



ISSN: 1817-6798 (Print)

Journal of Tikrit University for Humanities

available online at: www.jtuh.org/
JTUH
 مجلة جامعة تكريت للعلوم الانسانية
 Journal of Tikrit University for Humanities
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Keywords:

Critical thinking
 comprehension
 reading comprehension
 correlation

ARTICLE INFO**Article history:**

Received 15 July 2023
 Received in revised form 25 July 2024
 Accepted 17 Aug 2024
 Final Proofreading 15 Apr 2024
 Available online 15 Apr 2024

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The Correlation between EFL University Students Critical Thinking and Reading Comprehension

A B S T R A C T

Reading is useful for language acquisition. It provides that students have to comprehend what they read. Comprehending a reading text involves constructing and extracting meaning. Thus reading comprehension (henceforth, RC) depends on several cognitive processes.

Critical thinking (henceforth, CT) is a higher order thinking skill which includes a purposeful, self-regulatory judgment which ends in interpretation, analysis and evaluation. Critical thinking may help university students to improve their RC.

The present study aims at finding:

1. The average level of the students' CT.
2. The average level of the students' achievement in RC.
3. Whether there is any significant difference between the students' achievement at the recognition level and that at the production level of RC.
4. The possible correlation between students' level of CT, on one hand and their achievement in RC, on the other hand.

In order to achieve the aims of this study, the following questions are raised:

1. Is the average level of the EFL students within the theoretical mean scores of CT?
2. Is the average level of the EFL students' achievement is within the theoretical mean scores of achievement, in RC?
3. Is there any significant difference between students' achievement at the recognition and production levels of RC?
4. Is there any significant correlation between students' level at CT and their level of achievement in RC?

A sample of a hundred EFL second year students has been selected from the College of Education for Humanities, University of Tikrit and involved in the current study. The involved sample represents 42.19% of its original population. The study is conducted during the first semester of the academic year 2022-2023. The data gathered by using a questionnaire and a diagnostic test to assess students' CT and RC.

Results of the study indicate that the EFL second year university students' average level in each of CT and RC is above the theoretical level of CT and RC. Results also show that there is a positive correlation between the students' level of CT and their achievement in RC.

DOI: <http://doi.org/10.25130/jtuh.31.4.2024.24>

العلاقة بين التفكير النقدي والفهم القرائي لطلبة الجامعة للغة الإنكليزية – لغة اجنبية

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الخلاصة:

القراءة مفيدة لاكتساب اللغة ،بشرط أن يفهم الطلبة ما يقرؤونه ،وفهم النص القرائي يتضمن بناء واستخلاص المعنى وبالتالي فإن الفهم القرائي يعتمد على العديد من العمليات المعرفية. التفكير النقدي هو مهارة تفكير عليا تتضمن التقييم والحجج وهو حكم ذاتي هادف منظم ذاتيًا ينتهي بالتفسير والتحليل والتقييم. قد يساعد التفكير النقدي طلبة الجامعة على تحسين فهمهم للقراءة. تهدف الدراسة الحالية إلى إيجاد :

1. متوسط مستوى الطلبة في التفكير النقدي.
 2. متوسط مستوى تحصيل الطلبة في الفهم القرائي.
 3. ما إذا كان هنالك فرق دال بين متوسط تحصيل الطلبة عند مستوى التمييز وتحصيلهم عند مستوى الإنتاج .
 4. ما اذا كان هنالك علاقة بين مستوى الطلبة في التفكير الناقد وتحصيلهم في الفهم القرائي .
تم وضع الأسئلة الآتية لغرض تحقيق أهداف الدراسة:
 - 1- هل مستوى متوسط الطلبة ضمن متوسط المستوى النظري في التفكير النقدي ؟
 2. هل مستوى متوسط تحصيل الطلبة ضمن متوسط التحصيل النظري في الفهم القرائي؟
 3. هل هنالك فرق دال بين متوسط تحصيل الطلبة عند مستوى التمييز ومتوسط تحصيلهم عند مستوى الإنتاج للاختبار .
 - 4- هل هنالك علاقة داله بين مستوى الطلبة في التفكير الناقد ومستوى تحصيلهم في الفهم القرائي ؟
- تضمنت عينة الدراسة مئة طالباً وطالبة في المرحلة الثانية في قسم اللغة الإنجليزية، كلية التربية للعلوم الإنسانية، جامعة تكريت. تمثل هذه العينة ٤٢.١٩٪ من المجتمع الأصلي للدراسة وقد أجريت الدراسة في الفصل الأول من العام الدراسي 2022-2023. تم جمع البيانات باستخدام الاستبيان والاختبار التشخيصي لتقييم التفكير النقدي والفهم القرائي لدى الطلبة.
- تشير نتائج الدراسة إلى أن مستوى متوسط طلبة المرحلة الثانية قسم اللغة الإنكليزية في كل من التفكير النقدي والفهم القرائي أعلى من المستوى النظري للتفكير النقدي والفهم القرائي ، وبينت النتائج أن هناك علاقة إيجابية بين مستوى الطلبة في التفكير النقدي والفهم القرائي
- الكلمات المفتاحية/ التفكير النقدي -الفهم-الفهم القرائي – العلاقة الترابطية

