

**A Program Based on
Interactive Student Response
Systems to Develop EFL
Students' E-Critical Reading
Comprehension Skills at the
Faculty of Specific Education.**

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A Program Based on Interactive Student Response Systems to Develop EFL Students' E-Critical Reading Comprehension Skills at the Faculty of Specific Education.

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Abstract:

The current Study aimed at investigating the effectiveness of a program based on Interactive Student Response Systems to develop EFL Students' E-Critical reading comprehension skills at the Faculty of Specific Education. The researcher used two groups (Control and Experimental) to achieve this purpose. He chose one experimental group randomly consisting of thirty from the four level university students "English Section" who utilized interactive student response systems. In addition, the control group was taught by the traditional method. The researcher designed the EFL e-critical reading comprehension skills test and the program based on interactive student response systems. After performing the statistical analysis, There were statistically significant differences between the experimental and the control groups' mean scores in the post-administration of the EFL E-Critical Reading Comprehension Skills test in favor of the experimental group, and statistically significant difference between the mean scores of the experimental group in the pre-and post-administrations of the EFL E-Critical Reading Comprehension Skills test in favor of the post-administration. Also, There were no statistically significant difference between the mean scores of the experimental group in the post and follow up administration of the EFL E-Critical Reading Comprehension Skills test. Finally, Interactive Student Response Systems had a positive influence on developing the EFL E-Critical Reading Comprehension Skills.

Keywords: Interactive Student Response Systems , E-Critical Reading Comprehension Skills

Introduction

Reading is one of the four language skills that requires special attention, as it is a receptive language process. It is the process of recognition , interpretation , and perception of written or printed materials. In many situations, reading is considered to be an indispensable channel of communication in an ever widening world. In fact, people are living in a reading world where it is difficult to manage without.

Mikulecky (2011) stated that reading is a complex conscious and unconscious mental process in which the reader uses a variety of strategies to reconstruct the meaning that the author is assumed to have intended, based on data from the text and from the reader's prior knowledge. Veeravagu, et al (2010) defined reading comprehension as "a thinking process by which a reader selects facts, information, or ideas from printed materials; determines the meanings the author intended to transmit; decides how they relate to previous knowledge; and judges their appropriateness and worth for meeting the learner's own objectives".

According to Hung (2015), Reading is a basic skill to improve vocabulary, writing, fluency and speaking. Thus it would help the learners to master their target language. Pang (2008) stated that a learner needs to be familiar with text structure and topic, aware of reading strategies, how to use these strategies in the processing of material and word recognition to be able to comprehend what is read.

There are several levels of reading comprehension such as literal, inferential, creative and critical comprehension. According to Jude and Ajayi (2012), literal comprehension involves students' ability to identify the exact meaning of the vocabulary utilized in the passage (reading for exact meaning at the word/sentence level), read for information (comprehending the gist of the text), as well as their capability to paraphrase or summarize what they understand from the text.

Critical reading comprehension is evaluating written material, comparing the ideas discovered in the material with known standards and drawing conclusion about their accuracy, appropriateness, and timeliness. The critical reader must be an active reader, questioning, searching for facts, and suspending judgment until he or she has considered all of the material. Critical reading depends upon literal comprehension, and grasping implied ideas is especially important (Sinambela, E., Manik, S., & Pangaribuan, R. (2015).

Moreover, a study conducted by Karabay (2015) find that when reading texts, critical readers are always analytical while reading texts;

especially they take critical notes and underline important information in the texts. Similarly, Kobayashi (2007), far before a study was conducted by Karabay (2015), also indicate that critical readers substantially produce critical notes while reading expository texts, comparing to the less-critical readers who relied much on making a summary of the texts. These two studies indicate that critical reading is a skeptical, careful, active, reflective, and analytical activity to judge the value of the text (Douglas, 2000) which the readers do while reading texts. It is true that when reading texts, critical readers do not only grasp what is explicitly stated in the text but also go far beyond it using their high order thinking skills (HOTs) to tackle and evaluate the content of reading texts. These skeptical and analytical skills are required because of the emergence of the internet and other media of literacy that provides much of information to the students which easily exposed to. This suggests that critical reading should become a part of foreign language teaching and learning. The English teachers or instructors should design appropriate teaching activities which encourage the students to develop their critical skills in reading.

