

## Enhancing Reading Comprehension: A review of Traditional and Online Active Learning Pedagogies

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*ABSTRACT: There are extensive variety of reading comprehension strategies proposed by reading programmes and researchers (McLaughlin and Allen 2002; Vacca, 2002; Duke and Pearson 2002). The National Reading Panel (2000) and Cameron (2009) identified helpful results for some strategies, particularly activating prior knowledge (previewing), summarizing, asking and answering questions, evaluating, visualizing, vocabulary knowledge and making predictions. The Panel also highlighted that a combination of strategies can be effective if taught within an active and cooperative environment. Since this article proposes a link between the adoption of an M- active (Mobile and active) learning pedagogy and enhancing reading comprehension strategies, the review will focus on four major topics which are reading comprehension strategies, active learning pedagogy, mobile learning and virtual classes.*

**Key Words:** *Reading comprehension, traditional, online active learning pedagogies, mobile learning*

### INTRODUCTION

Technology has already invaded our houses and controlled school children of our day. Mobiles, iPads, tablets, laptops and many other technological machines have a great power on school children and university students (Esnault, 2008). These devices can be employed as an alternative to traditional classrooms by providing an m-active environment that could stimulate their reading comprehension strategies in the 21<sup>st</sup> century computational revolution (Mari, Genoneand Mari 2008 in Esnault2008).

It has been found that the lowest achievement of young learners in Palestine was attributed to reading comprehension (Abubaha 2007). Torgesen (2006) has maintained that struggling readers need early intervention to help them improve their reading comprehension. He added that the use of the Internet technology may be the key in producing successful readers. What is yet to be explored is whether active learning pedagogy within an ML-Mobile Learning- environment can enhance reading comprehension strategies. Gear (2006) has found that young learners who struggle in reading comprehension may use the Internet to widen their opportunities to infer, connect, predict and ask questions. The purpose of this review is to explore the impact of

adopting an active learning pedagogy in an MLenvironment in enhancing the learners' reading comprehension strategies such as previewing, predicting, summarizing, evaluating, building vocabulary knowledge, visualizing, questioning and answering.

### **Comprehension and the Cognitive Processes**

Once a reader reads a text, an "understanding" of the text is generated in his/her brain. The process of creating a meaning for the text is called the 'comprehension process' (Kintsch 1998). Comprehension is the process of concurrently extracting and building meaning through interaction and involvement with written language (RAND Reading Study Group 2002). The process of understanding was first introduced by the 'Schema Theory' presented by Piaget in 1926. 'Schema Theory' highlights the interaction of key factors influencing the comprehension process (Nassaj 2002). The theory states that learner's knowledge is organized into units to store new information in his/her schema. Within these units of knowledge, or schemata, is the stored information. The reader's schema involves an integration of many processes such as phonological, syntactic, morphological, semantic, and sociocultural knowledge. Samuels (1994) noted that the comprehension difficulties occur when readers cannot quickly and automatically access the concepts stored into their schema. He also emphasized the internal aspects of attention as crucial to comprehension such as alertness and selectivity. However, he cautioned teachers to consider the limited capacity of readers' brains and to consider individual differences.

While reading online texts, readers interact actively by using different cognitive processes such as making connections, doing selections, and reaching to conclusions (National Institute of Child Health and Human Development 2000). According to Schema Theory, reading comprehension strategies such as previewing, visualizing, summarizing, building vocabulary knowledge, predicting and evaluating are merged together to facilitate reading comprehension texts (Cain, Oakhill, Barnes and Bryant 2001; Dreher 2002). Comprehension is a process in which readers construct meaning by involving in a text using prior knowledge and preceding experience, information in the text, and the reader's attitude about the text.

### **Reading Comprehension Strategies**

Many studies have asserted that online skilled readers should start with previewing texts to activate prior knowledge. This incorporates reviewing titles, section headings, and photo captions to get a sense of the structure and content of a reading text (Henry 2010; McNamara 2001; Kintsch and Kintsch 2005). Pre-reading knowledge inspires readers to call up their prior knowledge gained within previous stages or courses. While-reading process involves checking the new information against prior knowledge and seeing if this makes sense based on their previous knowledge. Finally, in the after-reading process, readers can check for growth or any changes in their new knowledge by finding out what they actually have learned during this

process. Schema which is background knowledge has a vital role in comprehending what is being read (Alderson 2000).

