

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of previous studies carried out in the areas related to this research in accordance with the scope and objectives of the study. The chapter commences with a detailed review of Tajweed rules and its implication to learning or teaching Qur'anic recitation. The next section reviews the various types of instructional design models, multimedia instructional design and its application in educational technology especially in teaching Qur'anic recitation with the Tajweed are discussed in detail. The learning theories are then reviewed with specific interest in self-centric learning and why it was chosen as the learning methodology for this study. A comparison of existing multimedia instructional design frameworks are then discussed to highlight the gaps identified in this review.

2.2 Tajweed Rules (Elm Al-Tajweed)

The Tajweed are the rules of reading al-Qur'an together with the proper pronunciation of the Qur'anic letters. It portrays an Arabic word meaning proper pronunciation during recitation, as well as exercise at a moderate speed. It is the many rules that govern how the Al-Qur'an should be read (Bashir et al., 2003). It is considered as an art as all recipients perform the same recitation of the Qur'anic verse in the same way (Tabbal et al., 2006). The "art of Tajweed" has well-defined rules on how the Al-

Qur'an should be recited. Therefore, the appropriate way to recite the Al-Qur'an is by observing the art of the Tajweed (Bashir et al., 2003). Learning the Tajweed requires a two-way communication between the learner and the teacher (Marina et al., 2011). It involves understanding the articulation points of Qur'anic letters (AL-Makharij). The articulation point provides a platform from where a letter is sound out, making it sound different from other letters. Each Qur'anic letter has different juncture points. A letter is only a sound that relies on a specific articulation point (Elhassan, 2015). Five major areas of the human physical structure are used to pronounce different letters and there are 17 different articulation points required to pronounce the 28 original letters and the Madd letter (Horii, 2002). Figure 2 below shows the five main categories of AL-Makharij.

FIGURE 2: Five-General Makharij (Horii, 2002)



Table 1 presents the five major categories of AL-Makharij based on their articulation areas, Arabic names, articulation points, and letter.

TABLE 1: Five-General Makharij

Articulation Areas	Arabic Names	Articulation points	Articulation Letter
The Throat	الحلق	3	6
The Tongue	اللسان	10	18
The Two Lips	الشفتان	2	4
The Nose	الخيثوم	1	The Ghunna Letters
Empty Space in the Mouth and Throat	الجوف	1	3 Lengthened Letters

Source, (Horii, 2002)

The knowledge of the Tajweed is contingent on four issues: cognition of juncture points of the missives, knowledge of the features of the missives, knowledge of what rules change in the letters due to the order of letters, and exercising the tongue to duplicate the voice. In order to observe all the rules of the Tajweed when reciting the Holy Qur'an; many steps must be followed to recite the Al-Qur'an fluently and correctly. These steps start from alphabets with vowels to all the rules of the Tajweed. There are basically two types of mistakes made during Qur'an recitation:

- i. Al-Lahn Al-Khafi: It is called a hidden mistake, because only scholars or those who have studied the Recitation with Tajweed can recognize the mistake, not the common folk. An example would be not elongating a letter with the recommended counts. Although it does not alter the substance of the Qur'an, it mars the beauty of the class period. It therefore falls under the category of Makrooh.
- ii. Al-Lahn Al-Jali: This is an apparent and a major mistake. It changes the form of the word. It happens when one letter is replaced with another letter, or by adding or omitting letters, or replacing the Harakaatt. An example would be to read (an'amta) as (an'amt). Such a mistake is considered serious as it changes the meaning of the verse.

2.2.1 Recitation Rules

There are many rules of recitation stopping and non-stopping, which the reciter should be follow with the rule of Harrakatt (NA, 1420).

- i. **Compulsory:** The Compulsory Stop which that word and meaning have a complete sense, and this called (meem).
- ii. **Sufficient:** The Sufficient Stop that is one in which continuing or stopping (Qili).
- iii. **Equality:** The Equality Stop that is one in which continuing and stopping are equally relevant; its symbol is (geem).
- iv. **Good:** The Good Stop that is one in which continuing and stopping are allowable; and yet continuing is desirable. It is called a (sili).
- v. **Precautionary:** The Precautionary Stop. It is also called the (convergence stops). That reference to convergence of two near conditions where it is possible to make a stop. In such case, a stop is made at one of these two conditions only.
- vi. **Prohibited:** The Prohibited Stop that stop made at an incomplete utterance, which does not give the essential meaning, because it is strongly connected with what follows in terms of words and meaning. It is called (Laam- Alif).
- vii. **Moderate Pause:** The Moderate pause is the breaking of the voice at a Qur'anic word for a brief moment without taking a breath at two counts [nearly two seconds] its symbol is (seen).

TABLE 2: Examples of Recitation Rules

Compulsory	Sufficient	Equality	Good	Precautionary	Prohibited	Moderate Pause
مَثَلًا	وَالسَّلْ	وَالْ	بِالْقِسْطِ	لَا رَيْبَ فِيهِ	أَيْمَنِهِمْ	عَوَا

Literally, incorrect pronunciation in Qur'anic recitations is usually referred to as (Lahn). In the Tajweed science, Lahn is defined as the failure to adhere to the rules of Tajweed while reciting the Qur'an (Muhammad, 2012). In the next section, we shall look at the Arabic alphabets in the context of *Ahkam Atelawah for Rewayat Hafas*, since the *Rewayat* read in *Malaysia*.

2.2.2 The Arabic Alphabets with Four Vowels

Various languages comprise of alphabets. Each alphabet is a sound coming out of a specific part of our oral cavity. These alphabets combine with each other to form a word. Different words are arranged in a specific sequence to create sentences, which is used to form speeches. Thus, the subject of languages begins with the first rudiments, i.e., each letter and its sound (Aamin, 2012). For the purpose of this review, attention shall be drawn to the Arabic vowels. It is an interesting fact that in respect some special characters are used as vowels. They are referred to as 'Harakaat'. Arabic contains four vowels called Fathah, Kasrah, Dhammah and Jazm. These vowels are used with other characters. When a vowel is employed with an alphabetic character, it is averred that the letter is carrying that vowel. For instance, the letter Meem has a Fathah; we say that Ma is carrying a Fathah. Below shows examples of categorization for some the Arabic alphabets. See appendix A. For all the Alphabets with four vowels.

TABLE 3: Alphabets with four Vowels

With Jazm (الجزم) (السكون)	With Dhammah الضمة	With Kasrah الكسرة	With Fathah الفتحة	Letter الحرف
ب ab	ب bu	ب be	ب ba	ب
ت at	ت tu	ت te	ت ta	ت
ث ath	ث thu	ث the	ث tha	ث

Oftentimes, the sound of the initial four vowels becomes long such that it cannot be extended longer. It is like using "oo "as in (Fool). This is addressed using special characters. Another example is that of Long Fathah which sounds like "AA "as in "Baan". It is composed as an Alif (ا) after the letter carrying a short Fathah e.g. It is announced by a small vertical bar carrying letter as in (ب) over it, but when Arabic is translated to English; it is denoted by "AA (Gutub et al., 2010). Arabs have developed special characters for these long vowels. Like short vowels, long vowels also are too carried by first principles. These vowels are called long face, long care and long stem (Hamdan, 2011). Other major challenges faced when Qur'an is not properly recited in accordance with the Tajweed rules can be exemplified in the rules of Pronouncing Al-Qalqalah as shown in the Table 4 below.

TABLE 4: Pronouncing Al-Qalqalah

Strongest Qalqalah	Strong Qalqalah	Weak Qalqalah
Walhaj وَآلْحَجَّ	Ahad أَحَدٌ	Sadraka صَدْرَكَ
Alhako آلْحَكُو	Alsamad الصَّمَدُ	Atamahom أَطْعَمَهُمْ
Wtp وَتَبَّ	Hasad حَسَدٌ	Alabtar الْآبَتَرُ

Note: if a reader gives up on a word ending with Noon or Meem Mushadda, the Gunnah for the Meem or Noon Mushadad will be applied.