Besides, examining the students' critical reading ability cannot be only seen from the text variability but also from another variable, like the cognitive style of the students. This is because every student with a different culture, language proficiency, and cognitive styles has a different way of learning and reading. Students who have different cognitive styles will also have a different way of understanding the text when involving in reading activities.

Reading comprehension problems are considered to be a popular issue in EFL teaching-learning settings for a long time. Fitriani (2014) mentioned several common problems in the EFL reading classroom such as insufficient vocabulary, problems in understanding linguistic complexity including lexical and syntactic knowledge, language inaccessibility, poor reading skills and lack of schemata. Lack of reading exercises among students and training among teachers might be responsible for the poor outcome in terms of reading skills among students, which could result in poor academic performance (Abdelrahman & Bsharah, 2014; Alroud, 2015).

Nuttal (2000) mentioned that complex noun groups, coordinating conjunctions, participial phrases, and prepositional phrases tend to be the cause of many problems in reading comprehension because those elements make texts more complex and harder to understand by EFL students. Gunning (2002) explained that most students face difficulties in reading English texts especially in

Vocabulary knowledge that plays an important role in understanding complex reading materials such as textbooks, particularly those containing technical expressions (Carlisle, 2000; Qian, 2002). Students with poor vocabulary knowledge face difficulties in understanding technical words such as superordinate, synonyms, antonyms, or words with multiple connotations (Nuttall, 2000; Carlisle, 2000; Vilenius-Tuohimaa, Aunola, & Nurmi, 2008).

The context of the Problem

Chawwang (2008) investigated English critical reading comprehension problems among Thai EFL learners. His study found that most of the students face difficulties in reading English texts. Scott (2009) mentioned that EFL learners are facing problems in understanding complex sentences. Complex sentences are sentences that consist of several clauses, and at times contain conjunctions such as although, because, furthermore, and however.

English language learners are expected to develop good reading skills. Researchers have focused on searching for effective methods to increase students' reading comprehension. Learners who do not understand reading material cannot enjoy reading. The most significant problem faced by the instructors today is reading deficiency among the university level students, which may reflect poor performance in their educational activities (Nezami, 2012).

Kasim and Raisha (2017) indicated that critical reading comprehension problems are found in several situations. For example, the EFL reader may have difficulty to differentiate between the various meanings of the same word, e.g. to differentiate between homonyms or homophones. The word "left" has more than one meaning and the word pronounced "rite" has four spellings, viz., rite, write, right and wright and a host of meanings. In this sense, the EFL reader who only knows one meaning of the word right may easily misunderstand the meaning of a sentence with right in it.

Rodli (2009) stated that first; the students' ability in mastering reading comprehension skills is still low. It is indicated by their difficulties to find the topic of a paragraph or text, their confusion to find the main idea of a paragraph and the supporting idea, to understand reference, to deduce meaning from context and also they do not have adequate vocabulary. Second, the teacher unconsciously tended to test their students, not to teach them.

Several strategies were used to improve reading comprehension skills and this study suggests Interactive Student Response System (SRS) to enhance E- Critical Reading comprehension skills. E-Critical reading comprehension is the ability to comprehend e-texts by using

electronic devices like computers or mobile phones. SRS, according to Hung (2017), is “an integrated technology solution that has been used to create interactive classrooms in higher education”. With student response systems, immediate feedback is easily available from all students . This timely feedback allows the instructor to better judge whether and how to amplify, clarify, or review.

Morton (2016) stated that the theoretical approach used in compiling the SRS' androidbased learning application is Content and Language Integrated Learning (CLIL). CLIL promotes interaction between instructors and students. CLIL improves language skills as teachers are encouraged to change teaching practice and employ a variety of advanced instructional tools. Thus, developing reading comprehension requires integrating both language skills and the content or context of language. This leads to both understanding the content area of texts and the vocabulary used in texts.

Chang (2010) showed that using smartphone applications based on Interactive Student Response Systems to develop critical reading comprehension gave a positive result on reading strategies and enhancing co-operative learning. Wang and Smith's study (2013) also found that SRS' applications improve reading comprehension skills.

Dangel and Wang (2008) noted that over the past decade, instructors in colleges and universities increasingly have used Student Response Systems (SRSs)—typically in large classes to increase the level of student engagement and learning. The use of student response systems is becoming more prevalent in higher level education. Student Response Systems have been adopted by a number of instructors to increase interactions, student engagement, formative assessment and feedback especially in large group sessions.