The second strategy is making predictions. Duke and Pearson (2002) have found that good online readers frequently make predictions about what is to come as they proceed in their reading. Good readers use their experience, titles, and textual clues to expect what is coming in a reading text. Pressley and Harris (2006) have found that the predictive power in reading a text plays a vital role in comprehension. Prediction involves essential steps such as what evidence readers have found in the text and what personal experiences they have got, and what justifications can be proposed about their predictions (Day and Park, 2005).

The third strategy is self-questioning and answering. Vacca (2002) has asserted that readers using online resources are prompted to questions while reading a text. These questions can evolve around what readers want to know more about, how particular information could match with their prior knowledge and what writers mean by this word or this paragraph. It has been found that making questions can focus the readers' attention on what they learn, allow the readers to find out the purpose of their readings, help them engage actively while they read and help them review content and relate new knowledge to what they already know.

The fourth strategy is visualization. 'A picture is worth a thousand words' (An Old Saying). Duke and Pearson (2002) maintained that visual pictures inside reading texts help readers predict, guess, relate new knowledge to prior knowledge, understand the text, and retrieve words from their memories. For example, graphic representations help readers find relationships and connect ideas to make them less abstract. Graphics can be represented by diagrams, spider maps, semantic maps, hierarchical organizer, comparative organizer, Venn diagrams, cause and effect organizers, plot chart, and story frame. There has been evidence that graphic representations are so helpful for those with learning disabilities and reading difficulties by visualizing relationships among structural elements in a text (National Reading Panel 2000; Ae-Hwa, Vaughn, Wanzek and Wei 2004; Williams 2005). Kinzer and Leander (2003) noted that visualization is so crucial in modern hypertexts which usually include "hyperlinked icons" (e.g. navigation buttons and dynamic image maps) to provide a visual representation of a hyperlink, instead of a textual one. Thus, hypertext readers are supposed to incorporate processes for interpreting images with their range of effective comprehension strategies.

The fifth strategy is summarizing in which online readers can go through reading texts, find important and unimportant ideas, and analyze those ideas to create new texts that stand for the original. Research has found that summarizing not only improves comprehension but it also enriches the readers' vocabulary when exposing to a huge online encounters (Duke and Pearson 2002). It should be noted that summarizing helps readers delete unnecessary and redundant

information, compose words and paragraphs to replace original texts, and then produce new paragraphs.

The sixth strategy is evaluation. Day and Park (2005) defined evaluation as being able to make judgment about the entirety or some aspects of a reading text. Adler (2001) maintained that monitoring is related to evaluation as good readers tend to evaluate what they have read to check their understanding and solve problems. Vaughn, Gersten, and Chard (2000) reported that evaluation helped elementary grades and even students with reading difficulties become more aware of their comprehension. In other words, evaluation helps in monitoring the readers' understanding and making proper connections with online texts. To sum up, evaluation lets readers move from making meaning of the text towards integrating the new comprehension into their lives and world view they encounter throughout their navigations on the web.

The seventh strategy is to know how words work. Vocabulary knowledge plays the vital role in comprehending any text. Cook (2001) asserted that mature readers should know how words work; in other words, they should know how to use context clues, base words, morphemes and dictionaries to understand new words. Strategic readers can use context clues, synonyms, antonyms, connotations, denotations, relationships and their background knowledge to develop their vocabulary. Abubaha (2007) noted that a context clue is anything in the text that assists learners to comprehend the meanings of unfamiliar words. Nation (2001:104) maintained that 'contextual clues are hints that texts use to assist learners in guessing difficult or vague vocabulary'.

Walters (2006) have catalogued several contextual clues that help readers comprehend vague vocabulary. Some of these clues are 'temporal, spatial, functional descriptive, and stative descriptive'. To clarify these terms, they have considered the following sentence: 'At dawn, the blen arose on the horizon and shone brightly'. First, they indicated that 'the expression (at dawn) is a temporal clue which gives information as to when a blen might be seen. Second, the phrase (on the horizon) is a spatial clue which gives information where a blen might be seen. Third, the verbs (arose and shone) are two functional descriptive clues which give information about what a blen can do. Finally, the adverb (brightly) is a stative descriptive clue which gives description of a property to a blen.

