countries and identify the location of the cities on the map	Guessing game		Wheel of fortune game
M	Teaching Strategies				
	Assessment			Compose a song about the seasons and the weather conditions Compose a song about the Gregorian months	
	Activities				
					Role Playing
	Assessment				
	Activities				Act roles to represent countries
P	Teaching Strategies		Cooperative learning Peer assistance	Reciprocal strategy	
	Assessment				

I	Activities				
	Teaching Strategies				
	Assessment			Write a paragraph about personal information	
	Activities				
II	Teaching Strategies				
	Assessment	Fill in a chart with information about fruit and vegetables that some countries are famous at			
	Activities				

Table (15) the Integration of Brain-Based Learning, Multiple Intelligences and Learning Styles

	Assessment tasks	Processing activities	Instructional Episodes
The brain is parallel processor	Learning and teaching should be approached in a variety of ways Challenging the brain is the key point		
Learning engages the entire physiology	Stress management, nutrition, exercise and relaxation must be incorporated in the learning process		
The brain is a social brain	Synthesize a play about the importance of fruit and vegetables Form a debate between junk and healthy food	Practicing the conversations in pair a jigsaw game	Cooperative learning I teach you teach Instructional games Reciprocal learning Role playing Do you hear what I hear
The search of meaning is innate	Instructional objectives are presented in a written form They are discussed at the beginning of each lesson Students are informed of the importance of learning the topic assigned The brain wants to know that learning has purpose and value		
The search of meaning occurs though patterning	Summarize each lesson through a concept map	Complete a concept map about assigned countries Complete a word web by brainstorming the ingredients of a recipe	Graphic organizer, semantic maps and word web

		Form a diagram about animal residence Form a graph that indicates temperature in Jeddah during different seasons Form a brochure about a specific city	
Emotions are critical to patterning	Teachers should understand students' feeling and attitudes In EFL classrooms, a warm, supportive, encouraging educational climate is conducive to successful learning outcomes		
The brain processes parts and wholes	Construct a healthy diet list with moderate number of calories. Plant seeds of different grains or vegetables They are responsible for the plants they grow They form five sentences about how to conserve the green environment Your father wants to spend the holiday outside the country He did not choose a country yet Present some information about one of the countries listed below: Britain- America- Egypt- China- Italy- Turkey- France- Japan Form a healthy diet list for kindergarten It includes the three meals	Fill in eating habit questionnaire Talk about personal preference of food and drink Student draw a food pyramid They distribute their meals according to the food groups They decide if their diet is health or not Practice ordering from a menu Write about their eating habits	Real story telling Proceduralizing Cooperative learning I teach you teach Reciprocal learning
	Assessment tasks	Processing activities	Instructional Episodes
Learning involves both focused attention and peripheral perception	As the brain processes direct information, it also pays attention to fringe thoughts Teachers organize materials that will be outside the focus of the students' attention In addition to noise and temperature, peripheral includes visuals such as posters and illustrations Teachers should arrange the classroom environment in a way that supports the direct information The classroom environment is changeable in accordance to the topic presented The inner state of the teacher has its own impact on the student learning Generally every aspect of students' life including the design and administration of the school, community, family and technology affects students' learning		
Learning involves conscious and unconscious processes	A great deal of the effort put into teaching and studying is wasted because students do not adequately process their experiences Active processing allows students to review what and how they learn so that they begin to take charge of learning and the development of personal meaning This principle refers to reflection metacognitive activities So, students become aware of their learning styles		
We have two ways to organize memory: spatial memory and a set for rote learning	Each individual possesses two memory systems: taxon / local memory and spatial / autobiographical memory Teachers can attend to both types of memory by infusing learning styles and multiple intelligences into classroom practices		
Each brain is unique	Teaching should be multifaceted to allow students to express visual, auditory, kinesthetic / tactile or emotional learning styles Activities should also be varied to attract individual interests		
Learning is developmental	While the brain is hard-wired by genetic and environmental aspects, it is developed and enhanced by environmental enrichment Teachers must apply multiple teaching strategies , activities and assessments that achieve environmental enrichment		

4. Reviewing the program: The current design and its supplementary are evaluated by panels of jury to indicate the validity.

