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Using of 5E Model in Teaching Reading Comprehension for Preparatory School Students
A B S T R A C T

Bybee (1997) defines 5E instructional model as an approach that allows students redefine, reorganize, elaborate, and change their initial concepts through self-reflection and interaction with their peers and their environment. The 5 E's Instructional Model Origin is one of the most practical recommended models in the application of constructivist learning theory. It is built around a structured sequence and designed as a tangible and practical way for teachers to implement the constructivist theory. In other words, the model is based on constructivism which confirms that learners build or construct new ideas on top of their old ones. The origin of the model refers to 1980s when Biological Science Curriculum Study (BSCS) Team, whose leader was Rodger Bybee designed a model based on constructivist thinking. They named the model the 5E's to represent all the stages and their numbers. The 5E instructional model is predicated on inquiry based learning. In this model, instructors must work with their students, who will feel more motivated to learn when they feel supported by their instructors to generate thought-provoking questions and create hypotheses. The instructional model also promotes rational discussions as well as collaborative problem solving, which ultimately lead to understanding (Gillies et al, 2012).

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استخدام نموذج 5E في تدريس القراءة الاستيعابية لطلبة المدارس الإعدادية

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الخلاصة:

تم تعريف النموذج التعليمي الخماسي تبعا لبايبي (1976) كمنهج تعليمي يسمح للطلبة بإعادة تعريف وتمييز وترتيب التفكير الذاتي وتعزيز قدرتهم على التفاعل مع اقربائهم وبيئتهم. لقد تم بناءه حول تسلسل منظم ومصمم كطريقة ملموسة وعملية للمعلمين لتنفيذ النظرية البنائية. بعبارة أخرى، يعتمد

النموذج على البنائية التي تؤكد أن المتعلمين يتبنون أو يبنون أفكارًا جديدة فوق أفكارهم القديمة. يشير أصل النموذج إلى الثمانينيات عندما صمم فريق دراسة مناهج العلوم الذي كان قائده رودجر بايبي نموذجًا يعتمد على التفكير البنائي بتسمية النموذج الخماسي. يعتمد على التعلم القائم على الاستفسار. في هذا النموذج، يجب على المدرسين العمل مع طلابهم، الذين سيشعرون بمزيد من الحافز للتعلم عندما يشعرون بالدعم من قبل معلمهم لتوليد أسئلة مثيرة للتفكير وخلق فرضيات. يعزز النموذج التعليمي أيضًا المناقشات العقلانية بالإضافة إلى حل المشكلات التعاونية، مما يؤدي في النهاية إلى الفهم وتنمية مهارة القراءة الاستيعابية.

الكلمات المفتاحية: النموذج الخماسي، التعليم، القراءة، الفهم، المدارس الإعدادية، الطلبة..

An Introduction

1. The Constructivist Theory

Constructivism is one of the intellectual doctrines that emerged in the modern era at the hands of its first theorist, Jean Piaget, and revolutionized human and social studies, and ways of dealing with knowledge, in addition for its great influence in the field of education. Some constructivist theorists have attempted to define it as the philosophy related to the learner, which imposes the learners' need to build their own understanding on new ideas, or it is a reception process that involves learners reconstructing new meanings within the context of their immediate knowledge with their previous experience and learning environment (Shalail, 2003 . Students will be asked to spend the class period using the writing prompt. Tell a story about a time you left home for a new place that you knew nothing about. Among the most prominent of these theorists is Jean

Piaget, whose philosophy is based on the influence of the biological structure of man on his mental ability and the influence of the environment on the composition of the individual. It is a continuous balancing process and a continuous effort to introduce the new within the framework of the pre-existing mental structures and to find new, more integrated structures.(Vinacke,1952).

So, we find that Piaget's constructivism philosophy is one of the most important elements in teaching and learning English vocabularies because it is closely related to intelligence. The essence of constructivism is that learners create their own understanding of an activity in addition to understanding the ideas of others as new ideas are created through the problem situation, which leads to a state of imbalance caused by cognitive procedures that do not solve, explain, or elucidate the problem. with the creation of knowledge a social structure of knowledge occurs by the group that relate to the individual. It is also based on the recognition that everything that is built by the learner becomes meaningful to him, which prompts him to form his own perspective on learning through individual systems and experience. (Abu Attaya, 2004).