Morphemes also have vital role in helping student comprehend and guess new vocabulary. Baumann, Edward, Font, Tereshinki, Kame and Olejnik(2002) studied morphemic and contextual analysis and their effect on vocabulary knowledge. They found that fifth-graders performed significantly in guessing unknown words after readers were exposed to seven context clues which were definitions, synonyms, antonyms, examples, summary, figurative language, and tone. Research pointed out that readers who read extensively (for pleasure) generally have larger vocabularies that can assist them in reading comprehension (Cook 2001). Schmitt (2000)

has found evidence that morphology encourages students in predicting words and finding relationship between sentences that contain the unknown word.

It should be noted teaching vocabulary using active and mobile learning pedagogies has not been addressed by researchers; and there is still a gap to be fulfilled.

### **Traditional classroom versus online classroom**

ML can help overcome classroom limitations. These limitations comprise the limited resources inside the traditional classroom and students' inability to enrich their learning. Many studies have also argued that the main disadvantage of traditional instruction is the assumption that all students need the same information at the same time and place (Weimer 2002; Chance 2005). Though the size of the classroom limits the opportunity for interaction and the quality of attention that students receive from their teachers, many studies have noted that there are many advantages of classroom instruction such as face-to-face interaction, immediate feedback, direct social environment, and body language (Joyce, Weil and Calhoun, 2003). Having access to huge learning resources, students will overcome these limitations (Litchfield, Dyson, Lawrence and Zmijewska 2007). There are also many benefits of ML in contrast to classroom instruction. Enhancing reading strategies, nonetheless, is not limited to the classroom. Much reading is done nowadays outside the traditional classroom since there is easy access to the Internet. The increase in the number of laptops and smart phone users means that there is a rise in the number of readers who use these devices. This calls for a review on how this mobile technology has been employed to develop the users' reading comprehension.

### **Mobile technology and reading comprehension**

The use of mobile technology has proven to enhance these reading comprehension strategies. Bolkan (2012) has studied the effects of using iPods in increasing reading comprehension. He conducted a case study in a middle school where students had problems in finishing their reading tasks or remembering what they read. So he decided to ask a teacher to exploit six-grade students' iPods to solve the problem. The research showed that iPods had major qualities such as mobility, personality and acceptability in the society. The results showed that students started to use audio prompts with specific reading comprehension on their pace of time and place. Students have responded positively to survey questions about using the iPod Touch for summarization strategy. Posttests have shown significance progress and high results in reading comprehension texts. The results have also proved that students' interests and motivation in reading comprehension have increased. However, the study proved that the only limitation of this technology is the high costs of iPods.

Coiro and Dobler (2007) have explored the online reading comprehension strategies used by sixth-grade skilled readers to search for and locate information on the Internet. The results have

shown that the Internet reading texts needs prior knowledge on technology, strong inferential reasoning strategies and self-regulated reading processes. Leu and Kinzer, (2000) have found three challenges in adopting online technology in teaching reading comprehension such as teachers' professional development, readers' competencies in using technology and budget considerations. To sum up, many studies have shown that CALL (Computer Assisted Language Learning) promotes English Second Language(ESL) reading comprehension (Ariewand Ercetin 2004; TozcuandCoady 2004). CoiroandDobler (2007:220) have explored the comprehension strategies used by young readers on the Internet and found that 'metacognitive strategies, previous knowledge of texts and Internet text systems, and self-efficacy influenced their abilities to interact with and learn from the Internet texts'.

In another study conducted by Yang and Lin (2010), thirty- four students from the fourth grade took part to prove that mobile devices can support learning activities, enhance learning mobility and encourage interactive environment. It has been found that this technology has facilitated all the required skills, aided sharing information and enhanced group discussions. A questionnaire and a learning achievement test have been conducted at the end of the experiment. The study has found that students achieved high, positive scores in the questionnaires. Moreover, the posttest results were better than the pretest. However, one of the most serious limitations of the study proved that shared displays may distract the students' concentration. The main linkage of this study to this review is to prove that ML can improve different types of skills regardless which skills are being tested.