Designing Stage:

This stage aims at preparing the instructional materials and identifying the instructional techniques through which the designed program is conveyed. It involves the following steps:

1- Identifying the Instructional Objective of the program:

The current program is twofold objectives. They are as follows:

- 1. It aims at raising the achievement of 1st intermediate students in English.***
- 2. It aims at increasing the motivation of 1st intermediate students in English.***

This stage also entails the identification of the specific objectives of the selected content. They are as follows:

Table (16) Instructional Objectives of Unit Fourteen

Unit Fourteen Students will be able to			
Lesson One	Lesson Two	Lesson Three	Lesson Four
Recognize names of food items	Recognize places where food can be bought from	Describe different eating habits	Differentiate between the long / I / and the short / I /
Discuss why some food are liked while others are disliked	Discuss ideas related to the reading passage	Write a paragraph about eating habits	Generate words with long / I / and short / I /
Classify countable and uncountable nouns	Develop food items related to shops they are sold at	Synthesize phrases about some food items	Review the grammatical rules presented through out the unit
Categorize food items according to the use of a/an	Differentiate between the uses of some and any	Form sentences with frequency adverbs	Practice reading for specified information
Compose a shopping list	Create a list of balanced diet	Decide if they are using good or bad eating habits	
Formulate a conversation about food preference	Summarize the learned information in a concept map	Practice ordering from a menu	
Mention some recommendations about good eating habits			

Table (17) Instructional Objectives of Unit Fifteen

Unit Fifteen Students will be able to			
Lesson One	Lesson Two	Lesson Three	Lesson Four
Identify names of some countries and their capital cities	Label adjectives related to the weather	Recite the Gregorian months	Define words with long / Ō /
Distinguish between countries and cities	Interpret signs related to the seasons	Differentiate between the ordinal numbers and the serial numbers	Generate vocabulary with long / Ō /
Apply information heard to the assigned chart	Summarize the data involved in the reading passage	Relate the weather conditions to the Gregorian months	Review functions and skills about the weather
Distinguish the uses of where-questions	Form questions about the weather	Fill in a chart with auditory information about the weather in different countries	Practice the self-test
Compose where-questions	Summarize the learned information through a concept map	Write a paragraph about personal information	
Outline countries to their locations, languages, capital cities and nationalities			

2-Designing the Instructional Materials:

the instructional materials of the current program cover the six English skills and sub-skills of units fourteen and fifteen from the first intermediate course "Say it in English". The principles of the theories of multiple intelligences, brain-based learning and learning styles are integrated into these designed instructional materials. They are as follows:

- Teacher's Guide, that contains detailed suggestions on how to teach units fourteen and fifteen according to the Integrated Instructional Program.*
- Student's Guide, that contains varied tasks in a form of exercises. It is divided into two sections. Classwork exercises and homework exercises. The goal of this division is to provide enrichment to the content and differentiation in the activities and the skills included and to give the students plenty of practice in applying the new skills independently.*
- CD Rom for the Listening Activities, in addition to the audiotape accompanied with the course of "Say it in English", students are provided by an audio tape that is designed by the researcher to present the auditory materials.*

- CD Rom for the Lessons' Presentation, where the presentations of units fourteen and fifteen are saved. The presentations are designed through the power point program. Words and sentences included in the presentations are recorded by Nero-Start Smarter Program from Golden Al-Wafi Translator. Each student is provided with a CD Rom that consists the presentations of the two units. Students can review the presentations visually and auditory whenever they need. This helps the students to recall the teaching points that are performed in the classroom.