2. Traditional Methods of Science Instruction:

Sabri(2000) states that open the textbook, read the passage, and answer questions. This is the primary method of how traditional science instruction is delivered. The teacher is the center of the lesson. The students receive the instruction and may do some supporting activities along the way .The next stage may be to perform an investigation. The students open the lab manual, read the instructions, and perform the “experiment.” However, unless the students comes up with a hypothesis and perform an investigation that controls for variables, this is not truly an experiment. It is an activity that asks the students to make observations of some scientific experience. The traditional method of science instruction is not a bad way to teach science. The traditional method, after all, is the way many students have been learning for centuries. But research is showing that there is a more effective way to deliver lessons. In fact, when we think of the historic geniuses of science, many of them taught themselves science through this inquiry-based method, outside of the traditional classroom .In the traditional method, students are passive recipients of information

delivered by their teachers. Studies show that when students are fully engaged in defining the problem and coming to a solution, their knowledge deepens. They are able to understand the many facets of the topic much more fully (Sabri, 2000) .

3. Assumptions for Constructivist Learning

Knowledge is built from experience in the sense that education is a structural process in which the learner himself builds an internal representation of information using his previous experience. The learner makes a personal interpretation: each learner has his own interpretation, and in constructivist learning, no more than one person participates in one interpretation in the same way of the reality that surrounds each of them. Cooperative learning: meaning that this type of learning discusses the meaning presented through more than one viewpoint (conceptual growth comes through sharing a situation or concept in response to these viewpoints) and education in which it must contribute with others to present the multiple viewpoints that can Invoke it to arrive at a self-selected position. Learning occurs through real situations: Learning should take place by placing the learner in real educational situations that are prepared and prepared so that they are based on strong evidence that reflects the learners' sense of the real world. (Sabri, 2000) .

The learner's knowledge building results from his creativity and his adaptation to the outside world, and through this he uses a mental effort through the educational activity through which simple knowledge is built, and thus he achieves a set of purposes that may be characterized in solving the problem that meets him or answers his confusing questions, and these purposes are directed The learner's activities and act as a driving force for him to achieve his goals. (Khataiba, 2005)

4. The constructivist theory's general Basis for learning

Planning by the teacher to invite students and their participation in an activity or solve a specific problem effectively. Relying on students' ideas and perceptions to find solutions to the problems they face giving the opportunity to test students' ideas even if they were wrong during the learning process. Giving the students the opportunity to work collectively in the spirit of cooperation in order to discuss what has been reached of proposals and explanations regarding the problem at hand . Preparing a set of questions that the teacher poses in order to motivate the students to search and refer to the various sources of information and try to find evidence that supports what they mention. Giving students enough opportunity to research, think and retrieve their previous experiences and

competition among themselves. Accepting all the students' opinions, even if they are wrong, bearing in mind that the teacher directs the students' ideas to the right path without notifying them that the ideas they presented are not valid. The necessity of listening to the students' predictions of the results of the problem at hand before they delve into the solution. (Abdul-Fattah :2015)

5. Constructive Teaching Techniques

The constructivist approach has the advantage of being inductive. The learner is viewed as a "empty vessel" to be filled with knowledge in the passive perspective of education, whereas constructivism says that learners construct meaning only via active engagement with the world (such as experiments or real-world problem solving). Understanding, on the other hand, cannot be passively received because it requires generating meaningful connections between existing information, new knowledge, and the learning processes.. Basically, in constructive learning, the quality schoolroom procedure is turned the wrong way up. There are not any lectures, no demonstrations and no displays. From the start, students have interaction in activities through that they develop skills and acquire ideas .There are many procedures inside the classroom :

- Use learners' questions and ideas to guide the lesson.
- Encourage learners to initiate ideas.
- Encouraging learners to lead and collaborative learning.
- Encourage the use of alternative sources of information. use open-ended questions
- Encourage learners to suggest reasons for events and make predictions
- Encourage learners to test their ideas
- Search for learners' ideas before presenting ideas to them.
- Encouraging learners to challenge each other in concepts and ideas.
- use cooperative learning strategies.
- Provide sufficient time to analyze the learners' ideas.

- Encouraging learners to self-analyze and collect real events to support their ideas and re-Formulated in the light of new events and experiences (Zaytoun, 2007).

6. The Teacher's Role in Constructivist Learning

There are a few difficulties worth mentioning: the teacher's attitude toward self-conscious behavior, the unpleasant situation in an intensive learning environment, and unpleasant behavior caused by huge classrooms. The most critical issue is teachers' lack of confidence in their ability to focus on each individual. Completing the specified course contents to aid learners' intellectual development and comprehension is difficult. The traditional "Lecture-based mainly Method" focuses primarily on the teachers, while students find it ineffective. Learners try to acquire content by cramming during test times since they need to pass their papers and achieve good grades because English is a required subject.