1. Introduction

1.1 Statement of the Problem

Reading is an interactive process in which readers construct a meaningful representation of a text using effective reading strategies which are required for reading comprehension (RC, for short) proficiency (Gilakjani , 2016, p.229).

RC as the process of constructing meaning through interaction and involvement with the written text is the main purpose of reading activity. This activity requires the readers to interact with the text .The interaction process needs the readers to connect the ideas in the text with their background knowledge (Mikulecky and Jeffries,2007,p.74) .

Critical thinking (CT, for short) involves the development of dispositions which, among other things, include probing, inquisitiveness and keenness of mind, zealous dedication to reason, and hunger or eagerness for reliable information. Firstly, CT refers to the development and application of interrelated cognitive and meta-cognitive skills involved in solving problems, understanding and expressing meaning, identifying relationships, assessing credibility of statements, identifying elements needed to draw reasonable conclusions, presenting the results of one's own reasoning coherently and self-consciously monitor one's own cognitive actions. In the third place, CT comprises the development of habits of mind (Costa & Kallick, 2009,p.15).

It is worth pointing out that some of the previous studies have assured the positive relationship between students' CT and RC such as, Elmouhtarim (2018) and Okasha (2021) whereas ,other studies have shown that reading or RC and CT are not highly correlated as shown by Sarl (2022).Thus there is a need to conduct study to show whether there is any relationship between the two essential concepts.Accordingly, the current study is an attempt to investigate such kind of correlation .

1.2 Aims of the Study

This study aims to investigate the correlation between the CT and RC of the EFL university students,through finding :

1. the average level of the students' CT .
2. the average level of the students achievement in RC.
- 3.whether there is any significant difference between the students' achievement at the recognition level and that at the production level of RC.

4.the possible correlation between students' level of CT, on one hand , and their achievement in RC, on the other hand.

1.3 Questions of the Study

- 1.Is the average level of the EFL students within the theoretical mean scores of CT?
- 2.Is the average level of the EFL students' achievement within the theoretical mean scores of achievement in RC?
- 3.Is there any significant difference between students' achievement at the recognition and production levels of RC?
- 4.Is there a significant correlation between the students' level in CT and their level of achievement in RC?

1.4 Value of the Study

The value of the current study stems from the value of CT and RC in the process of learning English language and the value of finding the correlation between the students' level of CT on one hand, and their level of achievement in RC on the other hand, as follows:

1. Raise college faculty's awareness about the importance of CT in the process of learning EFL.
- 2.Acknowledge university students about role of CT in the skill of RC
3. Encourage college faculty to use appropriate classroom strategies that assist their learners in overcoming the difficulties they may face in learning RC.
- 4.The study may open a wide gate for further researchers to study the impact of CT on learning various aspects of English language such as, pronunciation and vocabulary.

1.5 Limits of the Study

The present study is limited to the CT and RC of the second year students of the Department of English at the College of Education for Humanities / University of Tikrit in the academic year 2022-2023.

1.6 Operational Definitions of Basic terms

1.6.1 Correlation : It means measure of a possible relation between students' level in CT in learning English language and their achievement in RC.

1.6.2 Critical thinking : It refers to the students' active participation in what they study in order to interpret, analyze and find reasonable meaning in terms of having appropriate cognitive skills .