The pronouncing of Qalqalah refers to the vibration of sound at the end of pronouncing a letter. It can be sounded out as a state between a speaking letter with Sukoon sign on it and Mutaharrik letter with Movement. There are five alphabets for the Al Qalqalah, that's called (Kotap Jd), and three rules of Qalqala, usually collected in three words (kas Daget kdh) and as listed below:

1. Strongest: when the reciter stopping Waqf when the Mushaddad alphabet of Qalqalah.
2. Strong: when the reciter stopping Waqf at Sakin alphabet of Qalqala.
3. Weak: when the Sakin alphabet of Qalqala comes in the middle of a word.

2.2.3 Tajweed Rules and its Implication to Teaching Qur'anic Recitations

A number of researchers have addressed various challenges dealing with the divergence between the written speech and recitation of the Arabic words in the Holy Qur'an. The Qur'anic Arabic alphabets consist of 28 letters, known as the Hijaiyah letters (*alif to ya*) (Ahmad et al., 2004; Razak et al., 2008; Vergyri & Kirchhoff, 2004). These letters include 25 letters, which represent consonants and 3 letters for vowels (me, a, u) and the corresponding semivowels (y, w), if applicable (as discussed in the earlier section). A letter can deliver two to three different shapes: isolated, beginning of a (*sub*) word, middle of a (*sub*) word, and at the end of a (*sub*) word.

Note: AL Qalqalah is pronounced only when the alphabet is Saakin (either the letter has the Sukoon sign or is assigned a sukoon because of stopping).

In addition, other phonemes of pronunciation in Qur'anic recitation were reported by diacritics, such as consonant repetition (known in Arabic as phonemic). The "Shadda" and the "Tanween" signs, words ending with adverbial markers, which add /n/ to the pronunciation. Those signs represent the main differences in pronunciation (Maamouri et al., 2006). Therefore, the setup of the grammatical functions are vital for having an

acceptable understanding of the text and correct reading or analysis. Razak et al. (2008) studied the differences in the teaching of Qur'anic sentences in different voices. They acknowledged that Qur'anic sounds probably differ a lot from one person to another depending on the way it is recited. They also agreed that the same combination of letters in the Qur'an maybe pronounced in various ways depending on the use of "Harakatt" during recitation. They made a comparison among various works on Arabic verse recitation recognition in the Qur'an to justify the problems faced by teachers while teaching the Qur'anic Tarannum to students. In a related study, Maamouri et al. (2006) applied quantitative methods by involving 100 teachers from two Islamic school. During the learning process, a questionnaire w administrated to teachers for data collection. They found that teachers had moderate difficulties in teaching the Qur'anic Tarannum. The result also showed that the level of administrative and management problems were high in teaching the Qur'anic Tarannum. In a study carried out by Haron et al. (2010) it was found that Malay students were weak and slow to correctly learn both the written and spoken Arabic despite spending long hours learning this language. Based on their findings, they concluded that using a certain learning strategy may help to enhance Malay learners' speaking skills. This assumption is based on several theories in language learning strategies which postulate that learners' success in language learning or lack of it, is attributable to the various strategies which different learners bring to tasks and does not solely depend on the environment per say.

Marina et al. (2011) proposed a speech enabled Computer Aided Pronunciation Learning (CAPL) system. The system developed for teaching Arabic pronunciation to non-native speakers. The application challenges of HAFSS lies much on teaching the

correct reading of the holy Qur'an. The survey used a state of the art speech recognizer to detect faults in user recitation. To increase accuracy of the speech recognizer, only probable pronunciation variants that encompass common recitation errors were examined by the speech decoder. Maimun et al. (2011) investigated teachers' problems in teaching Qur'anic Tarannum. The study advocated for more effective methods to be used for the teaching of Qur'anic Tarannum to improve its effectiveness. Although several studies have attempted in different ways to address this issue of observing properly the Tajweed rules in Qur'anic recitation, problems still persist especially in areas related to the prevailing methods of teaching in terms of steadiness and lack of clarity (Ibrahim et al., 2012). Based on a summary of the findings of the literature review presented in this section, it can be argued that addressing these problems require the exercise of innovative methods in teaching and new techniques that modify the function of the teacher from a knowledge manager to a knowledge facilitator in learning. This, according to (Haron et al., 2010) will help the student avoid common errors in Qur'anic recitation and transform the student's role from being a custodian of knowledge to becoming a researcher, discoverer and applier of knowledge.

2.3 Multimedia in the Classrooms

According to Rozaimie et al. (2011) multimedia courseware an effective tool to impart knowledge in education and enhance both learners and teachers ability to recall and memorize information easily because it is multiple functions. It helps students recall and memorize lessons easily as well as makes learning complex topics interesting to learners by making use of its multimedia elements to offer visual and audio presentations of the learning content. It also enables teachers to teach complex

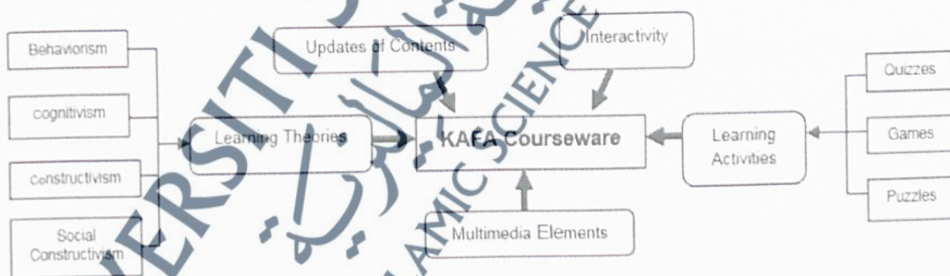
topics easily and sequentially such that no prescribed lesson is left out. The most of the teachers employ multimedia for teaching students found those students' communication, performance and ability to solve problems significantly improved when multimedia is used in learning (Acha, 2009). They also assert that students' creative and thinking skills tend to develop more when multimedia is used to teach them. The use of multimedia in education also helps the students navigate through a learning content easily, thereby boosting learning motivation. Furthermore, Al-Seghayer (2001) the combined use of simulation, pictures, animations, video, audio, graphics and texts in multimedia technology makes learning more effective, interesting and focused. Yanqing et al. (2004) argued that multimedia presentations make it easy for people with learning disabilities and children to understand complex concepts. He further noted that learner's self-confidence increased when multimedia is used in education. Leidner and Jarvenpaa (1995) noted that multimedia aids in the easy transformation of tacit knowledge to explicit knowledge particularly for primary school pupils by making the learning content more interesting and informative. By presenting learning content in images, texts, video/audio form, it gives learners the extra ability to process and interpret the acquired knowledge in meaningful ways (Mayer, 2002). This also encourages student-teacher interaction by creating a dynamic learning environment (Ashvini (2011); Muslim (2011)) noted that the use of multimedia in education promotes both independent and collaborative learning by enabling students to access, analyze, share, transfer and present knowledge acquired through different means from several sources.

2.4 The Significance of Multimedia in Teaching Tajweed

Multimedia courseware has been utilized widely in Malaysian schools since the launch of Smart Schools by the government in 1997 (Hanan et al., 2008). Various multimedia applications have been designed to expose the students to the various uses of technology in education such as besides the use of multimedia-based technology to improve classroom teaching and learning, as well as to facilitate adaptive and personalized methods of learning.

Wan et al. (2010) proposed the use of multimedia courseware as shown in Figure 3 to enhance the teaching and learning processes of the KAFAs subjects, which are Akidah, Ibadah, Sirah, Akhlak and Jawi. The KAFAs was organized by the Malaysian Department of Islamic Development (JAKIM) to educate students between the ages of 6 to 12 years old, and to ensure that children are empowered to recite the Al-Qur'an correctly.