- 1- Encourages and accepts learners' independence and initiative
- 2 -Uses raw data, primary sources and tools during processing.
- 3 Formulate tasks around terms and cognitive activities such as analysis, interpretation, prediction, and classification structure.
- 4 allows learners' answers to guide the lesson and alter and alter teaching strategies and content.
- 5 -Examines the extent to which learners understand the concepts.
- 6 -He encourages learners to participate in dialogue with him and with each other.
- 7 -It helps learners to research and investigate by asking thinking questions and open-ended questions and encouraging them to ask questions.
- 8 -Learners are asked to clarify and detail their initial responses(Zaytoun, 2007).

7. Challenges of Learner-Centered Instruction

Being the learning experience is determined by the students, the teacher does not have any presupposed plan in place prior to consulting with the students. As such, not having a plan in place beforehand is

extremely challenging for new teachers and difficult even for experienced ones. The teacher doesn't know what to expect in terms of the needs of the students. In theory, almost no class follows such a stringent approach to learner-centered instruction. Most schools have to meet government requirements, prepare students for the workplace, and or show improvements in testing. This limits the freedom of the teacher to be learner-centered in many ways. External factors cannot be ignored to adhere to the philosophy of learner-centered instruction (Wittrock ,1986).

8. Types of learning and teaching activities

Moseleyand (2002) show that theories of learning and theories of teaching often originate and operate independently from one to another. This article attempts to contribute to the integration of the two types of theories. First, the cognitive, affective and regulative activities students use to learn are analyzed. Next, different ways in which teachers can regulate the learning and thinking activities of students are discussed, as well as the teaching strategies they can use for that aim. The third part focuses on different ways in which student-regulation and teacher-regulation of learning act upon one another. Congruence and friction between these modes of control are discussed. From this interplay implications are derived for process-oriented teaching, aimed at promoting congruence and constructive friction, avoiding destructive friction and reducing the gap between learning and teaching.

There are two types of Communicative Language Learning (CLL) groups:.

- 1 .Formal Communicative Language Learning (CLL) groups. These last from one class period to several weeks. These are established for a specific task and involve students working together to achieve shared learning goals.
- 2 .Informal Communicative Language Learning (CLL) groups. These are ad-hoc groups that last from a few minutes to a class period and are used to focus student attention or to facilitate learning during direct teaching. (Moseleyand, 2002).

9. Stages of the 5E's Learning Model

According to (Bybee and Landes, 1990) the 5E Instructional Model can be used to design a science lesson, and is based upon cognitive psychology, constructivist-learning theory, and best practices in science teaching. The cycle consists cognitive stages of learning that comprise engage, explore, explain, elaborate, and evaluate. Bybee (1997) declares that “using this approach, students redefine, reorganize, elaborate, and change their initial concepts through self-reflection and interaction with their peers and their environment. Learners interpret objects and phenomena, and internalize those interpretations in terms of their current conceptual understanding”. Science teachers and curriculum developers may integrate or apply the model at several levels. The model can be the organizing pattern of a sequence of daily lessons, individual units, or yearly plans. Each phase of the 5E Instructional Learning Cycle, as it has been modified from Bybee, is now described:

1.Engagement

The teacher or a curriculum task accesses the learners' prior knowledge and helps them become engaged in a new concept through the use of short activities that promote curiosity and elicit prior knowledge. The activity should make connections between past and present learning experiences, expose prior conceptions, and organize students' thinking toward the learning outcomes of current activities see table(1) (Bybee et al., 2006) . At this stage, students' attention is attracted and invited to learn, by asking the teacher questions that include new knowledge of concepts, generalizations, skills, and issues, and encouraging them to think by involving them in solving problems and activities that motivate them, and push them to find a solution, and these problems are related to the students' activities ,see table (2), where this stage includes typical activities that are discussed with small groups of students to share ideas and stimulate thinking, and draw their attention to the task educational (Szesze, 2001:4)

2. Exploration

Exploration experiences provide students with a common base of activities within which current concepts (particularly misconceptions), processes, and skills are identified and conceptual change is facilitated see table (1). Learners may complete lab activities that help them use prior knowledge to generate new ideas, explore .questions and possibilities, and design and conduct a preliminary investigation. Following an engagement phase that promotes a

mental focus on the concept, the exploration phase now provides the students with a common, concrete learning experience. This phase is also student-centered and incorporates active exploration. Students are encouraged to apply process skills, such as observing, questioning, investigating, testing predictions, hypothesizing, and communicating, with other peers. This phase of the learning cycle tends to incorporate the main inquiry-based activity or experience, which encourages students to develop skills and concepts (Ozmen, 2004).