1.6.3 Reading comprehension : It refers to the ability of the EFL second year university students to comprehend what they read, translate the written symbols into meaningful ideas.

2.Theoretical Background

2.1 Concept of Critical Thinking : It is the base of all cognitive activities or processes and is unique to human beings. It involves manipulation and analysis of information received from the environment. Such manipulation and analysis occur by means of abstracting, reasoning, imagining, problem solving, judging, and decision-making. It is one of the features that distinguish humans from other living beings. Thinking is the manipulation or transformation of some internal representation (Halpern, 2003,p.84).

when we start thinking, we use our knowledge to achieve some objectives. In this sense, thinking ability is the basic case of our life because all of us need to achieve an objective; thinking is reasoning, and that reason is a chain of simple ideas linked by applying strict rules of logic (McGregor, 2007, p.32).

Both learning and thinking are the concepts which support and complete one another. Whereas learning style and CT concepts have different qualifications, it can be stated that they can be used jointly. Likewise, when literature is examined, it is seen that there are researches handling learning styles and CT concepts jointly (Guvén & Kurum, 2004,p.66).

2.2 Importance of Critical Thinking Skills : There are various factors that affect student's ability to communicate in EFL/ESL classes. Such as, classroom environment, teaching and learning contexts and ability to think and act critically (Ur, 1996,p.55).

Tasks and assignments used in class affect student's perception of the language. The role of the teacher in a language class is very important. It is the teachers' role to teach learners not just language skills, but also CT skills. Through writing a paragraph, the learners use their critical skills to synthesize and evaluate a passage. Sometimes they use these skills unconsciously. In the course of writing an assignment, these skills are utmost helpful for learners (Khalil, 2020,p.35)

Critical thinking skills can be taught at all levels of studies from secondary and high -school students to university students as well. While thinking critically, students try to relate the known information with the unknown, draw schemes, and relate thoughts with meanings. It is the teacher's task to show them how to do this, to resolve and draw conclusions (Khalil, ibid,p.32)

Through CT, students develop creativity and enlarge their vocabulary, language knowledge, and cultural knowledge as well. The question raised is Why? When? and How? to teach a student uses critical thoughts: in a reading passage by relating his/her own experience to that of the character of the passage; in a writing exercise whereby a student prepares an outline of opening, body and close remarks, taking into consideration the time given (if it is a writing exercise given in class, 10-15 minute or an essay that a student has to prepare at home); in a listening exercise (listen and fill in blank, draw conclusion); while speaking, example: debate, discussion (when the topic is known or unknown) (Rudd, 2007,p. 77).

In all language skills, the learner has to use his/her critical skills. Critical thinking enhances communication in English language. The steps of fostering CT skills begin with creating the conditions and preparing them to reinforce these skills. In an ideal academic language programme, the objectives of the curriculum should go beyond linguistic factors to develop CT among learners (Brown, 2004,p.53).

2.3 : Some Critical-Based Learning Activities : According to Khalil(2020,P.30) there are a number of practical learning activities to foster students' CT:

1. Information-Gap Activities: Students work in pairs, they share information with each other (such as: a listening or a speaking exercise).
2. Role -play Activities: Students work in pairs, and play roles (in: situations from real life such as, in an airport, in a doctor's office, in a shop, etc).
3. Simulation Activities: Students work in groups, and play roles (in: situations from real life such as, at a railway station, in a mall, etc.).
4. Jigsaw Activities: the teacher divides students into groups. Students collaborate with each other, share opinions, and discuss about the topic given in a reading passage.
5. Surveys: Students have to work together to write a report on a survey that they have prepared (on: environmental issues, climate changes, pollution, etc.)
6. Interviews: Usually, interviews are individual. Students prepare questions at home as a homework assignment and then use them in class (Wal & Jickling, 2002, p.229).

2.4 : Barriers to Teaching Critical Thinking

According to Halpern(2003,p.44) and Norris(2003,p.41) there are some barriers to teaching CT as follows:

Lack of Proper Assessment : The difficulties involved in CT education are multifold. One of the obstacles is lacking proper assessment that effectively and objectively measures students' strength and weaknesses in CT.

Vague Conceptualization of CT : There is no consensus among scholars about what CT means, is it measurable? if yes, how and to what extent? These areas are still vague and teachers are still in need of clear and tangible definition of CT .