FIGURE 3: Conceptual Model of KAFAs Courseware



Marina et al. (2011) Proposed a multimedia application called Tajweed Learning Application (TALA). To encourage active learners' participation in learning the Tajweed. The application integrates the various multimedia elements to create a learning environment that encourages learner to actively participate in the learning process. However, the application focused only on the introduction of Izhar Halqi of

the Tajweed. A different study was also done to create a multimedia web tutor for teaching vocabulary used in the Holy Qur'an by applying audio, and text to give the meaning of the words and their pronunciation. This web application used an instructional design model called the ADDIE model (Vaughan, 2014).

Salim (2012) Proposed a conceptual model called Arabic Language Learning (ALL) for Kids to learn the Arabic language of Qur'an. He argued for children to be introduced to the Arabic language at their early ages such as in the kindergarten. With the advent of computer technology, various kind of multimedia tools have been developed for language learning. Since children are attracted to computer applications especially those that involve multimedia, there is a need to develop Arabic language learning applications for them.

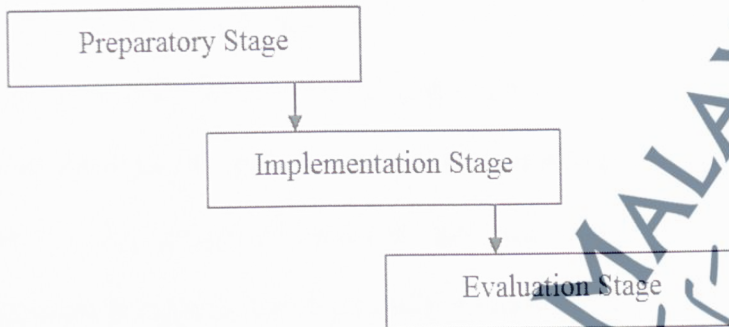
2.5 Instructional Design

In the process of helping students to learn better, Hymel (1993) argues that instructional design stipulates a particular environmental condition that assists in changing how learners' behave with the intention of learning better. He suggests that a good instructional design has three phases considered important:

1. Preparatory stage: The instructor in this phase has to decide the topics' purposes, objectives, fundamentals and organization.
2. Implementation stage: The instructor needs to select a feasible technique to deliver the preparatory stage for example media selection, activities and execution of objectives.
3. Evaluation stage: The instructor in this stage has to analytically assess the final product founded on the fundamentals. This stage is a diagnostic

procedure to ensure that everything is in place. See Figure 4 for a good instructional design based on Hymel's three characteristics.

FIGURE 4: Hymel's Three Characteristics of Instructional Design



2.6 Multimedia Learning Model

Instructional design are process of learning that explains lessons, course, learning and support activities in the unit of learning (Koper, 2006). This section reviews the models related and relevant to this study namely: Gagne's model, Ares model, Mayer's model and Assure model.

2.6.1 Gagne's Model

This learning specifies that learners have various ways to learn in achieving the best learning approaches; different types of instructions are needed. Richey (2000) observed instructional design as a two folded occurrence: it is either *macro-design* providing complete instructional design direction or *micro-design* providing strategies to create lesson plan and procedure in implementing those plans. Gagne's influences are connected to the later phase. According to Gagne, it is vital for an instructor to offer sufficient instruction to the learner for effective learning.

Gagne's theory is not complicated and can be implemented by teachers in the classroom, as hierarchical learning is its base (Tyler, 1995). Gagne's theory offers instructors a beneficial theoretical basis to approach instruction, particularly to encourage higher-order thinking skills. This theory continuously assist instructors to develop a more active and valuable learning instructions, hence carrying on Gagne's instructional design legacy by prompting the future of design and research (Wurster, 1998). Figure 5 explained Gagne's model of instructional intervention. Gagne's nine instructional events to enhance learning conditions as indicated in this study that they are operative in assisting students to become independent learners if it is followed correctly (Hoskisson, 1989). These events include:

FIGURE 5: Gagne's Nine Principles of Effective Learning

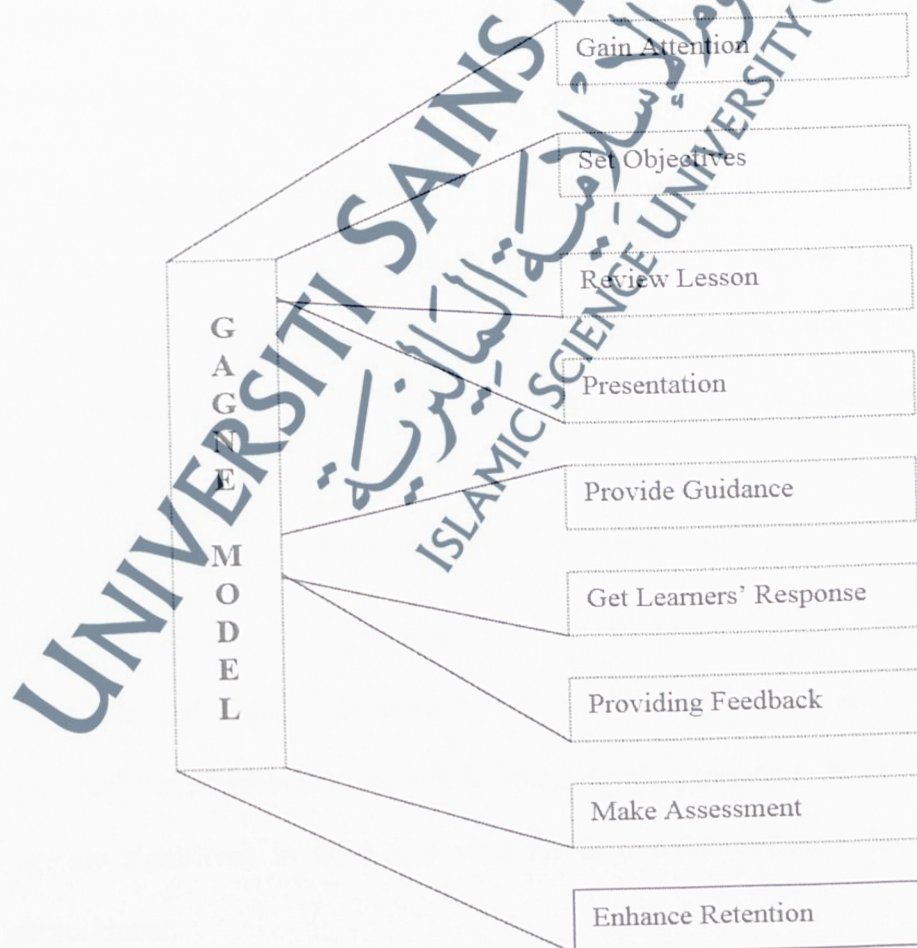


Figure 5 indicates that learning happens through learners' full attention in the classroom. In order to teach effectively instructors must follow the above nine principles of Gagne's conditions of learning.

2.6.2 Keller's Arcs Model

Arcs model was developed by Keller et al. (1988) based on its acronym (*Attention, Relevance, Confidence and Satisfaction*) to help educators in a systematic process to analyze learner motivation and motivational strategies designs keyed to precise motivational problems and integrated areas with teaching / learning strategies.

The Arcs model based motivational intervention enable instructors to efficiently and proficiently support students' motivation. One of the main reasons students drop out of school is that they get bored easily with traditional approaches, which are almost in the same way daily.