3.Explanation:

- All aspects of the 5E model assume active participation by students, and the Explain phase is no different. Optimally, the Explanation phase involves active participation by both instructor and students. In college and university science classrooms, the Explanation phase is likely most often an instructor-led lecture. It is a time for introduction of common terms that provide students entry into the language of science. In addition, it is the time that students are inculcated into how scientists in the past have categorized labeled, and considered the biological entities being discussed. In addition, it is a time that the instructor (with students) can address questions and confusions and ideas that have arisen in the process of Exploration. Research on learning would suggest that after priming their minds in the Exploration, students are more likely to have questions and confusions that can make lectures more meaningful, interactive, and participatory (Cohen etal, 1979).

4. Expansion or Elaboration

Teachers challenge and extend students' conceptual understanding and skills. Through new experiences, the students develop deeper and broader understanding, more information, and adequate skills. Students apply their understanding of the concept by conducting additional activities. At this stage, the teacher provides the students with a number of activities related to the new knowledge, concepts principles that he reached in the previous stage. For the purpose of expanding or deepening their learning of this knowledge or helping them to transfer the impact of their learning to new situations through the

application of that knowledge in solving real problems or issues related to their practical life or using it in making a specific decision related to one of these problems or issues, and students usually choose an activity One or more of them to be practiced in cooperative group learning. At this stage, teachers challenge and extend students' conceptual understanding and skills see table (1). The expansion phase of the 5E Model focuses on giving students space to apply what they have learned. This helps them to develop a deeper understanding. Teachers may ask students to create presentations or conduct additional investigations to reinforce new skills

5. Evaluation

Evaluation is the structured interpretation and giving of meaning to predicted or actual impacts of proposals or results. It looks at original objectives, and at what is either predicted or what was accomplished and how it was accomplished. So, evaluation can be formative that is taking place during the development of a concept or proposal, project or organization, with the intention of improving the value or effectiveness of the proposal, project, or organization. It can also be summative, drawing lessons from a completed action or project or an organization at a later point in time or circumstance .Evaluation is inherently a theoretically informed approach (whether explicitly or not), and consequently any particular definition of evaluation would have been tailored to its context – the theory needs purpose and methodology of the evaluation process itself. Having said this, evaluation has been defined as:

Table 1. The BSCS 5E Instructional Model: What the Teacher Does

Stage of the Instructional Mode	That Is Consistent with This Model	That Is Inconsistent with This Model
Engagement	<ul style="list-style-type: none"> ▪ Creates interest ▪ Generates curiosity ▪ Raises questions 	<ul style="list-style-type: none"> ▪ Explains concepts ▪ Provides definitions and answers ▪ States conclusions ▪ Lectures

Exploration	<ul style="list-style-type: none"> ▪ Encourages the students to work together without direct instruction from the teacher ▪ Observes and listens to the students as they Interact and Provides time for the students to puzzle 	<ul style="list-style-type: none"> ▪ Directly tells the students that they are wrong ,gives information or facts that solve the problem Leads the students step by step to a solution
Explanation	<ul style="list-style-type: none"> ▪ Encourages the students to explain concepts and definitions in their own words Asks for justification (evidence) and clarification from student Formally clarifies definitions, explanations and new labels when needed 	Accepts explanations that have no justification and neglects to solicit the students"explanations
Elaboration	<ul style="list-style-type: none"> ▪ Expects the students to use formal labels, definitions, and explanations provided previously ▪ Encourages the students to apply or extend the concepts and skills in new situations and reminds the students of alternate Explanations 	<ul style="list-style-type: none"> -Provides definitive answers -Directly tells the students that they are wrong -Lectures -Leads students step by step to a solution -Explains how to work through the problem
Evaluation	<ul style="list-style-type: none"> <input type="checkbox"/> Observes the students as they apply new concepts and skills <input type="checkbox"/> Assesses students' knowledge and skills <input type="checkbox"/> Looks for evidence that the students have changed their thinking. <input type="checkbox"/> Allows students to assess their own learning and group-process skills <input type="checkbox"/> Asks open-ended questions such as, "Why do you think ...?" 	<ul style="list-style-type: none"> Tests vocabulary words, terms, and isolated facts <input type="checkbox"/> Introduces new ideas or concepts <input type="checkbox"/> Creates ambiguity <input type="checkbox"/> Promotes open-ended discussion unrelated to the concept or skill