Lack of Organized Sequence in Teaching CT : One of the barriers that teachers confront in teaching CT is that there does not exist an organized

approach for teaching CT. There is no magical formula for developing CT. The variety of techniques presented in the special issue of teaching psychology, on teaching CT testifies to this point.

Threatening Nature of CT Practice : It has been argued that CT threatens the calm of assumed kindness and friendliness that governs much of our interactions with one another. Very rare is the individual who is eager to have his or her reasoning placed under the bright light of critical questions.

Lack of Teacher Training : Unless teachers are familiar with different components of critical thinking and approaches to teach it, they will not be able to equip students with this precious ability. There is a lack of training on the part of the teachers as well.

2.5 Models of Reading Comprehension : Reading skills are the umbrella of realization, explaining , and attitudes of a written text or a printed one. Reading skill deals with language form whereas the deep understanding is the final product, transact with language content (Day and Bomford, 1998,p.194). RC "is the ability for a reader to transfer written symbols to meaning and using them communicatively and effectively" (Chamot&Kapper,2010,p.163).

According to Brown (1998,p.25)there are three major models of reading ,as follows:

A. Bottom- Up Model : This model describes reading as a process that starts with the learner's knowledge of letters, sounds and words and how these words are formed to make sentences. This model is called part to whole model because it goes from partial to whole knowledge. This model is so effective in the early childhood, especially students as young learners. It is effective because the emphasis here is on the letters, recognition of their shapes and reading individual words. However, this model has many disadvantages if it is used for higher levels since it forgets the reader's expectations, experiences, and attitudes. Furthermore, it does not pay attention to the context since it only encourages remembering.

B. Top-Down Model: This model, which is also called inside-out model and whole to part model, involves the reader's experience and what he/she brings to the reading material. It suggests that readers begin to read by drawing on what they know about the structure and the meaningfulness of language, the structure of stories and other genres and their knowledge of the world to predict the general meaning and specific words in context. This model is broader, more realistic and encourages guessing. It should be pointed out here that whenever the experience of the students is being involved, the more effective the teaching will be. However, one of its disadvantages is that cross-cultural identifications might play a major role in recognizing such texts. For instance, some cultures might lack information about certain topics and readers could face great difficulties in recognizing what the topic is about.

C. Interactive Model: This model gathers the features of the bottom-up and the top-down models and gives reading more meaning. Here, the readers are more involved in reading. They use their knowledge of subject theme, their pre-experience of written words, their reading and their own expectations to make predictions about the reading text. So, the textual details are the best way in the recognition of the words and the letters the text contains. The most important advantage of this model is that the communicative activities and the reading skills are integrated. It is more realistic and enjoyable to all kinds of students. Moreover, whenever the students' experience is involved, the more interesting, thrilling and lovely the reading will be.

2.6: Skills of Reading Comprehension

Some learners think of the act of reading as a straight forward that is easy to master. In reality, it is a complex process that draws on many different skills. These skills together lead to the ultimate goal of RC. Here are the essential skills needed for RC: (Abu Shamla, 2010, p.20).

1-Predicting: is an attempt to describe the outcome of specific future event as well as a foundation of generality (Kirby, 2006, p.20).

2- Making connections: learners make personal connections with the text by using their background knowing. There are three types of connections learners make while reading texts. Learners can make text-to-text connections through graphic organizer, making a chart, drawing and writing (Abu Shamla,2010,p.25).

3-Infering: Keene and Zimmerman (1997,p.153) state that infering is “the process of taking in text and extrapolating it to one's life to create a wholly original interpretation that, in turn, becomes a part of one's beliefs or knowledge”.

4-Visualizing and Verbalizing: The National Reading Panel (2000,p.120) summarizes that learners can practise the visualization strategy by writing and drawing or drawing and writing. Furthermore, visualization requires the reader to visualize settings, characters, and actions in a story and construct an image of what is read. This image is stored in the reader's memory as the representation of the reader's interpretation of the text.

5-Drawing conclusions: It occurs by analyzing patterns in the data collected”. Drawing a conclusion is basically summing up very briefly all that have been studied. It consists of the things that have been understood from what the reader writes or reads and the actual reading. The reader draws a conclusion by combining the necessary points and then forms a closing based upon the account (Nerenberg,2011,p.71) .