Some studies, however, highlighted some limitations of ML. Kukulska-Hulme (2007) argued that some mobile devices have small screen size, inadequate memory, and short battery life. The network speed and reliability might limit the use of this technology. Physical and ethical issues including problems in using the device outdoors without parental care, extreme screen brightness, worries about personal security, exposure to radiation from devices that use radio frequencies are possible constraints of using this technology. Though many limitations have been traced, ML provides readers with a mobile and active learning pedagogy(Tobin and McInnes 2008).

### **Online virtual classroom and reading comprehension**

The use of Virtual- Classes in enhancing reading comprehension strategies has not got the researchers' proper focus. Finkelstein, (2006:58) as cited in Schullo, Hilbelink, Venable and Barron (2007) defined 'virtual classroom'-VC- as an online platform that includes 'real-time voice and visual contact between all participants, shared whiteboard, integrated area for the projection of slides or other visuals, capacity for text-based interaction such as side conversations or note-passing, tools for assessing current moods, opinions and comprehension, and tools for soliciting questions, feedback or virtual body language.'

The term 'virtual' is widely used in computer science to refer to something whose existence is simulated with software rather than actually existing in hardware or some other physical form (Hiltz 1994). The goals of the VC are linked within a pedagogical approach of collaborative learning where teachers and learners are active participants in the shared task. Collaborative learning intends to increase motivation, improve short and long term memories within funny and attractive environment. Though much equipment and many technical skills required for VC, studies have shown that VC can bridge locations, allow access in flexible times, solve travel needs, promote active and collaborative learning, and exchange information that is difficult to share or disseminate in traditional classroom (Piccoli, Ahmad, and Ives 2001; Zhang, Zhao, Zhou & Nunamaker 2004).

Hiltz (1994) conducted a research in which many university students were given VC courses. The study was about enhancing different skills. The findings have shown that VC final grades were better than traditional learning; students have reported higher subjective satisfaction and confidence; students have improved their abilities to synthesize and see connections among diverse of ideas; students have had positive attitudes towards using this technology; they have improved their group collaborative skills; they have improved reading and writing skills; and at last students have had superiority to judge and evaluate their learning outcomes more than traditional learning. The limitations reported were some access problems for new university intake. Moreover, professional VC training is of great importance for students and lecturers.

### **Active pedagogies and reading comprehension**

Many studies have shown that the methods used in comprehending a text are influenced by active learning pedagogies in social and cultural contexts of the classroom (Pressley 2000; Cazden 2001; Lapp, James, Cynthia and Douglas 2007). Pressley (2000) noted that active learning is a process in which students are engaged in listening, reading, writing, discussing, and solving problems. Active learning encourages higher-order thinking such as analysis, synthesis and evaluation. The way of instruction has not got anything to do with active learning since traditional learning or ML can be active if they provide cooperative learning, debates, drama, role playing, simulations, and peer teaching. Visual media, for instance, movies, videotapes, and shows can be beneficial in active learning whether in traditional classroom or online environments. They can essentially be motivating to students who use technology (Green and Brown 2002; Michael and Modell 2003).

Lyman (1992) suggested an efficient mobile active pedagogy called 'Think-Pair-Share'. It is designed for a pair of readers to study and learn. Learning is considered as a process when a pair of students thinks together, then shares their ideas with the whole class. Online learning and breakout rooms are ideal environment for this pedagogy. First, the readers read a text and write down their questions about the text. Second, the students in their online breakout rooms are put

randomly in pairs. Then the moderator (the researcher) designates one student from each group to ask one of their questions and others answer it. Then students alternate roles, and throughout the process the moderator goes around the online rooms to give feedback.

McKinney (2010) noted that 'Collaborative Learning Group' is considered a very effective pedagogy for online learning. Here, the moderators assign groups of 3-6 and give them a reading task. The task may be a question to answer, a summary, or a comment. The students choose a leader and a note-taker to keep up the learning process in the correct track. This is an efficient way for shy students to take part in minimal roles and therefore, to bridge the individual differences among students. Collaborative learning gets students dynamically involved in their own learning and creates a connection between the learner and the learning item.