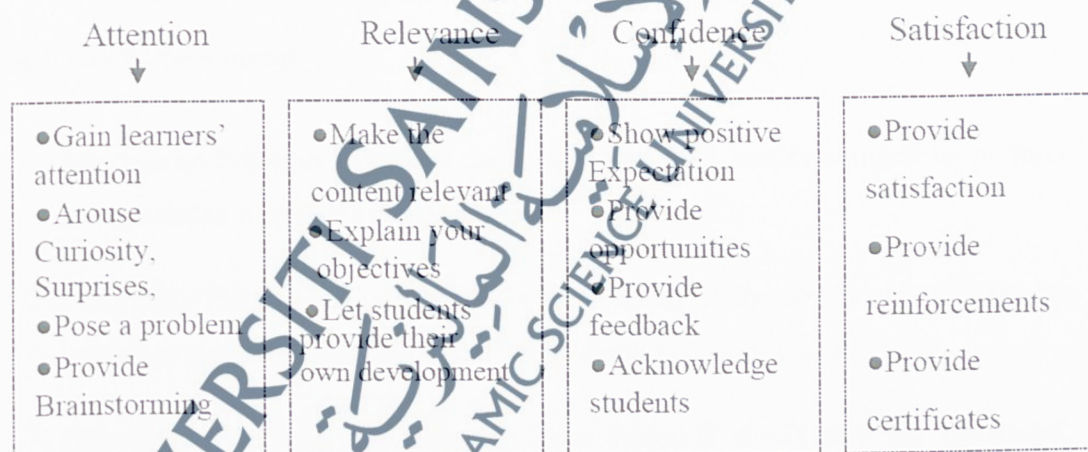
a) **Attention:** Is heightened through Perceptual and Inquiry excitement. Perceptual excitement utilizes shock, instability or a provocative quote to pick up interest. Request excitement invigorates interest by suggesting conversation starters or issues to be understood. Once the interest has been aroused, it is fundamental to break monotony and maintaining by fluctuating the components and techniques for guideline (eg. address, video, bunch dialogs, and so forth).

b) **Relevance:** Stressing the importance a new learning in learners' actual setting with the intention of inspiring by utilizing cases, which the learners are used to, and to create uplifting dispositions towards learning. Adults yearning to be skillful in matters that are significant to them and vital for their own or expert development and advancement.

c) **Confidence:** Is an assurance that the learners are aware of what is required in performance and evaluative criteria; enhancing their potential to succeed within the learning situation. It also provides feedback and support for success. Learners should feel a certain level of control over their learning and valuation. They ought to believe that their success is a direct outcome of the amount of effort they have put into.

d) **Satisfaction:** Is strictly connected to motivation based confidence, intrinsically or extrinsically. It provides chances in using recently learned knowledge or skill in an actual or simulated setting. It provides response and assistances sustaining the anticipated behavior. If the learners have positive reaction concerning learning outcomes, they will have the motivation to learn.

FIGURE 6: Summary of Arcs Model



2.6.3 Mayer's Model

Mayer et al. (2003) confirm on three categories of cognitive demands related to learning.

Firstly, Essential Processing Demand: This procedure is logically required by the human cognition system in processing and retaining information received.

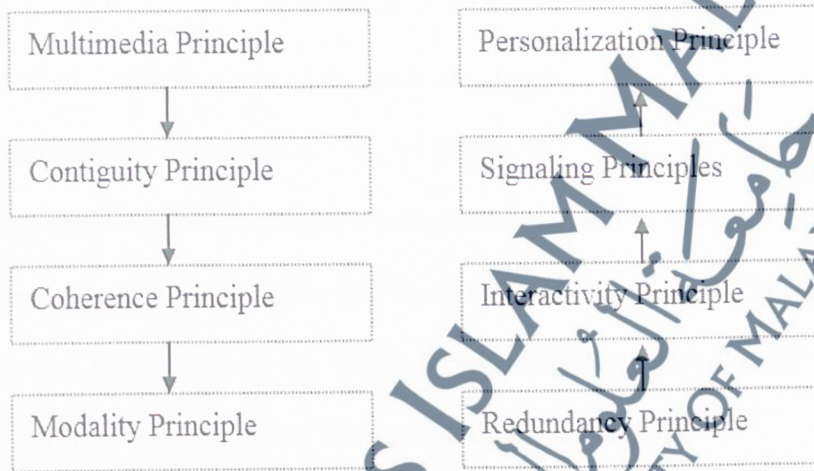
Secondly, Incidental Processing Demand: It is not compulsory for the human cognition system in this stage to add up things but required to make some reduction. A suitable illustration would be the addition of music to the background when playing a narration. In cases like this, the learner has to negotiate certain cognitive processing resultant of incidental cognition processing.

Thirdly, Representational Holding: This phase is an indicator that the human cognitive system momentarily holds in the working memory given information. For instance, an instructional designer offers in the first page an animation and second page contains its narration. In situation like this, the represented animation is held by the learner on the first page in his/her memory while the narration is heard on the next page, which resulted in superfluous memory disposition with the intention of constructing a practicable instructional design; Mayer (2001) recommends eight characteristics of a good instructional design:

1. Multimedia Principle: Students can gain better from words outlined by pictures as opposed to negligible words alone.
2. Contiguity Principle: Students has better learning if the words and pictures are exhibited simultaneously instead of to be displayed exclusively.
3. Coherence Principle: Students can learn better if words that are redundant, sounds and pictures are omitted from the instruction.
4. Modality Principle: Students can learn better if supplementary words appear with narration instead of appearing as text on the screen.
5. Redundancy Principle: Students can learn better if words are shown as a narration rather than narration screen and text.
6. Interactivity Principle: Students can learn better if they are given the ability for personal engagement.

7. Signaling Principles: Students can learn better if information narrated divided into small segments to make it easy to comprehend.
8. Personalization Principle: Students can learn better if presented information in the form of a conversation.

FIGURE 7: Mayer's Eight Characteristics of Instructional Design



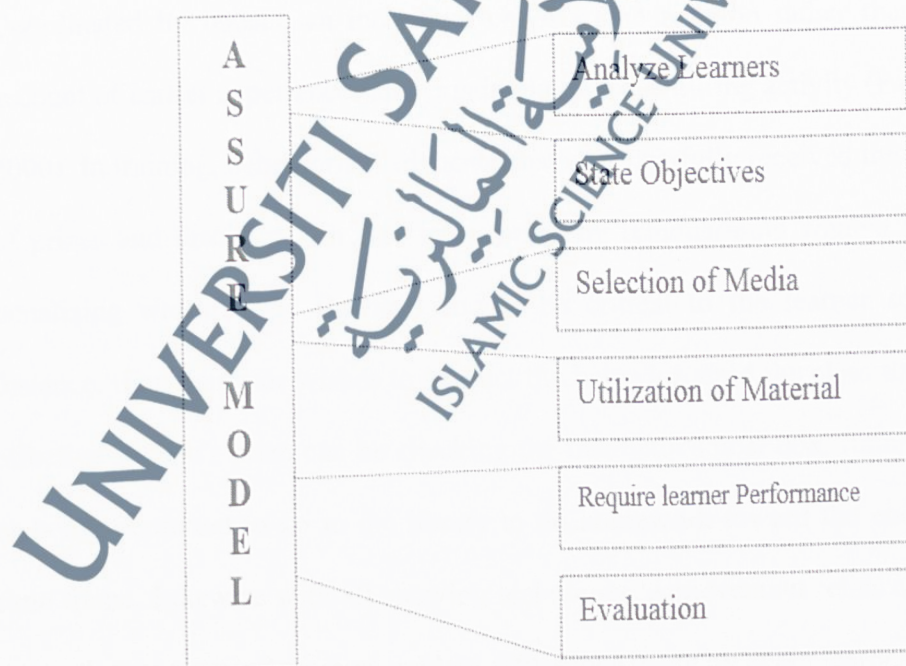
2.6.4 Assure's Model

The Assure model developed by Heinich et al. (1999) is a renowned instructional design guide utilizing constructivist perspective integrating multimedia and technology in the process of enhancing the learning environment. Assure is a well-made instructional model as Callison (2002) affirms, "*Careful planning will increase the instruction's efficiency*" According to the Assure Model, the designer ought to follow the following essential criteria:

1. Analysis: The audience ought to be studied before the design is conceived. Learners' skills, previous knowledge, attitude, age, grade and learning style ought to be considered.