Table 2. The BSCS 5E Instructional Model: What the Student Does

<https://www.refseek.com/>

Stage of the Instructional Mode	That Is Consistent with This Model	That Is Inconsistent with This Model
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Engagement	Asks questions such as, "Why did this happen?" "What do I already know about this?" "What can I find out about this?" - Offers the "right" answer -Seeks one solution -Shows interest in the topic	-Asks for the "right" answer happen?" "What do I already know about this?" "What can I find out about this"?"
Exploration	Thinks freely, within the limits of the activity , -Tests predictions and hypotheses . Forms new predictions and hypotheses -Tries alternatives and discusses them with Others -Records observations and ideas -Asks related questions	Let others do the thinking and activity exploring (passive involvement) Plays around" discriminately with no goal in mind -Stops with one solution
Explanation	Explains possible solutions or answers to others -Listens critically to others' explanations Questions others explanations -Listens to and tries to comprehend explanations that the teacher offers, refers to previous activities ,uses recorded observations m explanations and assesses own understanding	-Proposes explanations from "thin air"with no relationship to previous experiences -Brings up irrelevant experiences and examples -Accepts explanations without justification - Does not attend to other plausible explanations
Elaboration	Applies new labels, definitions, explanations, and skills in new but similar situations -Uses previous information to ask questions, propose solutions, make decisions, and design experiments --- Draws reasonable conclusions from evidence -Records observations and explanations Checks for understanding among peers	Plays around with no goal in mind -Ignores previous information or evidence --- -Draws conclusions from thin air -In discussion, uses only those labels that the teacher provided
Evaluation	Answers open-ended questions by using observations, evidence, and previously accepted explanations -Demonstrates an understanding or knowledge of the concept or skill	-Draws conclusions, not using evidence or previously accepted, explanations. -Offers only yes-or-no answers and memorized definitions

11. Reading:

Grabe and Stoller (2002) describe the perception of reading as “an active process of comprehending [where] students need to be taught strategies to read more efficiently (e.g., guess from context, define expectations, make inferences about the text, skim a head to fill in the context, ”. (Widdowson ,1990) states that reading is an act of participating in a discourse between interlocutors, and that reading efficiency is a matter of how an effective discourse the reader can create from the text, either in term of rapport with the writer or in term of his purpose an engaging in the discourse in the first place .Staiger (1973) maintains that reading is essentially a cognitive process during which the reader does not only comprehend ideas found on a text but also how to interpret and evaluates them.

12. Reading as an Act of Communication

Smith (1978) defines reading as an act of communication in which information is transferred from transmitter to a receiver, whether the reader is a scholar deciphering a medieval text or a child identifying a single letter on a blackboard .Communication is a reading or any form that requires the participation of two parts to convey a message. The first part is the sender (the writer) and the second part is the receiver (the reader). The message has to be encoded by the sender and processed by the receiver .

The messages may differ in the amount of information they convey. This depend upon how much new and important information the message contains. (Ambo and Al Balushi ,2011) .

13. The Importance of Reading

Krashen (1987) points out that Reading for information and reading for pleasure are the two most common reasons for reading Readers who are reading for enjoyment have the option of skipping entire portions if they find them too tough or boring. They can skip over the terms they don't comprehend, especially if they believe they're on the right track. The sole stipulation is that the plot or major idea must be understandable. While reading for information improves scanning abilities, reading performance, and the ability to assimilate the author's

ideas. Letting students to read in English is really important for a number of reasons- :

- 1 -For many foreign language students, reading is a crucial skill. A large number of students when dealing with manual instructions, or even when interacting with a computer, you must be able to read well .
- 2 -It is vital to read in a foreign language since it demonstrates the written form in the act .
- 3 -Frequent reading exposes kids to the language in a way that allows them to better understand it deliberately or unconsciously learn the language itself.