2.7 Correlation between Critical Thinking and Reading Comprehension

The relationship between CT and reading is well established in the literature. Norris and Phillips (1987) point out that reading is more than just saying what is on the page; it is thinking. Moreover, Beck (1989) asserts that” there is no reading without reasoning” Also, among those researchers and theoreticians who recognize that reading involves thinking is Ruggiero (1984,p.55). He indicates that reading is reasoning. Yu-hui et al. (2010,p.71) state clearly that reading is a thinking process to construct meaning.

Utilizing and combining schema theory with principles of CT are one of the effective ways of enhancing the concept of RC (Norris and Phillips,1987,p.92). They explain that CT provides a means of explaining the ability to work out ambiguous text by generating alternative interpretations, considering them in light of experience and world knowledge, suspending decision until further information is available, and accepting alternative explanations. They conclude that CT is the process which the reader uses to comprehend.

Schema theory provides powerful rationales for making links between students' individual backgrounds, specific subject area knowledge, and CT (Marzano et al.,1988 and Aloqaili, 2005a). According to Anderson (1994,p.41), there are six ways in which schemata function in thinking and in remembering text information, as follows.

- (1) Most new knowledge is gained by assimilating new information into existing structure. Therefore, subject matter learning should build on prior knowledge whenever possible.
- (2) The students' existing schemata help to allocate attention by focusing on what is pertinent and important in newly presented materials.
- (3) Schemata allow and direct the inferential elaboration of incoming information and experience.
- (4) Schemata allow orderly searches of memory by providing learners with a guide to the types of information that should be recalled.
- (5) Schemata facilitate the thinking skills of summarizing and editing.

3. Procedures

3.1 Design of the Study : A design of a study consists of a planned sequence of the entire study process and a series of guidelines to keep one on the right path. In fact, the study design creates the groundwork for the total research effort, and facilitates the chosen task with less trouble and in an organized mode. Correlational variables are classified into two types: Independent variables and dependent variables. The independent variable is the one that is changed to

produce a change in the dependent one. While the dependent variable is a variable, on which effects are measured (Lillykuty and Samson ,2018, p.205) .

The two variables employed in the current study are, as follows:

- 1.The independent variable is the CT to learning EFL by the second year university students .
- 2.the dependent variable is the RC of those students.

The correlation statistical test is used to assess and describe the extent of correlation between the two identified variables.

3.2 Population and Sample of the Study

3.2.1 Population of the Study : population as “a group of individuals who have the same characteristics. For example, all teachers would make up the population of teachers, and all high school administrators in a school district would comprise the population of administrators. As these examples illustrate, population can be small or large (Creswell ,2012,p.142) .

The population of the current study includes 237 undergraduate students in the second stage of the departments of English at the College of Education for Humanities and the College of Education for Women, at Tikrit University ,during the academic year 2022-2023. The total number of the students at the College of Education for Humanities and the College of Education for Women is 160 and 87, respectively.

Table(3.1)

The Population and Sample of the Study

University	College	No. of population	No. of sample	No. of pilot study
Tikrit University	Colleges of for Humanities	150	100	12
Tikrit University	College of Education for Women	87	-----	13
Total	2	237	100	25

3.2.2 Sample of the Study: According to Ary, Jacobs, & Razavieh (2010, p.148), a sample is a number of individuals, objects or events selected for a

study from a population, usually in such a way that they represent the large group from which they are selected.

Creswell (2012,p.145) assumes that a sample is a sub group of the target population that the researcher plans to study for generalizing about the population. In an ideal situation, a sample of individuals is selected to be representative of the entire population.

Accordingly, a sample of a hundred EFLsecond year male and female students have been chosen randomly from the EFL second stage/College of Education for Humanities ,as shown in table (3.1) .The selected sample represent 42 .19 of its original population.For the purpose of the pilot study, twenty-five students have been chosen from the two Colleges.