As modern technology develops over time, SRS has also evolved from using simple handheld devices to a system embedded in a mobile application format. One of the popular clicker applications is *Socrative*, which is an Internet-based platform. *Socrative* is a student-response system used to gain a quick idea if students understand material or not. It also features a quiz feature that will deliver instant graded results. This particular application offers some unique advantages over other types of SRSs. These days, many students carry smartphones. Therefore, the application is easily accessible as long as one has an internet connection because the program is freely available to anyone.

Wash (2014) suggested that *Socrative* has “the most flexibility and ease of use” compared to other SRSs. Moreover, by using *Socrative*, instructors could generate quizzes instantly and make different types of exercises. It further allows immediate responses from students. Thus, instructors can provide feedback and monitor students’ performance in real time. Furthermore, the results of the students’ responses are organized in a report format (Awedh, Mueen, Zafar, & Manzoor, 2014; Dakka, 2015; Kaya & Balta, 2016).

Grabe (2009) indicated that Interactive Student Response Systems are indispensable to focus on the reading process adopting pre-reading activities such as activating background knowledge using previewing questions. In order to build better comprehension, understanding and activating background knowledge are important.

Since pre-reading activities can incorporate considerable engagement from participants for discussions and answering previewing questions, an SRS could play an important role especially for those who lack active participation skills due to shyness or anxiety (Kaya & Balta, 2016). During reading, students start to read the text well. Then the instructor asks them to generate questions. Instructors begin to make discussions of questions. After that, instructors also generate questions to enhance reading comprehension skills, particularly literal and inferential comprehension. Post-reading, instructors finally evaluate students by questions and summarizing the text.

To conclude, students need to be able to use the appropriate application based on their mobile phones consciously. They need to be aware of using critical reading comprehension skills that can be employed. It is necessary for them to know reading strategies, when their reading comprehension breaks down, so that they can understand new material. Consequently, students should use the interactive student response systems to improve their reading comprehension. The current study is, therefore, an attempt to investigate the effect of student response system on developing E-reading comprehension skills.

Statement of the problem

To make sure that the students encounter problems of critical reading comprehension, a pilot study was conducted among 60 EFL students at the Faculty of Specific Education. A pilot critical reading comprehension skills test was administered, and students responses were corrected and analyzed. Results indicated that more than (80%) of the students obtained very low scores. The current study,

therefore, is an attempt to enhance students' critical reading comprehension.

Shaban (2017) implemented *Socratic* Application in English reading classes for undergraduate, international students who were learning English as a second language, reporting that *Socratic* helped students to actively participate in discussions without the fear of being exposed to others even when they were wrong. Moreover, one of the shy Asian students was encouraged to speak in front of others with the help of *Socratic*. Comments from students who used *Socratic* in their classes were positive, and they were supportive of this active learning experience.

Kaya and Balta (2016) explored the use of *Socratic* Application (SRS) for undergraduate students. They conducted a survey after using *Socratic* in English classes for grammar quizzes and discussions. The results revealed that 86% of the students stated that *Socratic* was helpful in learning English and 74% of them replied that it helped them to engage more in activities.

On the basis of the aforementioned discussion, it could be observed that students really face great difficulties in critical reading comprehension skills. These difficulties might be as a result of ineffective traditional teaching methods, which finally affect their reading comprehension. There is a need to use new strategies to solve the students' problems they face in critical reading.

Questions of the Study

This study discusses the following main question:

" *What is the effectiveness of a Program Based on Interactive Student Response Systems in Developing EFL Students' E-Critical Reading Comprehension Skills at the Faculty of Specific Education?* "

The following sub-questions could be derived from this main question:

- 1) What are the required E-Critical Reading Comprehension Skills necessary for EFL Students?
- 2) To what extent do they master the E-Critical Reading comprehension skills?
- 3) What are the procedures for designing a Program based on Interactive Student Response Systems to develop EFL students' E-Critical Reading Comprehension Skills?
- 4) To what extent is the Program based on Interactive Student Response Systems effective in developing EFL students' E-Critical reading comprehension skills?

Hypotheses of the study

Hypotheses of the study could be stated as follows:

1. There is a statistically significant difference between the mean scores of the experimental group and the control one on the E-Critical Reading comprehension post-test results in favour of the experimental group.
2. There is a statistically significant difference between the mean scores of the experimental group in the pre- and post- results of the e-critical reading comprehension test in favour of the post- results.
4. A program based on Interactive Student Response Systems is effective in developing E-Critical Reading comprehension skills.