14. Reading Instructional Models

There are two contrasting models of what is involved in the reading process in general. Reading, according to one paradigm ("Bottom up"), is a data-driven process in which :

- (1)Phonetic representations are created from letters.
- (2) After that, phonemic representations are translated into word representations .
- (3) After that, meaning is ascribed to words.
- (4)- Sentences with meaning are formed by combining words.
- (5) Meaningful connections are established, and
- (6) Finally, the data is saved. Reading, according to the opposing hypothesis is a "top-down" process in which higher-level cognitive processes influence word recognition and the reader:

- (1) reads to confirm the hypothesis;
- (2) creates predictions about what the word may be based on prior knowledge of the topic and sentence sense;
- (3) constructs meaning; and

(4) evaluates the print assimilates new knowledge (Stanovich, 1990).

The essence of such controversy centers upon whether the first emphasis in word recognition instruction which should be phonics- or meaning- based. In one views of reading, learners are perceived as being almost passive of visual stimuli; while in the other, they are viewed as active participants who construct their own encodings (Irwin, 1986:157).

15. Reading Comprehension Strategies

Reading comprehension strategies are comprehension mechanisms that allow readers to successfully generate meaning from written text. Anderson (1999), Brantmeier (2002), and Almasi (2003), for example, have summarized the categories of reading strategies. Anderson (1999), Brantmeier (2002), and Almasi (2003) have emphasized the role of prior knowledge in reading.

Reading techniques are summarized by Brantmeier (2002: 1-14) as follows:

Skimming, scanning, guessing, detecting cognates and word families, reading for meaning, forecasting, activating general knowledge, making inferences, following references, and separating key ideas from supporting concepts are some of the tactics that can be used. Reading strategies are "the mental operations engaged when readers actively approach a book to make sense of what they read," according to Barnett (1989). As a result, each approach must be properly defined, as well as the best ways to use them in each reading stage .Evaluation of contents, such as agreeing or disagreeing, making an association with prior knowledge or experience, asking and answering questions, looking for key words, sentence structure analysis, such as determining the subject, verb, or object of the sentence, skipping and reading are all examples of reading strategies (Singh and Nath, 2007)

16. Sub-Strategies are Suggested by This Course

There are many strategies for reading suggested :

A- Concluding: Summarize is a tactic that entails stating or writing a few well-chosen words to summarize something that has been written. It is possible to summarize any type of text. The essential ideas and the most

relevant facts are highlighted here. It must analyze data and discern between relevant and irrelevant features.

B- Questioning: One of the most prevalent methods used in the reading process is questioning. Unfortunately, teachers waste a lot of time creating questions that aren't clear or effective. Questions should be geared toward inspiring and preparing students, as well as checking and reviewing knowledge, developing critical thinking skills, and immersing students in the content they are reading (Rosenshine et al., 1996).

17. The Role of the Learner in the Reading Process

Readers can provide the most useful feedback. Teachers might assess comprehension by gathering open-ended questions from students and asking them to justify their answers. There are numerous techniques of analyzing a book and developing an understanding of the author's aim (Celece –Murcia, 1991:133).

Unknown words might cause problems with comprehension unless the readers understand what they can disregard. More important than precise linguistic information, strategies are an important aspect of learning. Looking at how readers overcome problems rather than what is bothering them is a better emphasis (Cohen et al., 1979: 551).

Since the researchers are only beginning to be aware of, language-based and problem-based concerns are explored in a variety of ways for readers. Learners who question and monitor what they're learning should understand that grasping the new language is a necessary aspect of good reading, not a flaw. The ultimate aims of learning to read are meaning, learning, and pleasure. Knowing how to read words is useless if the student can't make sense of what he or she is reading. Finally, reading comprehension is the process of generating meaning through the coordination of several complicated processes such as word reading, word and world knowledge, and fluency (Siregar, 2016: 86).

Hirsch (2003: 10-13) claims that there are three principles that can be used to help students improve their reading comprehension:

1. Fluency, which allows the mind to focus on comprehension.

2. Vocabulary breadth, which improves comprehension and facilitates further learning.
- 3- Domain knowledge, the most recently discovered principle, which improves fluency, broadens vocabulary, and allows for deeper comprehension.

18. Conclusions

The use of 5 E model in teaching and learning is being promoted that accentuates the need to restructure science education. Several national reform documents illustrate the need to make science classrooms across the country active and teaching the language skills especially the reading comprehension environments. Many teachers are opting for this non-traditional teaching approach. The 5E Instructional Model serves as a flexible teaching approach that assists curriculum developers and classroom teachers create science lessons that illustrate constructivist, reform-based, and best teaching practices.

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