Identifying the Instructional Techniques:

Designing the current integrated model of multiple intelligences, brain-based learning and learning styles bases on differentiation of the instructional strategies and assessment methods as a primary rule. The current model utilizes various instructional strategies that correlate with the way the brain processes information. Applying these brain-compatible instructional strategies and assessments ease the construction of the required activities. These strategies are demonstrated as follows: New American Lecture - Instructional Games- Drawing and Artwork Proceduralization- Do you Hear What I hear- Role Playing- I Teach You Teach- Visuals- Concept Attainment- Graphic Organizer and Semantic Mapping- Brainstorming- Extrapolation- Information Search- Direct Teaching- Story Telling- Cooperative Learning

Identifying the assessment methods:

The kinds of changes in the instructional practices require an equivalent adjustment in the assessment methods to evaluate students' progress. It is unfair to ask students to participate in a multi spectrum experiences and then require them to show what they have learned through standardized tests that focus on verbal or logical domains. The current program suggests a system of assessment that relies far less on formal standardized tests and much more on authentic assessment. These methods are stated below: Portfolio- Checklist to assess EFL skills- Daily Quizzes- Self-Test Projects

Development and Production Stage:

In this stage the instructional materials are produced and converted into a written form. This stage also entails examining the instructional material by assessing them through the panel of jury. All suggestions are taken into consideration.

Implementation Stage:

This stage indicates the executive implementation of the current program through the use of the instructional materials. It goes through the following steps as follows:

Pre-teaching Step:

This step is processed through the following procedures:

- Identifying students' readiness and abilities through diagnostic surveys. This is achieved through the application of the multiple intelligences questionnaire, the learning styles questionnaire and the motivation questionnaire. Students are distributed in cooperative groups according to their learning styles, multiple intelligences and motivation. The questionnaires also identify the most and the least developed intelligences and styles. This guides to create activities that function as a tool to meet students' needs and develop their styles and intelligences.
- Introducing the Integrated Instructional program to the students through direct explanation. The principles and objectives of the model are visually presented. Each student gets a booklet that includes all the information related to the model.
- The use of the instructional contract which aims at identifying the responsibilities of the students and the teacher.
- Educating Students and parents about the importance of healthy and balanced diet as well as drinking water, good sleeping and exercising and their positive relations to learning, retention and achievement. In this sense, the researcher arranges for a consultation with Dr. Saddah Ishqui, the consultant and the director of the nutritional department at King Faisal Specialist Hospital. He supplies the researcher with the required information.
- Using positive visual reminders of students' potential and achievement; such as posters, holding positive messages oriented to the students.

2- During Teaching:

The practical implementation of the model lasts for four weeks. It covers the presentations of units fourteen and fifteen. Each lesson is given in two periods while the whole unit takes place within two weeks. According to the teaching plan, English subject is taught in four periods per week. Exceptionally, the experimental group is given extra period to assess their works. Presentations of the lessons and the activities included are all linked with students' previous knowledge and experiences. The presentation of each lesson lasts for fifteen minutes. The rest of the period is devoted to the classwork activities that can be achieved either individually or in groups. This enhances the learner-centered approach which is a main principle for the current model.

Evaluation Stage:

Evaluation is the most important stage in designing the current model. It is a continuous process that goes through two main phases:

Summative Evaluation:

which goes on throughout the implementation period. It is achieved through the following procedures: Assessing students' motivation, intelligences and learning styles through multiple intelligences questionnaires, learning styles questionnaires and motivation questionnaire. This helps the researcher to build up activities that meet students' need. Assessing students works including activities and projects. Daily quizzes that takes place at the beginning of the period. The daily quizzes diagnoses directly any weaknesses in students' learning. They also demonstrate how the students are learning and progressing. Self-tests at the end of each unit. This technique demonstrate students progression at the end of the unit. Students are ultimately responsible for correcting their answers and detecting the mistakes. This trains the students to become more self-control and more self-dependent.

2- Formative Evaluation:

which is achieved through the following procedures: Reassessing students' motivation, intelligences and learning styles by using the same motivation, multiple intelligences and learning styles questionnaires. Responses of pre / post applications of the questionnaires are compared to detect the development in students' motivation intelligences and learning styles. Applying the achievement test at the end of the implementation period. The test results of the experimental group are compared with the test results of controlled group.