Delimitations of the study

The current study is delimited to the four year university level students of English Department at the Faculty of Specific Education for the following reasons as they need to enhance their critical reading comprehension skills.

Definition of terms

1. Interactive Student Response Systems:

Student response systems (SRS) are online devices that allow students to provide categorical and numerical responses to questions embedded within a lecture, and the responses can be tallied and scored in various ways to provide immediate feedback to the students and professors (Hall, Richard H.; Collier, Harvest L.; Thomas, Marcie L.; and Hilgers, Michael G., 2005).

2. E-Critical Reading Comprehension Skills:

The ability to read e-book critically and compare the ideas discovered in the material with known standards and draw conclusions about their accuracy, appropriateness, and timeliness.

Review of Literature

The Interactive Student Response System

SRS is one of the productive alternative pedagogies that educators can access to ensure learners' engagement in critical thinking and active participation during instructional processes (Crouch & Mazur, 2001; Mintzes & Leonard, 2006). The SRS is a wireless interactive handset that collates and projects students' (anonymous) responses to a teacher's questions. A receiver (dongle) connected to the base (USB) of the instructor's computer recognizes and captures students' responses from the individual handsets. The recorded data are automatically displayed on the projection screen. The class can then discuss and possibly reattempt the questions (M. Johnson & Robson, 2008; Marlow, Wash, Chapman, & Dale, 2009; Surgenor, 2010).

The current advancement in interactive technologies, coupled with the fall in their cost, is paving the way for increasing popularity and adoption of wireless technologies in all levels of the education sector (Draper, Cargill, & Cutts, 2002). Interactive technologies are highly useful in promoting independent learning as well as the lifelong skills learners require to cope within the information society (Sessoms, 2008). One of the prominent challenges of the traditional classroom is the teacher's inability to create active learning environments that could improve students' learning outcomes (Mateo, 2010).

Though SRS technology has been prominent since the early 1970s, its adoption and popularity in the educational mainstream has begun only relatively recently, as the SRS technology has become affordable to institutions, teachers and students, as well as its ease of use having improved (Marlow et al., 2009). Using SRS has also been extended from sciences to other school subjects and academic disciplines (Hancock, 2010; Marenno, Bremmer, & Emerson, 2010).

In recent times, university educators have experimented with various alternatives to the traditional instructional paradigm of lecturing, and adopted modes of learning that more actively engage students during class. Student Response Systems have been used to motivate student learning especially in mathematics classes (Liu & Stengel, 2011). The major attractions of student response systems are that students can participate and respond to questions anonymously, teachers can collect learning results instantly and educators follow the principles of game-based learning in the 21st century.

Student Response Systems have been successfully used in varied course formats, ranging from optional tutorials to formal standard lectures and cooperative learning through peer instruction (Nicol and Boyle, 2003). With a skilled instructor, the student response systems can be a useful instructional tool for students of all ages and levels of preparation, from freshmen in large, introductory courses for non-majors to juniors and seniors in required, high-level major courses. The student response system has also been used in elementary and K-12 settings (Roschelle et al., 2004).

Nawalaniec (2015) indicated that there are online student response system such as **Socrative**. It is an active learning tool that is widely used in teaching. Students with smartphones could easily access the system via their personal cell phone provider, or via Wifi if desired and available. When classes were conducted in computer labs, students were given the option of using their smartphones instead, and interestingly almost all of them chose to do that because access was

slow in the labs and they are more comfortable with mobile technology.

Critical Reading Comprehension Skills

McDonald (2004) defines critical reading as an alternative way of reading that goes beyond the “typical approaches to reading such as information processing or personal response”. An example of an information processing approach to reading might be when students outline or summarize the main ideas in the text. An example of a personal response approach might be when students are asked to describe their feelings or impressions related to a selection of text.

Readers comprehend the printed text by retrieving from their memory prior experiences and concepts that are rooted in the reader’s culture (Applegate, Quinn, & Applegate, 2002). Good readers connect their past experiences with the text: interpreting, evaluating, and considering alternative responses or interpretations. Critical reading is the art of analyzing and evaluating texts and thinking with a view to improving the nature of thought (Paul & Elder, 2008).