3.3 Instruments of the Study

Collecting information about study variables is an important and distinct duty. Therefore, it should be collected in logical and organized ways. Creswell(2012,p.355) states that correlation study requires collecting two data sets from each individual . Thus the instruments of the current study include a questionnaire and a diagnostics test, as follows:

3.3. 1. Questionnaire : Questionnaires are instruments used to collect data usually in written form , consisting of open and/or closed questions, probes, and other questions that call for responses from subjects (Nunan and David , 1992 ,p 231) . . A questionnaire is a good device for collecting survey information and providing controlled, usually numerical values that may be given without the researcher's presence (Gault,2005,p.245)

The questionnaire is a widely used instrument for collecting survey information, providing structured, often numerical data, being able to be administered without the presence of the researcher, and often being comparatively straightforward to analyze the collected data(Wilson et al, 1994,p. 67).

The questionnaire of Muslem, Usman, Fitirani & Velayeti (2019) is adopted in the current study, in order to assess the students'level of CT. It is a closed form questionnaire which includes twenty items distributed equally to four areas, namely : interpretation, analysis,inference and explanation.A Five-point Likert Scale questionnaire is used in which the respondents are required to indicate their level of agreement by putting a tick in front of each item and in the appropriate column .

3.3.2 Diagnostic Test:Collecting information from students is an important duty therefore, it should necessarily be conducted in systematic ways. Otherwise, it is difficult to know how rational educational decisions and judgments can be (Hughes, 1989,p.15).

A diagnostic test can be given to students at any time to assess their current knowledge and mastery of English language. It is important as it enables the teacher to judge the level of the students and the weak points in their learning and to know what language areas they need to improve(ibid) .

The Construction of the diagnostic test is viewed basically as the persons' competence in the area of content and this competence is the result of many intellectual variables (Algarabel and Dasi, 2001,p.43-44).

Table(3.2)

The Specifications of the Content, Behavioural Objectives, Categories, Number of Items , and Scores of the Diagnostic test

Level	No. Of Q.	Content	Behavioural Objectives	Category	No.Of items	Mark
Recognition	1	Unseen passage	to choose the correct options.	Objective	5	25
Recognition	2	True/false items	to identify whether the items are true or false.	Objective	5	25

Production	3	Reading comprehension questions	to answer the given questions	Objective	5	25
Production	4	A summary about the given passage	to write a summary about the given passage.	Subjective	1	25

The diagnostic test of the current study has been constructed by consulting the book entitled **Critical Thinking Skills Used among University Students in Reading Comprehension** by Muslem, Usman , Fitirani and Velayeti (2019)to assess the level the students’CT at both recognition and production levels . It consists of four questions. . The first two questions assess students’ performance at the recognition level. The first question includes five items in which the students are going to choose the correct answer. In the second question the students are required to identify the true and false five items. The last two questions assess the students’ performance at the production level. In question three the students are required to answer five questions. While in question four the students are asked to write a summary about the given passage .

3.4 Scoring Scheme of the Questionnaire and the Diagnostic Test

The adopted questionnaire includes twenty items and scored out of a hundred , i. e. five marks are specified for each item .

The score is based on the Five-point Likert Scale . Likert Scale is a scale with a number of points, usually at least three but no more than seven. The questionnaire is a multiple-choice form of five alternatives, and scored in terms of the scale shown on table (3.3).

Table (3.3)
The Scale of the Questionnaire Items

Items	Scale				
	Never	Seldom	Sometimes	Often	Always

Positive	1	2	3	4	5
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Scoring scheme means applying a numerical scale to measure responses. Scoring provides valuable feedback concerning students' achievement and teachers' attitudes (Genesee and Upshur, 1996,p.208).

The test consists of four questions and scored out of 100 marks. Each of the first three questions includes five items and scored out of twenty- five , i. e. five marks are given for each correct item, as shown in table (3.2) .The fourth question is scored out of twenty – five, according to five criterion , namely: handwriting, spelling, punctuation, vocabulary and grammar, as shown in table (3.4)

Table (3.4)

The Scoring Scheme of Question “ Four”

Criteria	Quality	Scores
Handwriting	Very good	5
	Good	4
	Fair	3-2
	Weak	1
Spelling	Very good	5
	Good	4
	Fair	3-2
	Weak	1
Pronunciation	Very good	5
	Good	4
	Fair	3-2
	Weak	1
Vocabulary	Very good	5
	Good	4
	Fair	3-2
	Weak	1
Grammar	Very good	5
	Good	4
	Fair	3-2
	Weak	1

3.5 Final Administration of the Diagnostic Test and the Questionnaire.

The involved sample of the study has been subjected to the two tools after calculating their validity and reliability and obtaining the difficulty level as well as the discrimination power of the test items, on the twenty- fifth of January 2023. First of all the diagnostic test has been distributed to the involved group

of students who are required to read the given instructions carefully and state their answers on their test papers within the time limit of the test.