Feedback Stage

This stage is quite important. It improves students' performance and raises their motivation. It supplies the students with quantitative and qualitative information that are related to their learning. In the current model, an extra period is given for this task. Students' work, quizzes and tests are followed up and corrected as a way of feedback.

Instruments of the Study:

For the purpose of the current study, the following instruments are utilized.

- The Multiple Intelligences Questionnaire of First Intermediate Students in Learning English.
- Learning Styles Questionnaire of First Intermediate Students in Learning English.
- Motivation Questionnaire of First Intermediate Students towards English Learning. The Evaluation Checklist of English Language Skills Evaluation Checklist. This instrument consists of three sections. The first section involves the instruction page. It illustrates how to use the checklist. The second section encompasses the criteria that are considered during the evaluation. The third section shows the evaluation checklist. Students are evaluated

twice. The grades of the initial and the final evaluations are summed. The summing results are divided by two. This checklist aims at assessing the progression of the English skills and sub-skills.

The Achievement Test.

The Instruments' Reliability:

Cronbach's Alpha is used to estimate the reliability of the three questionnaires. The overall internal consistency of The Multiple Intelligences Questionnaire is reliable (0.81). Within each section of the questionnaire, Cronbach's Alpha indicates moderate reliability.

The overall internal consistency of learning Styles Questionnaire is found to be reliable (0.83) too. Within each item of the questionnaire, Cronbach's Alpha demonstrates high reliability except for the second statement which shows moderate reliability (0.171).

The overall internal consistency of Motivation Questionnaire is moderately reliable (0.79). Within each item of the questionnaire, Cronbach's Alpha demonstrates high reliability except for the fourth statement which shows moderate reliability (0.138).

Also, Cronbach's Alpha indicates that the overall internal consistency of the achievement test is (0.86). The value demonstrate that the test is relatively reliable.

Cronbach's Alpha also reveals that the English Skills Evaluation checklist is highly reliable in both the preliminary (0.96) and the final evaluation (0.72).

Instruments' Validity:

In order to estimate the instruments' validity, content validity and factor validity are utilized. Achieving the content validity, the instruments are submitted to fourteen professors and instructors to examine the accuracy and suitability of the items included. The panels of jury are also asked to find the relation of the items to the objectives of the study. They suggest some comments that have been taken into consideration.

Statistically, the Person Correlation coefficient is used to achieve factor validity. It is found that the correlation coefficients of the Multiple Intelligences Questionnaire are all significant at the levels of 0.01 and 0.05. Therefore, the questionnaire is valid except for Statements 1, 2, 4, 8, 12, 13, 14 from the verbal/ linguistic intelligence section, statements 19, 20, 25 from the logical intelligence section, statements 31, 32 from the spatial intelligence section, statements 33, 36 from the kinesthetic intelligence, statements 43, 47, 49 from the

musical intelligence section and statements 59, 60 from the intrapersonal intelligence section. These statements are excluded from the questionnaire to enhance its validity.

It is also found that Person correlation of the Learning Styles Questionnaire is significant at the level (0.01) and (0.05). This demonstrates that the questionnaire is statistically valid.

Person correlation of the Motivation Questionnaire is also significant at the levels (0.01, 0.05). This asserts the validity of the questionnaire except for statements 7, 8, 14, 15, 24 and 25. Accordingly, these statements are excluded in order to enhance validity.

Person correlation of the preliminary evaluation of English Language Skills Evaluation Checklist is also found significantly valid at level (0.01).

Also, Person correlation of the final evaluation of English Language Skills Evaluation Checklist is found significantly valid at level (0.01).