2. Statement of the Objectives: The lesson objectives must to be perfect and complete.
3. Selection of Media: Applicable media and content materials for instance sound, graphics, text animations and videos must be chosen to ensure effective learning outcomes.
4. Usage of materials: The instruct must make the lessons interesting with the selection of suitable instruction materials. Even the classroom conditions and equipment, lights and facilities must be appropriate for learning situations.
5. Require Learners Performance: Students should given enough change by the instructor for practical purposes and feedbacks ought to be given for betterment.
6. Evaluation: Evaluation of the whole lessons is vital for further developments. Instructor must assess to see if his/her objectives are attained.

FIGURE 8: Summary of Assure Model



2.7 Learning Theories

Having reviewed different learning theories related to the objectives of this study, and according to (Tellings (2001); Yeasmin, (2012) the combination of different theories work best in order to overcome the weakness or intrinsic biases and the problems that come from single-theory. In this research, we using different theories such as behaviorism, cognitive and constructivism learning. The concept of these theories is confined to learning using a technological medium such as a multimedia technology and is within the scope of this study, which focuses on instructional learning system.

2.7.1 Behaviorism Theory

Behaviorism is fundamentally associated with recognizable and quantifiable parts of human conduct. In characterizing conduct, behaviorist-learning speculations underscore changes in conduct that outcome from learners' affiliations reaction. Coordinated by boosts, an individual chooses one reaction rather than another on account of earlier experiences and existing knowledge during activity (Parkay & Hass, 2000). In training, behaviorism advocates have successfully received this arrangement of prizes and disciplines in their classrooms by remunerating wanted practices and penalizing wrong ones. Rewards should be critical to the learner somehow. For instance, if an educator wishes to instruct the behavior amid the class time frame, the effective student's prize can be checking the instructor's post box, running an errand, or being permitted to go to the library to do homework toward the end of the class time frame. Likewise with all showing techniques, achievement relies on upon every student's response and reaction, and on affiliations made by every learner.

2.7.2 Constructivism Learning Theory

Constructivism is a worldview of discovery that depicts the information development procedure in constructivist learning, students learn effectively instead of inactively sitting tight for the instructor to give instructions (Ellison et al., 2008). Constructivists trust that man needs to receive with the earth to gain learning. Simultaneously, he/she reshapes the gained learning and makes new information (Sternberg, 2008).

This hypothesis is generally to comprehend and to acknowledge the theory as a reasonable worldview of instructing and learning (Straits et al., 2007). To constructivist, learning is a result of dynamic process instead of inactively holding up to get it (Colburn, 2007). There are numerous appearances of constructivism the most noticeable and straightforward constructivism savants (Bruner, 1997; Harlow et al., 2007). The constructivists learning is a chase for significance and learning an individual improvement that reason for learning the individual learner to manufacture her/his own implications where the learner develops his/her own perception of the world (Huang, 2006).

2.7.2.1 Jerome Bruner Theory

Bruner (1991) a constructivist philosopher, emphasized that in constructivist learning, the role of the learner is clear, because in Constructivist Learning, its chief belief is that people construct their own understanding of the world and in turn, their own knowledge (Ishii, 2003). The constructivist learning environment is a dynamic process (Eunju, 2000; Hand et al., 2007).

Charlotte et al. (2005) indicated that "Information is not a material that is independent; learning is not directly communicable from individual to individual, yet rather is

completely found". In constructivist learning, the learner is seen as self-motivated, supportive, comprehensive, objective located, analytical and focused. This instruction is student centered and learners build data via their own investigations. The learner needs to step up during self-evaluation and constantly investigating her/his progress in ensuring that each learning goals and objectives are met efficiently.

2.7.2.2 Jean Piaget Theory

A standout amongst the most forthright constructivist scholars trusted that learners have inner intellectual association and that is the reason for comprehend the world better (Maynard, 2008). They learn on the grounds that data is acclimatized into their subjective structures. (Piaget, 1964) asserted that kids learn through their activities. Piaget trusted, "that we "see" objects with our eyes as well as with our brains. One-year-olds "see" objects at their level of improvement, and 10 to 11 year-olds "see" the same article with a more elevated amount of logic-numerical information (Miyakawa et al., 2005). As indicated by Piaget, there are four phases in a learning procedure of advancement: From the age 0-2 years, 3-7 years, and 8-11 years is a consistent period yet at the same time requires some help from the solid stage and age of 12-15 years. Piaget focused on that learners develop information through a levelheaded mix of inner difficulties encouraged by the power of environment he/she lives (Izzo et al., 2006). These inner difficulties are brought about by our surroundings and urge us to pick up information and to comprehend our encompassing marvels.

2.7.2.3 Vygotsky theory

Vygotsky theory, another prominent figure of the constructivist paradigm asserts that social interaction has the most fundamental position in the development of cognition

(Baldesari, 2008). Vygotsky claims that each event in the kid's social advancement seems two times: Firstly, it shows up on the social stage i.e. (interpsychological). In this stage, children develop as a result of social interactions. Besides, it shows up on the individual stage intrapsychological (Leong et al., 2001; Mercer, 2008). In this stage, a youngster needs individualistic attention and help from a grown-up to advance. For the cognition to develop there must be a "Zone of Proximal Expansion" among the children. As per Sim et al. (2006) learners in the first place are not ready to handle things without anyone else. All things considered, the idea of framework will help them to scaffold that crevice and enhance their comprehension of the mind boggling issue (Nelson et al., 2006). Vygotsky had an alternate perspective about higher and lower cerebrum capacity. To him the lower capacity of the mind is hereditarily talented to a person. The higher mind has the capacity to create when we socially connect with the environment. He asserts that to gain knowledge, the learner has to be a responsible person. He should strive to perform well on a given task. The learner should remain motivated and understand the roles and regulations of the study.

2.7.2.4 Reigeluth Theory

The instruction guideline should be organized from easy to-complicated, general-to-detailed, unique to-solid way for ideal learning. Another standard is that one must to take after learning essential succession; it is connected to individual lessons inside a course. For an understudy to create from easy to more unpredictable ideas, certain essential learning and aptitudes should first be axed. This essential sequencing gives linkages between every lesson as understudy spirals upwards in a course of study. As new learning and aptitudes are presented in consequent lessons, they strengthen what is as of now learnt and identified with previously learned data. A key idea of

elaboration hypothesis is that the learner needs to form a significant connection into which ensuing thoughts and aptitudes can be coordinated. Elaboration hypothesis proposes seven noteworthy methodology parts in the outline procedure:

1. An elaborative succession.
2. Learning essential arrangements.
3. Rundown.
4. Amalgamation.
5. Analogies.
6. Subjective methodologies.
7. Learner control.

2.8 Self-Centric Learning

Self-centric learning (SCL) is a learning approach or methodology that transforms the roles of teachers from knowledge managers to knowledge facilitators and students from being passive learners to active and responsible learners (Chukwunonso et al., 2013). In SCL, each student is engaged to explore and develop their distinct career and academic interests, choose their learning paths and pace, and produce the desired learning outcome to meet their learning expectations. In this method of learning, teachers play the role of advisors, coaches, and facilitators of students' learning as against their traditional roles of instructors and primary source of knowledge. This, according to Keefe and Jenkins (2008), offers the students new roles and learning opportunities to take control of their own learning.