After collecting the test papers from the students, have been given the intended questionnaire. The students are informed about the purpose of the questionnaire and how to state their own responses by putting a tick(✓)in the appropriate column and in front of each item, within the time limit of the questionnaire.Finally, the questionnaire papers have been collected to be scored according to the identified scale.

4. Analysis of Data, Discussion of Results, Conclusions , Recommendations

4.1 Average Level of the Students'CT

In order to find the average level of the students'CT, the mean scores as well as the standard deviation of their responses on the questionnaire have been calculated. The obtained mean scores and the standard deviation are 63.30and 9.46, respectively. T– test formula for two related sample is used. The calculated t- value is 13.99which is found to be higher than the tabulated t- value, which is 1.66 at (0.05) level of significance when the degree of freedom is (99), as shown in table (4.1)

Thus, there is a statistically significant difference between the average level of the students 'CT and the theoretical level of the CT , and in favour of the former.

Table (4.1)

The Mean Scores, Standard Deviations, and One Sample T-Value of the Students' CT

No.of students	MeanScores	SD	Theoretical Mean Scores	T-Value		DF	Level of Sig.
100	63.30	9.46	50	Calculate	Tabulated	99	0.05
				13.99	1.66		

4.2 Average Level of the Student's Achievement in RC

In order to find the level of the students' achievement in RC , the mean scores and the standard deviation of their achievement in the diagnostic test have been obtained, which are 54.91 and 19.39 , respectively . The T-test formula for two related sample is used. The calculated t-value is 2.53 which is found to be higher than the tabulated t-value, which is 1.66 at (0.05) level of significance when the degree of freedom is (99), as shown in table (4.2).

This means that the achievement of EFL university students in RC is above the average level of the achievement which is 0.50 . Thus , there is a significant difference between the average level of the students in RC and the theoretical level of achievement in RC, and in favour of the former .

Table (4.2)

The Mean Scores, Standard Deviations, and One Sample T-Value of the Students' RC

No.of students	Mean Scores	SD	Theoretical Mean Scores	T-Value		DF	Level of Sig.
100	54.91	19.39	50	Calculated	Tabulated	99	0.05
				2.53	1.66		

4.3 Comparison between Students' Achievement at the Recognition Level and that at the Production Level .

In order to find whether there is any significant difference between the students' achievement at the recognition level and that at the production level of RC , the mean scores of the students' achievement at the recognition level and that at the production level are calculated and compared to see if there is any significant difference between them. According to the findings, students' mean scores of achievement at the recognition level is 28.70 and that at the production level is 19.63 . The t-test formula for two related samples is applied . The calculated t-value is 7.17 , while the tabulated t-value is 1.99 at the degree of freedom (99)and level of significance(0.05), as shown in table(4.3) .

This means that there is a significant difference between the students' achievement at the recognition level and that at the production level, and in favour of the recognition level.

Table (4.3)

Means, Standard Deviations, and t-Values of the Students' Achievement at the Recognition and production Levels of the Diagnostic test

Level	No. of Students	Mean Scores	SD	T-Value		DF	Level of Significance
Recognition	100	28.70	12.240	Calculated	Tabulated	98	0.05
Production	100	19.63	12.413	7.17	1.99		

4.4 Correlation between Students' Level in Critical Thinking and their Achievement in Reading Comprehension

In order to find whether there is a significant correlation between the students' level in CT and RC, Person's product coefficient of correlation formula is used. It is one of the most well-known association measures which has a statistical value ranging from -1.0 to +1.0 and expresses this relationship quantitatively. The coefficient will also be denoted by the sign r (Cohen et al, 2007:530).

Students' level in CT is measured by using a closed questionnaire and students' achievement in RC is measured by using a diagnostic test. Correlation Coefficient Formula is used within the SPSS version 26 programme to measure the correlation between the level of EFL university students in CT and their achievement in RC, in terms of the Categories of "Coefficient correlation and interpretation shown in table (4.4).