Data Analysis:

Data analyses are carried out by using the Statistical Package for the Social Science (SPSS) as follows:

- Cronbach's Alpha to compute the reliability of the instruments.
- Person Correlation Coefficient to compute the validity of the instruments.
- Frequencies, means and standard deviation to compute the uses of the multiple intelligences and learning styles and to compute the degree of the motivation towards learning English.
- One way analysis of variance (ANOVA) to compute the differences of the learning styles and age group, the multiple intelligences and the age group, the motivation and the age group and the scores of the achievement test ANOVA is utilized to compute the differences in the uses of multiple intelligences and learning styles pre/post administration.
- Scheffe to compute the differences in the statistical significance.
- T-test to assess the difference in the English learning skill before and after the application of the proposed program.

To verify the null hypotheses, the following statistical methods are considered:

- Frequencies, means and standard deviation to compute the uses of the multiple intelligences and learning styles and to compute the degree of the motivation towards learning English.
- One way analysis of variance (ANOVA) to compute the differences in the multiple intelligences, the learning styles, the motivation and the achievement of the sample of the study pre/post the administration of the program.

- The Scheffe Measure to compute the differences in the statistical significance.
- T-test to assess the difference in the English learning skill pre/post the administration of the proposed program.

Results of the Study:

Findings of the descriptive statistical analyses demonstrate the followings:

- It is found that naturalist intelligence is the most used intelligence by 12-year-old intermediate students. However, musical intelligence is found to be the least used.
- It is detected that interpersonal intelligence is the most used intelligence by 13-year-old and 14-year-old intermediate student. On the other hand, both groups use intrapersonal intelligence the least.
- Interpersonal intelligence is the most used intelligence by the whole subject of the study while intrapersonal is the least used.
- Visual learning style is the most used type of VARK learning style by 12-year-old and 14-year-old intermediate students. Read/write learning style is the least used style.
- Kinesthetic learning style is the most used type of VARK learning style by 13-year-old intermediate students. However, read/write is the least used.
- The whole subject use visual learning style the most. Yet, the use read/write learning style the least used learning style.
- Abstract conceptualization is the most used type of Kolb learning style by both 12-year-old and 13-year-old intermediate students. Active experimentation is the least used.
- 14-year-old intermediate student use reflective observation the most. They use concrete experience the least.
- The whole subject of the study use abstract conceptualization the most. The use concrete experiences the least.
- 12-year-old intermediate students have more intrinsic motivation towards the needs for achievement than intrinsic motivation towards mastery orientation. They also have more extrinsic motivation towards fear of failure than extrinsic motivation towards authority expectation. Extrinsic motivation towards peer acceptance is the least experienced. Generally, 12-year-old intermediate students have more extrinsic motivation the intrinsic motivation towards English learning.
- 13-year-old intermediate students have more intrinsic motivation towards the needs for achievement than intrinsic motivation towards mastery orientation. They also have more extrinsic motivation towards authority expectation than extrinsic motivation towards peer acceptance. Extrinsic motivation towards fear of failure is the least experienced. Generally, 13-

- year-old intermediate students have more intrinsic motivation than extrinsic motivation towards English learning.
- 14-year-old intermediate students have more intrinsic motivation towards the needs for achievement than intrinsic motivation towards mastery orientation. They also have more extrinsic motivation towards authority expectation than extrinsic motivation towards fear cf failure. Extrinsic motivation towards peer acceptance is the least experienced. Generally, 14-year-old intermediate students have more intrinsic motivation than extrinsic motivation towards English learning.
 - The whole subject cf the study has more intrinsic motivation towards the needs for achievement than intrinsic motivation towards mastery orientation. They also have more extrinsic motivation towards authority expectation than extrinsic motivation towards peer acceptance. Extrinsic motivation towards fear cf failure is the least experienced. Generally, the whole subject cf the study has more intrinsic motivation than extrinsic motivation towards English learning.