Klassen (2010) posits that SCL not only gives students the ability to learn in sequential steps towards attaining the learning objectives or expectations, but also makes the student to have better motivation, understanding, and knowledge retention. Hammer (2007) argues that SCL is the most appropriate method where the objective

of learning is geared towards student-centered engagement with real problems or situations that requires active learner participation in both decision making processes and in using theory to inform practice. This makes SCL a major choice for today's learning designs as many instructors and educational institutions are speedily adopting student-centered based learning or self-centric methods in both their online and classroom teaching (Wright, 2011). A study by Nelson et al. (2011) concluded that many classroom teachers agree that the adoption of SCL approaches in classroom teaching significantly improves learning as the students' learning outcomes or performance were much higher than those engaged with instructor-led approach. This is in agreement with the findings of Lea et al. (2003) that SCL methods not only improve the overall teaching and learning effectiveness, but also improve the study skills and understanding of the learners.

2.8.1 Self-Centric Learning Vs Instructor-Led Approach

The most educational institutions worldwide are currently moving from the traditional instructor-led approach to SCL methods of learning, which lays emphasis on student centered learning (Chukwunonso et al., 2013). Instructor-led teaching approach focuses on the teacher, who acts as the sole custodian of knowledge, dictates the learning path and style, in a formal face-to-face learning environment such as the classroom (Sablonnierie et al., 2009). SCL on the other hand takes a rather different approach that gives learning autonomy to the student, who also is the focus and determines what path, style and pace to learn. In the SCL approach, the teacher only facilitates, guides and supports the student during the learning process unlike the instructor-led approach where structured learning materials are provided by the teacher who instructs the student who can only take notes and listen. This makes

learners passive and not to be actively involved in the learning activity as they are expected to only adhere to the information and instructions given by the teacher.

According to (Sablonnierie et al. (2009)) the students' needs and ability to assimilate the learning content should be given priority by allowing them to learn at their individual path, pace, and time, while the teacher acts as a facilitator in the learning process rather than a provider of knowledge. Segers et al. (2003) posits that an effective learning environment is one where learners are encouraged to identify the knowledge that meets their learning expectation so as to enable them make their own individual interpretations of the acquired knowledge and build new concepts based on the knowledge or information acquired. Thus, the teacher's role should be limited to that of monitoring, support, and guidance during a particular learning activity. This teaching approach (SCL) promotes a shared or interactive learning process that encourages contributions from both the teacher and the student to the learning activity.

Kirwin et al. (2005) observed that instructor-led approaches discourages learners from actively participating or contributing in the learning process as they expect the teachers to teach them what is required to pass a series of assessments and as such become mere passive recipient of information. This limits their learning opportunities to just knowledge and information reconstruction, without necessarily understanding what is being taught. Napoli et al. (2010) argues that the SCL method enables learners to determine their learning outcomes or objectives and to choose what learning path, pace and style that is most appropriate for them to meet their desired learning expectations, individually, based on their prior knowledge. In a similar study, Froyd et al. (2008) attributed the students' active participation in SCL methods to the opportunity it offers them to become responsible for their learning process by

allowing them fine tune the learning activity to suit their individual unique learning style or in other words, structure their own learning. In the instructor-led method, the learning activity focuses more on the learning content, characterized by technical details of analysis, numerical calculations, etc. The SCL approach on the other hand, gives more attention to the learning process rather than the learning content that is constantly reinforced and updated through collaborative discussions, interactions, and group work, to arrive at a more cohesive and personalized learning (Ardalan, 2008).

2.8.2 Advantages and Benefits of Self-Centric Learning (SCL)

SCL has several advantages and benefits when compared to other learning approaches. One of its major benefits is the opportunity it avails to learners to take control and determine their individual learning process (Hyland et al., 2012). This enables learners take their own decisions regarding their learning activity, thereby leading to improved learning outcomes and learning motivation to complete and meet their learning expectations. Given that, students are master of their learning activity in SCL approaches, it does not require for them to learn from sequential topics or linearly as lesson topics usually characterized by scaffolding and learners can move from simple concepts to more learning intricate concepts. This helps the student to develop knowledge onto previously learned concepts. Furthermore, the learning style is application-based, which enables learners apply the acquired knowledge to similar future contexts. It also creates the enabling social environment for students to effectively collaborate and interact with their teachers as well as their peers, thereby gaining different perspectives of the learning content that would otherwise have been impossible if learning alone. SCL approach makes learning very flexible especially for today's information society where distance or location is no longer a barrier. Learners

can also choose their convenient time to learn, especially for those who work and learn simultaneously.

Several studies have also highlighted the many benefits and advantages of SCL approach in education. Tsou et al. (2009) examined the influence of SCL approach on the student's learning attitude and observed that learners were more active and eager to participate in the learning process than when other teaching methods were adopted. Tseng et al. (2008) claimed that student' reactions and willingness to ask questions were aroused when SCL method was adopted. They also concluded that the SCL approach encourages knowledge and resource sharing among students, as well as between teachers and students. Kivela et al. (2005) stated that the use of SCL approach promoted collaboration, cooperation and constructive learning among students in group settings as well as between one student group and another, during a particular learning activity. He concluded that learners were able to gain in-depth knowledge of a particular subject matter by focusing on a realistic problem collaboratively.

Several other studies have discussed in detail on how SCL approach encourages and promotes students' personalized learning abilities and improved problem solving skills. Tseng et al. (2008) self-directed learning ability and positive inclination towards lifelong learning. Horne et al. (2007) improved ability to collect, analyze, summarize, interpret, and present data. Tsou et al. (2009) encourages self-awareness, confidence, self-direction and independent learning skills Carlisle and Ibbotson (2005) enhances students' critical thinking and reflection skills. Gain better in-depth understanding of the subject matter and encourages group discussions participation (Wichadee, 2011). More benefits and advantages of SCL can be found in (Amira,

2015; Chan & Angela, 2009; Hairulliza & Noraidah, 2013; Limaand, 2011; San et al., 2006).

2.9 Computers and Self-Centric Learning

Clark (2016) over the past three decades, computer and multimedia technologies have influenced and transformed various learning techniques and approaches. This rapid progress makes its integration with the learning system feasible and at a reasonable cost. This incorporation of multimedia into teaching and learning practices has modified many instructional learning designs as well as the teaching and learning strategies employed in existing educational institutions. Most higher education institutions are currently embarked on the use of digitalized technology or electronic learning to enhance education.

In the traditional educational system, the instructional media are generally based on teacher-centric teaching methods, which are essentially textual and linear in presentation. This traditional mode of teaching is grounded in the behavioral learning perspective (Korthagen, 2010). Here, the teacher controls the instructional process and is the sole source of expert knowledge, which is imparted to the students through lectures in a classroom environment. In this model, the students are simply passive and obedient recipients of knowledge and information, and play very little or no part in the learning process. With the emergence of multimedia technology, multiple media are now directly employed in presenting instructional materials in a multimodal environment. Educators can now incorporate features such as interactivity and navigational links into the content with the assistance of authoring tools such as Director, Adobe Flash, etc. In addition, learners are now able to interact with the subject matter in the manner most convenient to them. Multimedia based on SCL

approach makes use of non-linear presentation to foster a two-way communication or interaction between the user and the data processor. Learning can take place at the learner's own pace and time. This style of learning enables the student to self-direct their learning to suit their unique learning needs (Garner et al., 2013). In SCL and multimedia approach, students must prepare for an active role in their learning and construct their own knowledge or meaning of what they read. The learners determine how to accomplish the desired learning outcomes themselves. This learning model is embedded in the Constructivist learning philosophy, which has evolved in the last half of the 20th century and has its foundations in cognitive learning psychology (Leu et al., 2004). In the Constructivist learning model, the teacher is no longer perceived as the sole authority or custodian of knowledge but becomes a facilitator in the learning process by guiding and supporting learners' own construction of knowledge (Mai, 2007; Neo, 2005; Warner & Gallop, 2004).