Table (4.4) Coefficient Correlation and Interpretation

Coefficient Correlation	Interpretation
0.90-1.00	Very High
0.70-0.90	High
0.40-0.70	Moderate
0.20-0.40	Low
Less than 0.20	Very Low

Table (4.5)

Correlation between Students' Critical Thinking and Reading Comprehension

		Critical Thinking	Reading Comprehension
Critical Thinking	Correlation	1	0.391**
	Significance (2-tailed)		0.008
	N	100	100
Reading Comprehension	Correlation	0.391**	1
	Significance (2-tailed)	0.008	
	N	100	100
**. Correlation is significant at 0.01 level (2-tailed).			

Table (4.5) indicates that the correlation coefficient is 0.391, the significance (2-tailed) value 0.008 is lower than the level of significant (α) 0.05 and the correlation coefficient 0.391 is higher than the level of significant (α) 0.05. It can also be interpreted according to its r table with $df = 98$, the coefficient of r table is 0.195. Thus, r count 0.391 is higher than r table 0.195.

After calculating the r (correlation coefficient), the t-test formula is used to determine how significant the correlation between CT and RC.

$$t = r \frac{\sqrt{N-1}}{1-(r^2)} \rightarrow t = 0.391 \frac{\sqrt{100-1}}{1-(0.391)^2} \rightarrow t = 0.391 * (10.810) \rightarrow t = 4.226$$

The t-test value at the degree of freedom (98) and (0.05) level of significance is 1.9674. Thus, the obtained t-value is higher than the t-value ($4.226 > 1.9674$).

To sum up, the findings have revealed that there is a positive correlation between students' level in CT and their achievement in RC and this correlation is significant since the coefficient correlation is 0.391.

Results show that there is statistically significant relationship between students' level in CT and their achievement in RC, as (sig)

$0.008 < (\alpha) 0.05$. It is worth-noting that the obtained coefficient correlation 0.391 is classified as a low category.

Determinant Coefficient

This test, also is known as the R square (R^2) calculation, determines how much of the proportion of variance in the independent variable can be explained by the dependent variable. This computation's outcome is shown in table (4.6)

(Table 4.6)

Determinant Coefficient

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.391a	0.153	0.144	20.756

According to table (4.6), the determinant coefficient value (R^2) is 0.153.

4.3 Discussion of Results : The obtained results show that the level of the EFL university students in CT is acceptable , since the mean sores of their level is higher than the theoretical level of CT .Results also show that the achievement of the EFL university students in RC is above the average level, because the mean sores of their achievement is higher than the theoretical mean scores .As far as the comparison between the students' achievement at the two levels of RC , results indicate that the students' achievement at the recognition level is better than their achievement at the production level .Moreover,the obtained results indicate a significant correlation between students' level inCT and their achievement in RC and that correlation is positive .

Results of the current study are in agreement with the results of Mohammadi and Yousefi (2016), Elmouhtarim (2018) and Okasha (2021) who show a positive correlation between students' level in CT and their achievement in RC . moreover , the current study agrees with Sarl (2022) who shows that students reading and CT are not highly correlated.

5.Conclusiions: In terms of the obtained results it is concluded that :

- 1.The EFL second year university students' average level in each of CT and RC is above the theoretical level of CT and RC .
2. There is a positive correlation between the students' level of CT and their achievement in RC .
- 3.Training EFL university students to actively participate in the reading texts enable them to critically think in what they read .
4. Critical thinking encourages students' autonomously and improve self-confidence which are necessary to understand the reading texts and communicate in English.

5.1Recommendations : The following recommendations are put forward in terms of the obtained results and drawn conclusions:

- 1.There is a need for improving self-confidence in students'abilities to approach reading passages .
2. Teaching can be made learner- centered with more emphasis on the learning process.
3. Teachers of English are recommended to encourage interaction between teacher- student and student- student which creates co- operative, non-threatening, and fear- free instructional environment .
4. Students should be given the chance to take part in the lesson activities that strengthen their enthusiasm for thinking critically in the lesson material.
5. Students should be encouraged to use CT techniques while dealing with the reading materials of their daily life .
5. Teachers should deal with their students' feedback on reading tasks positively to foster their meaningful interaction with the reading text

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