Findings cf the reasoning statistical analyses prove the followings:

- There are statistically significance differences in the use cf logical/mathematical and intrapersonal intelligences only before the application cf the program. However, there are no statistically significant differences in the use cf the other multiple intelligences.
- There are statistically significant differences in the use cf visual, auditory and active experiment learning styles before the application cf the program. Yet, there are no statistically significant differences in the use cf the other learning styles.
- There are no statistically significant differences in the existence cf both extrinsic and intrinsic motivation before the application cf the program.
- There are statistically significant differences at level 0.05 in the effectiveness cf teaching through the integrated model based on the theories cf multiple intelligences, brain-based learning and learning styles on the development cf multiple intelligences in learning English cf first intermediate students.
- There are statistically significant differences at level 0.05 in the effectiveness cf teaching through the integrated program based on the theories cf multiple intelligences, brain-based learning and learning styles on the development cf learning styles in English by first intermediate students.
- There are statistically significant differences at level 0.04 in the effectiveness cf teaching through the integrated program based on the theories cf multiple intelligences, brain-based learning and learning styles on the achievement in English cf first intermediate students.

- *There are statistically significant differences at level 0.00 in the effectiveness of teaching through the integrated program based on the theories of multiple intelligences, brain-based learning and learning styles on the development of English skills of first intermediate students.*
- *There are statistically significant differences at level 0.03 in the effectiveness of teaching through the integrated program based on the theories of multiple intelligences, brain-based learning and learning styles on the intrinsic and extrinsic motivation towards learning English of first intermediate students.*

Conclusions

The main findings of the current study lead to the following conclusions:

- *Teaching through the Integrated Instructional program of Multiple Intelligences, Brain-based Learning and Learning Styles helps to develop the multiple intelligences in learning English of first intermediate students with different learning styles.*
- *Teaching through the Integrated Instructional program of Multiple Intelligences, Brain-based Learning and Learning Styles helps to develop the learning styles in English of first intermediate students.*
- *Teaching through the Integrated Instructional program of Multiple Intelligences, Brain-based Learning and Learning Styles helps to raise the achievement in English of first intermediate students with different learning styles.*
- *Teaching through the Integrated Instructional program of Multiple Intelligences, Brain-based Learning and Learning Styles helps to develop the English skills of first intermediate students with different learning styles.*
- *Teaching through the Integrated Instructional program of Multiple Intelligences, Brain-based Learning and Learning Styles helps to develop the motivation towards English of first intermediate students with different learning styles.*

Recommendations:

The findings and the conclusions generate the following recommendations:

- *It is recommended that the Integrated Instructional program of Multiple Intelligences, Brain-Based Learning and Learning Styles is used as a model for designing curriculum.*
- *It is recommended that the college students get trained to use this integrated instructional program during their practical training.*
- *It is recommended that the teachers and the supervisors get on-the-job training sessions on how to use this model in teaching.*
- *It is recommended that the teachers build up authentic instructional situations and authentic assessment. It is found that*

authentic instructional situations as well as authentic assessment can support the function of the brain and they enhance learning.

- *It is recommended that the teachers get educated with the effect of rich environment on the development of the brain and therefore on learning.*
- *It is recommended that teachers purposefully integrate movement activities such as role play, daily stretching and seat changing into everyday learning.*
- *It is recommended that the ministry of education takes in consideration the application of physical education curriculum in the girls' schools.*
- *It is recommended that the school management monitor the type of food that is served in the school canteen. Food rich with vitamins and minerals fosters that function of the brain and it enhances learning in return.*
- *It is recommended that the teachers with help of the social worker educate the parents with the effect of nutrition, exercise, relaxation and stress management on the function of the brain.*

Suggestions for further Research:

The following topics are suggested for further research:

- *Further research studies could replicate the program with larger sample from the same educational stage.*
- *Further research studies may be considered to generalize the integrated instructional program on other educational stages.*
- *Further research studies may be performed to assess the effectiveness of the program on the proficiency in learning English.*
- *Further research studies can be done to assess the effectiveness of the integrated instructional program on the development of the thinking skills.*
- *It is worthwhile to conduct longitudinal studies to investigate the validity of the program on the three grade of the intermediate stage.*
- *It is also worthwhile to conduct comparative studies in order to compare the effectiveness of the program on different educational stages.*

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