The student-focused learning environment includes having students gain critical thinking skills, engage in experiential learning, and construct their own knowledge of the problem (Kamat (2009); Kedar et al. (2013); Nusir et al. (2012)) posit that SCL approach using multimedia promotes problem solving and team skills, as well as interdisciplinary knowledge with technology being integral to their scholarship. It also symbolizes the movement away from the traditional modalities of education to one where the learners are active participants in the scholarship process (Holzinger et al., 2009). The involvement of multimedia in learning has raised the issues of its effectiveness. Studies have showed that there are positive results that students who used computer-based multimedia instruction would perform better. Table 5 below presents summary of previous studies related to this research.

TABLE 5: Summary of Previous Studies

Author and year	Title	Research field
Acha., 2009, Farahi., 2008	The effectiveness of multimedia programs in children's vocabulary learning. Exordium to the Coherence in the Qur'an AnNizam al_Qur'an English Translation of the Muqaddimah.	Teaching vocabulary
Nathan et al., 2003	Common Sense Conversations: Understanding Casual Conversation using a Common Sense Database.	Artificial intelligence
Maimun., 2011	Teachers' problems in teaching Qur'anic Tarannum	Tarannum
Maamouri., 2006	Problems faced by teachers' while teaching students the Qur'anic Tarannum	teaching Qur'anic
Yahya et al., 2010, Muhammad et al., 2010 Surul et al., 2013, Hammad., 2007, Hassan & Zailaini, 2013	Designed and develop program for the Holy Quran. Develop program for the Holy Quran Hadith. Tajweed errors made by students during recitation.	Recitation
Omar et al., 2013, Abualkishik et al., 2009 Noor et al., 2013	Designed model and a multimedia courseware called Al-Furqan. system for translate the Qur'an verses and Tajweed. development of software prototype, mainly for an automated Tajweed checking rules	Tajweed
Nidhal et al., 2011, Hamizul & Rahimi, 2015, Aryati et al., 2014, Ismail., 2011	System for collecting language pieces and systemizing called Al Farahidy design and develop an online game for learning Arabic language	Alphabeths

Yahya (2010) Designed and developed a program for the Holy Qur'an Hadith and Fiqh; it adopted subsystems devoted to teaching how to recite the noble Qur'an and to memorize it by "halagat". This especially developed with the noble Qur'an in mind. But still limited and its focus on the direct application of the Information Technology techniques. The development was for self-learning of the Holy Quran and its sciences.

Omar et al. (2013) Used a model and a multimedia courseware called Al-Furqan to evaluate and validate the new model and to teach the Holy Qur'an to students' in primary schools. The critical review scope encompassed the teaching of the Holy Qur'an to the fifth grade Libyan students. The main objective of this review is to show an effective learning method through the new model as well as Al-Furqan, which help students to memorize a Holy Qur'an.

Hassan and Zailaini (2013) This study is focus on the teachers teaching J-QAF. The teachers involved have adopted the best possible strategy and technique in their lessons to ensure that the Muslim pupils would be able to complete the al-Quran while still being in their primary school. However, this has been accomplished via a combination of the pupils' recitation at home and in school. The result of this study that some pupils have finished the Quran and there are many pupils still doing their Iqra' books.

Hamizul and Rahimi (2015) Probed into several school-based elements of development and digital game-based learning model in the process of building Arabic language online games. This study designed and described elements yielded from the Arabic language online games development and helped the students to learn Arabic language.

Noor et al. (2013) Looked into the existing and manual method of Talaqi and musyafahah methods in the Qur'anic learning process, were developed software prototype for an automated Tajweed checking rules engine, purposely for Quranic learning. It has been implemented and tested towards the J-QAF students at Malaysian primary schools.

Abualkishik (2009) Aimed to build system for translates the Qur'an verses to Braille symbols including new vibrations. However, it was limited to the (Noon + Scon) vibrations, (Meem + Scon) vibrations and (Lam + Scon) vibrations. It develops an existing translation system that sees the integration of a finite state machine with the left and right context matching and a set of translation rules. This enables the Arabic language to be translated from text to Braille symbols after the vibration for the Qur'an verses is detected.

Aryati et al. (2014) The investigation done in this study concerned with the read and recite verses in Al-Qur'an, which is written in Arabic language. However, teaching Arabic language to children, in particular toddlers, is a lot more complex for a reason that they tend to have short concentration span. Al-Furqan is one of the methods in which one can learn Arabic language. In this method, the sequence of the Arabic sounds used is based on the baby's first sounds. This study developed an interactive Arabic language learning courseware for toddlers aided by this Al-Furqan method.

Nidhal et al. (2011) Has adopted some mathematical relations to calculate a number of Arabic words. Further proving on the numbers of Arabic words, and a new way is presented to build an electronic Arabic lexicon by using a hash function that converts each word (as input) to correspond with a unique integer number (as output); these integer numbers will serve as an index to a lexicon entry. Result for this study that can students found the words and each alphabets by numbers.

Surul and Muhammad (2013) Identified many types of Tajweed errors committed by students while reciting the Holy Qur'an. The samples 20 students who took the second level of the Tilawah Al-Qur'an (Quran Recitation). The error analysis was carried out on the recordings of the respondents' recitation using a thorough set of instruments

where the type and category of errors committed were able to be identified. In addition, reported that only errors 1% percent of the time had been considered in this analysis.

Hammad (2007) In this work, the effect of using a colored Qur'an as an educational medium in learning Telawah is analyzed and compared with traditional ways (uncolored Qur'anic book). The researcher had made use of a colored Qur'an, written and oral achievement test as tools, and subsequently they were divided equally into an experimental and control groups. The former studied Telawah using the colored book, whereas the latter used a normal book. The effects indicated the existence of statistically significant differences with the experimental group and also between the written and oral achievement tests.

2.10 Comparison of Teaching Qur'an Recitation based on Tajweed

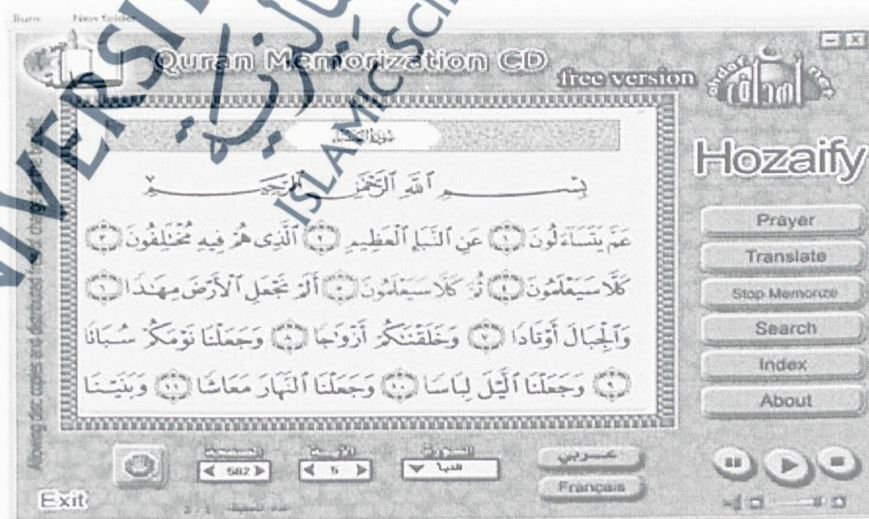
The main objective of this evaluation was to investigate and critically analyze the efficiency and effectiveness of the Arabic and English multimedia products, which exist in the markets, and some schools of Malaysia in teaching and learning Qur'an. In this evaluation the products were investigated based on the theories of the most outspoken and prominent psychologists such as Mayer's (2003) Nine Ways to Reduce Cognitive Load in Multimedia Learning, Gagne's (1985) Nine Steps of Instructional Events, Keller's (1988) ARCS Model of Motivational Design, (Heinich et al., 1999) Assure Model of Instructional Design. Furthermore, this study utilized a predetermined specific and general checklists based on the above modalities to investigate the fidelity of the Arabic and English products which exist in Malaysian markets and schools. The researcher have found more than 25 applications to teach a Holy Qur'an. Some of the applications compact between Arabic and teaching a Holy

Qur'an in one application and they were all close only there were minor differences from where colors, fonts and screens. However, the content was almost same content, as the researcher did not receive a fully program in English to improve Qur'anic Recitation with Tajweed related to Alphabets with four vowels. The researcher chose (7) programs from those programs identified for the purpose of comparison in this section. However, the researcher found some strengths and some weaknesses in these programs available and the researcher has identified strengths and weaknesses of each of these programs, which are as follows:

2.10.1 Qur'an Teacher

This program demonstrates a nice screen layout, the use of colors is homogeneous as well, and it supports Arabic and French languages, easy to use and its freeware software. But some weak points in this system is that it does not support Tajweed rules, the sound is not clear and does not contain animation or multimedia for teaching recitation rules.