ER, Altunay and Yurdabakan, (2012) have studied the effects of active learning on self-concept and reading comprehension skills. The researchers randomly chose 182 male students to participate in mobile active learning activities. They divided the students into control and experimental groups. They applied active learning on the experimental group for 13 weeks. The control group used traditional learning. A reading comprehension placement test was given at the end of instruction. The results showed that the researchers' use of this learning pedagogy was successful in promoting reading comprehension achievement.

### **Blogs and Wikis: an active online environment**

The accessibility to modern technology tools offer students anytime and anywhere a diversity of media that can be used to design active environments and support students' learning from each other. Today, the Web 2.0 tools such as Blogs and Wikis are reported to support online cooperation to enhance the progress of peer teaching activities (Lutcher 2011). These tools provide students with opportunities of cooperative creation of content, for active content sharing, networking with each other; and most importantly they provide reflection. To enhance reading comprehension strategies, two major tools can play major roles which are Blogs and Wikis.

A Blog or Weblog is defined as an online record or journal. It is generally a straightforward webpage with postings of views, notes or comments related to a particular topic (Godwin-Jones 2003). In online courses such as VC, Blogs may be used to provide peer support in teaching and learning. Students can contribute to each other's Blog postings, and they can also share their opinions about topics of mutual concerns learning from and with each other effectively. When students perform tasks as e-moderators to review their peers' submissions, Blogs can also supply precious peer feedback. In brief, it was found that Blogs have facilitated students' reflection on the learning and teaching processes in an interactive environment (Ferriter 2009; Lutcher 2011).

There are many online Blogs that readers can use freely. These Blogs have wide-ranging discussion groups designed to help new readers create a collection of active feeds (Ferriter 2009). Lutchter (2011) has found that students who use a Blog or a wiki can increase their Skills. He has been found that after using a Blog or a Wiki, many skills are enhanced such as collaboration, communication, basic literacy, digital literacy, and global awareness. Moreover, the findings pointed out that there was a change in teacher practices from a teacher-led classroom to a student-centered classroom environment. Lastly, the study has shown that by using reading blogs and wikis, students became empowered to be in charge of their learning.

On the other hand, a Wiki is defined as a web page or a collection of web pages that allows learners who have access to the Internet to amend or edit the content within these pages (Tapscott and Williams 2008; Godwin-Jones 2003). Wikis can facilitate peer control of reading tasks as well as peer creation of written tasks. Learners are provided with opportunities to peer-edit, review and assess each other's work in a collaborative environment which facilitates active learning. Wikis also support the use of small group discussion feedback as learners cooperate on their assignments. In brief, students unconsciously learn from and with each other when they suggest, discuss, edit, and assess each other's work (Tapscott and Williams 2008).

### **Conclusion and Recommendations**

This review has focused on the different reading comprehension strategies from the perspective of an m-active learning pedagogy. Mobile devices have invaded all aspects of school children and university students. The increase in mobile devices means there is an increase in the readers who use these gadgets. Active learning is one of the major characteristics of this mobile environment. The methods used in understanding a text are influenced by active learning techniques in social and cultural contexts of the classroom. Therefore, technology can support active environment through virtual classes and online activities. This review has highlighted the crucial reading comprehension strategies which include previewing, evaluating, visualizing, building vocabulary knowledge, summarizing, predicting, questioning and answering. It is evident that vocabulary knowledge is of high impact in enhancing reading comprehension. Contextual clues and morphemes help readers understand texts more properly. As there are limitations in traditional learning, an m-active environment might open a new horizon for learners as there is an ease access to the Internet. Though having some limitations, virtual classrooms might be a solution to some limited and traditional classroom environments. Technical support and training courses should also be considered to ensure the success of ML in enhancing reading comprehension. Blogs and Wikis could be proposed for further investigation to find their effectiveness on creating cooperative environment among students. Another review could consider the effect of an m-active learning pedagogy to enhance other skills such as listening, speaking and writing.

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