We need to teach critical reading skills to students because we want them to not only know how to convert orthographic symbols to language (word attack skills), use context and knowledge to comprehend what is read (comprehension skills), or see larger sentences as wholes, a process which help students to read fluently (fluency skills) (Hudson, 2007). We know that most students can read but our main concern is whether they could understand the text critically like “reading between the lines” or ” reading for deeper meaning” because if we could help them to develop critical reading skills, they would definitely have good reading comprehension skills and could be successful in schools. Students with good reading comprehension skills could perform well in any subject/course because they have developed the critical reading skills to not only understand but analyze any text given to them. This will also help them to score better in any tests or exams they have to take in schools. What is more crucial here is that we will prepare them to be better students if they embark in any program at the tertiary level.

Critical reading Comprehension aligns with reader response learning theories. Based on this theoretical model, learners do not try to figure out an author’s meaning as they read. Instead, the reader negotiates or creates meaning that makes sense based on personal background knowledge (Tompkins, 2006). Rosenblatt (1991) suggests a continuum of stance or purpose for reading. On the one end is the aesthetic stance where reading is done for enjoyment or pleasure.

The researcher needs to review previous studies with similar topics to find out the similarities and differences. Roviqoh (2021) explained the effectiveness of Socratic Application (SRS) on critical reading comprehension skills. The purpose of the study was to investigate that there are significant differences among students who are taught by using Socratic Application and those who are not taught by using Socratic Application. The research method used by researchers is Quasi-Experimental. The results of this study showed that there was an increase in critical reading comprehension of students who used Socratic Application.

Kaya and Balta (2016) proposed advantages of utilizing Socratic Application in English language teaching Classes. The purpose of this study was to look at the effect of Socratic Application in promoting student engagement during English classes. Participants from the study were 191 of 297 students of the second semester of the 2014-2015 school year. The results of this study showed that Socratic Application could increase student engagement in English classes.

Hussein (2019) described the impact of utilizing Socratic Application as a formative assessment based on feedforward. Then, this study used an experimental design and the participants of this study were 47 nutrition students, which were divided into 23 students who entered the experimental group, while the rest entered the control group. The results of this study stated that there was significant increase in the post-test results of the experimental group which is the impact of the implementation of Socratic Application as a formative assessment.

Fatmawaty and Sholihah (2020) determined the effect of applying an interactive student response system (Socratic) on students' critical reading comprehension skills by using the internet and computers. The results of their study suggested that there were differences in students' critical reading comprehension before and after being given treatment. The result is that the 10th grade students of Computer and Network Engineering at SMK 1 Baureno prefer to read online, which is using online Socratic Application rather than offline reading.

Methods of the Study

Design

Adopting the quasi experimental design, the control and experimental groups were pre-tested on critical reading skills. Then the treatment was administrated by the researcher. The experimental group received training through Student Response Systems. On the other hand, the control group taught through the traditional method.

Participants

Sample of English Section Students from Faculty of Specific Education in Zagazig University were selected then assigned to a control group (30 students) and an experimental group (30 students).

Instruments

1. a checklist was designed to the jury members to state the most important E-Critical Reading comprehension skills needed for the students.
2. An E-Critical Reading comprehension test was also designed to be submitted to the jury members to determine its validity and reliability.
3. A program based on interactive student response systems to investigate the effect of SRS on developing Critical reading comprehension skills.

Results and Interpretation

The First Hypothesis:

The first hypothesis indicates that, "There is a statistically significant difference between the experimental and the control groups' mean scores in the post-administration of the E-Critical Reading Comprehension Skills test in favor of the experimental group." To confirm this hypothesis, the researcher used the Independent sample t-test to compare the mean scores of the experimental group students who used SRS with those of the control group students who used the traditional method, on the post-test. The results are presented in the following table.

Table (1): Post t-test results of the control and the experimental groups in E-Critical Reading Comprehension Skills test:

Skill	Group	N	M	S.D	D. f	t-value	sig
Critical Reading comprehension skills	Experimental	30	10.066	0.739	29	16.767	0.000
	Control	30	6.500	0.900			

The table above states that the mean scores of the experimental group students are higher than those of the control group in EFL E-Critical Reading Comprehension Skills, where t-value is (16.767) for Critical reading comprehension skills, which is significant at 0, 01 level. Therefore, this hypothesis was confirmed. These differences can be attributed to utilizing SRS in teaching EFL E-Critical Reading.

The Second Hypothesis:

The second hypothesis indicates that there is a statistically significant difference between the mean scores of the experimental group in the

pre-and post-administrations of the E-Critical Reading Comprehension Skills test in favor of the post-administration. To verify this hypothesis, the researcher used the paired sample t-test to compare the mean scores of the experimental group who used SRSs in the pre and post-test. The following table includes the results.