FIGURE 9: Qur'an Teacher



2.10.2 Albahtary Primary School

This program shows a big size for the user main screen without any other effects like buttons or controls, the sound is not clear and it is uncontrollable, it does not contain complete Qur'an, no animation or multimedia for teaching recitation rules and its only one screen.

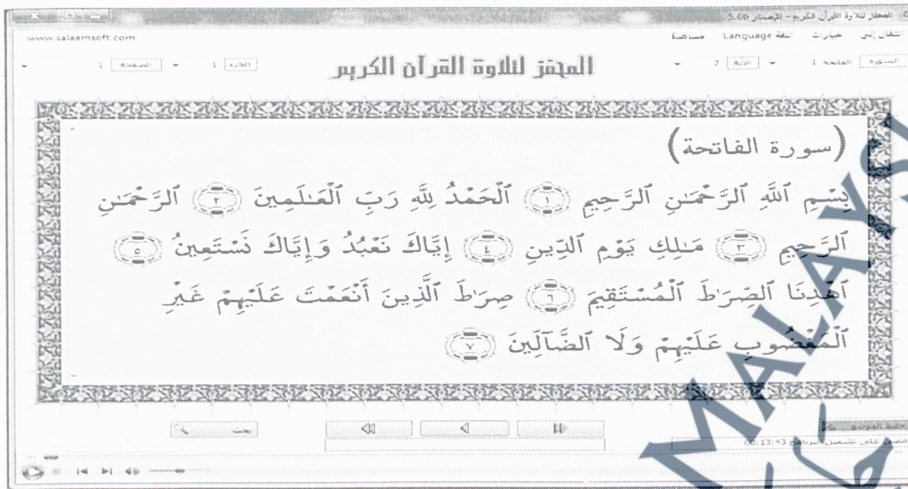
FIGURE 10: Albahtary Primary School



2.10.3 Almohafeez for Recitation a Holy Qur'an

From the screen shot, the system provides sound control, very clear main screen which reflects the good use of color and it supports search function which enables us to search for a specific keyword, the system also has some weaknesses that it does not support the Tajweed rules, the sound is not clear and it has one screen only, so no screens transition.

FIGURE 11: Almohafeez for Recitation Holy Qur'an



2.10.4 Learning Letters and Numbers

This program provides Arabic numbers, letters and Qur'an learning all in one, it has a harmonic and clear use of colors, its freeware program but it does not contain the complete Qur'an. It does not support the Tajweed rules and contains a few animation and multimedia.

FIGURE 12: Learning Letters and Numbers



2.10.5 Almaher in Learning Arabic Language

The Almaher program has clear sounds/colors. It provides the best way for pronunciation and very clear animation. Its weaknesses is that it does not support all Arabic alphabets with Harakat. It has difficulty in screens transitions especially for 1st grade students and does not contain exercises for students.

FIGURE 13: Almaher in Learning Arabic Language



2.10.6 Belajar Mudah Membaca Al-Qur'an

This program has clarity on the main screen. It is easy to navigate between the faces and the color is beautiful and suitable. However, this program has some weakness. It is very difficult to understand the rules of the Tajweed (not explained) and there are no pictures in the software.

FIGURE 14: Belajar Mudah Membaca Al-Qur'an



2.10.7 Solat

This program has the clarity of sound and used text translation. It uses two languages. The program also has some weaknesses: difficulty in usage in screen transitions, difficult in recitation control and no clear screens used for recitation.

FIGURE 15: Solat



2.11 Knowledge Gap Addressed in this Research

Based on the findings of this literature review, it was identified that most of the existing multimedia instructional learning designs used for teaching Qur'anic recitations were not based on Arabic Alphabets with vowels, Tajweed and Recitation rules. *Secondly*, some of these multimedia learning designs did not incorporate the SCL methodology for teaching Qur'anic recitations, for example MID should have used from easy to complex to use approach, emphasizing on word rather than letter. This however has resulted in disabling Malaysian students from distinguishing the difference between Qur'anic recitation and Qur'anic Tajweed. *Thirdly*, the theories underlying the multimedia instructional learning design were in most cases lacking or unrelated to the context of the problem, given that the teaching or learning of Qur'anic recitation is not complex process to who wants to learn (NA, 1420), the teacher or learner must know right method to understand carefully the Tajweed rules and its application to Qur'anic recitations. Therefore, the major gap identified based on several review studies is the ineffectiveness in the learning and teaching strategies employed in Malaysian primary schools for teaching Qur'anic recitation this is in agreement with the findings of (Haron et al., 2010; Manan et al., 2013; Ramlan & Yusop, 2013) . That the use of specific learning method may help improve Malay students' Arabic Alphabets speaking abilities. These review studies all relied on the 'language learning approach', which postulates that students' success or their inability to learn certain languages may be attributed to the ineffectiveness of the teaching strategies or the teachers' inability to apply appropriate pedagogical tools fit for the learners' needs. The proposed method therefore employs a combination of learning theories to address this challenge in the proposed multimedia instructional learning

design. Furthermore, developing a self-centric learning methodology to teach Qur'anic recitation with Tajweed was found to be the most appropriate teaching/learning approach for Qur'anic recitations. *Lastly*, considering that, primary school pupils are the learners in this context, multimedia instructional learning design based on SCL approach is proposed. This will enable the pupils not just to master their learning process but to also learn in ways that is most easy and convenient for them. It will enable them to assimilate, comprehend and interpret; thereby enabling them build new concepts from the gained knowledge.

This research proposes a method to teach Qur'anic recitation with Tajweed using multimedia associated with pronunciation and recitation, through self-centric learning approach. By applying this technique, the user can learn the Arabic Alphabets with vowels Recitation and Tajweed Qur'an with the aid of multimedia tools that consist of graphics, audio, text, and animations and determine their own learning process. The user in this task is the pupil. Most scholars in Malaysia do not cognize how to apply and understand the Qur'anic Tajweed.

2.12 Summary

This chapter presented a review of related works carried out in the area of Teaching Qur'anic recitation with Tajweed rules. It aimed to identify the most appropriate method or approach for teaching Malaysian primary pupils. How best to effectively recite the Qur'an using the Tajweed rules. The chapter began by introducing the Tajweed rules, the Arabic alphabets and its implication to teaching Qur'anic recitations. Next, a general review of multimedia instructional design was undertaken with the aim of finding out how effective it is in teaching primary pupils Qur'anic recitation and what other researchers have done or failed to do towards this task. The different learning theories related to the context of this study were also reviewed and justification made for why self-centric learning was the most appropriate method for teaching Qur'anic recitations based on Tajweed. Lastly, the use of multimedia instructional design based on self-centric learning was also reviewed and a summary of several works undertaken by past researchers in using multimedia in learning approach presented in a table and comparison of multimedia systems lastly knowledge gap addressed in this research.