Table (2): Post t-test results of the experimental group in pre and post EFL E-Critical Reading Comprehension Skills test:

Skill	Group	N	M	S.D	D. f	t-value	sig
Critical reading comprehension skills	Pre	30	5.500	1.106	29	19.571	0.000
	Post	30	10.066	0.739			

The table above states that the mean scores of the experimental group students are higher than those of the control group in EFL E-Critical Reading Comprehension Skills, where t-value is (19.571) for Critical reading comprehension skills, which is significant at 0, 01 level. Therefore, this hypothesis was confirmed. These differences can be attributed to utilizing SRS in teaching EFL E-Critical Reading.

The Third Hypothesis:

The third hypothesis indicates that “Interactive Student Response Systems would have a positive influence on developing the EFL E-Critical Reading Comprehension Skills. To verify this hypothesis, the researcher calculated the effect size by using the paired sample t-test to compare the scores of the experimental group in the EFL E-Critical Reading Comprehension Skills in the pre and the post test using Cohen's formula.

Table (3): The effect size of the experimental group in the EFL E-Critical Reading Comprehension Skills as a whole in the pre and the post test:

Skill	Group	N	M	S.D	t-value	Eta square	Effect size
Critical reading comprehension skills	Pre	30	5.500	1.106	19.571	0.650	1.36 <i>Large</i>
	Post	30	10.066	0.739			

Significant at (0, 01)

Table (3) states that the effect size of the experimental group students in the post test is greater and higher than those of the pre-scores in the EFL Overall EFL E-Reading Comprehension Skills, where the effect size is (1.36) for Critical comprehension skills, which is significant at 0.01 level of significance. Therefore, this hypothesis was confirmed. These differences can be attributed to Interactive Student Response Systems (SRSs).

According to the findings of Cohen's formula and the interpretations of the effect size, Student Response Systems (SRSs) had a positive effect on developing the students' EFL E-Critical Reading Comprehension Skills.

Suggestions for Further Research

The following topics are suggested for further research :

1. Using student response systems to develop other language skills; writing, speaking , and listening.
2. Using student response systems to improve the low-achievers' reading skills.
3. Using student response systems to investigate their effect on the digital reading skills of Prep stage students.

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ملخص البحث:

هدفت الدراسة الحالية إلى الكشف عن فاعلية برنامج قائم على أنظمة إستجابة الطلاب التفاعلية لتنمية مهارات الفهم القرائى الناقد الإلكتروني لدى طلاب شعبة اللغة الإنجليزية بكلية التربية النوعية، ولتحقيق هذا الغرض استخدم الباحث نظام المجموعة التجريبية والمجموعة الضابطة، حيث أختار الباحث عشوائيا عينة تجريبية واحدة من طلاب الفرقة الرابعة شعبة اللغة الإنجليزية بلغ عددهم ثلاثين طالبا ، والتي درست باستخدام أنظمة إستجابة الطلاب التفاعلية، وثلاثون طالبا للمجموعة الضابطة والتي درست بالطريقة المعتادة، وقد قام الباحث بإعداد اختبار الفهم القرائى الناقد الإلكتروني باللغة الإنجليزية كلغة أجنبية وبرنامج قائم على نظام إستجابة الطالب التفاعلى وبعد إجراء التحليل الإحصائي توصلت الدراسة إلى النتائج الآتية: وجود فروق ذات دلالة احصائية بين متوسطى درجات المجموعتين (الضابطة-التجريبية) فى القياس البعدى فى اختبار الفهم القرائى الناقد الإلكتروني لصالح افراد المجموعة التجريبية وفروق ذات دلالة احصائية بين متوسطى درجات أفراد المجموعة التجريبية فى القياسين القبلى والبعدى فى اختبار الفهم القرائى الناقد الإلكتروني لصالح القياس البعدى ومن النتائج أيضا عدم وجود فروق ذات دلالة احصائية بين متوسطى درجات أفراد المجموعة التجريبية فى القياسين البعدى والتتبعى فى اختبار الفهم القرائى الناقد الإلكتروني لذلك فإن أنظمة إستجابة الطلاب التفاعلية لها تأثيرا إيجابيا فى تنمية مهارات الفهم القرائى الناقد الإلكتروني.

الكلمات المفتاحية: أنظمة إستجابة الطلاب التفاعلية - مهارات الفهم القرائى الناقد الإلكتروني.