
Using An Adaptive E-learning Platform to Develop Faculty of Education EFL Majors' Critical Writing Knowledge and Skills

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Abstract With the advance of technology, effective teachers adapt their teaching to navigate the complex nature of classroom instruction. However, little research has been carried out in the EFL context on how teachers adapt instruction and the effect of adaptation on developing prospective teachers' critical writing knowledge and skills. The current study addresses this gap in the research literature. It aims at identifying the effectiveness of using an adaptive e-learning platform to develop Faculty of Education EFL majors' critical writing knowledge and skills. The research follows the quasi-experimental two-group pre-post design. A program using an adaptive e-learning platform was prepared by the researcher. The research sample consisted of (80) male and female Minia University Faculty of Education third-year English majors divided into two equal groups in number (40 for each group). Two instruments were prepared by the researcher and used to collect data for the study. These instruments were the critical writing knowledge test and the critical writing skills. The findings revealed the effectiveness of the program in developing the experimental group participants' critical writing knowledge and skills as indicated by the statistically significant improvement of their scores in the post-tests. These findings were discussed and recommendations and suggestions for further research were made in relation to the ongoing debate regarding the role of adaptive pedagogy. It is concluded that personalized instruction with the help of technology could be an alternative and effective approach to suit the learners' needs and abilities.

Keywords: adaptive pedagogy, e-learning platform, critical writing knowledge, critical writing skills, EFL majors

استخدم منصة تعلم إلكتروني معدلة لتنمية معرفة ومهارات الكتابة
الناقدة لدى طلاب كلية التربية تخصص اللغة الإنجليزية
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مستخلص

مع تقدم التكنولوجيا، يقوم المعلم الفعال بتعديل تدريسه للتعامل مع الطبيعة المعقدة للتدريس داخل الفصل. وعلى الرغم من ذلك، فقد أجريت القليل من الأبحاث في مجال تعليم اللغة الإنجليزية كلغة أجنبية حول تعديل المعلمين للتدريس وتأثير هذا التعديل على تنمية معرفة ومهارات الكتابة الناقدة لدى الطلاب المعلمين. وتتناول الدراسة الحالية هذه الفجوة في الأدبيات البحثية. حيث تهدف إلى تحديد فعالية استخدام منصة تعلم إلكتروني معدلة لتنمية معرفة ومهارات الكتابة الناقدة لدى الطالب المعلم تخصص اللغة الإنجليزية بكلية التربية. واعتمدت الدراسة على التصميم شبه التجريبي القبلي-البعدي ذو المجموعتين. وتم إعداد برنامج باستخدام منصة التعلم الإلكتروني المعدلة بواسطة الباحثة. وتكونت عينة الدراسة من (٨٠) طالب وطالبة بالفرقة الثالثة بكلية التربية بجامعة المنيا تخصص اللغة الإنجليزية، مقسمين إلى مجموعتين متساويتين في العدد (٤٠ لكل مجموعة). واعدت الباحثة أداتين لجمع البيانات الخاصة بالدراسة وهما اختبار المعرفة بالكتابة الناقدة واختبار مهارات الكتابة الناقدة. وكشفت النتائج عن فعالية البرنامج في تنمية معرفة ومهارات الكتابة الناقدة لصالح أفراد المجموعة التجريبية في الاختبار البعدي. وتمت مناقشة هذه النتائج وتقديم التوصيات ومقترحات الأبحاث المستقبلية في ضوء الاتجاهات الحديثة حول استخدام التدريس المعدل. وخلصت الدراسة إلى أن ممارسات تفريد التعليم بمساعدة التكنولوجيا يمكن أن تكون طريقة بديلة وفعالة لتناسب احتياجات وقدرات المتعلمين، حيث تسعى هذه الطريقة إلى تحقيق هدف رئيسي لبرامج تعليم المعلمين يتمثل في توفير بيئة تعليمية تفضي إلى تعلم اللغة الأجنبية بطريقة فعالة من خلال تنمية معرفة ومهارات الكتابة الناقدة.

الكلمات المفتاحية: التدريس المعدل، منصة التعلم الإلكتروني، معرفة الكتابة الناقدة، مهارات الكتابة الناقدة، الطالب المعلم تخصص اللغة الإنجليزية كلغة أجنبية

Introduction

Recently, a lot of research effort has been focusing on critical approaches to language learning and teaching including critical discourse analysis and critical language awareness, critical ethnography, and critical pedagogy (Sultan, 2017; Karaby, 2015; Tsai, 2013; Tan & Guo, 2009; Norton and Toohey, 2004). Luke (2000, p.449) highlighted that “what has counted as critical in recent years has focused on how people use texts and discourses to construct and negotiate identity, power and capital”.

Critical approaches have more comprehensive goals in education to empower people by encouraging them to enhance their perspectives and to confront oppression and manipulation attempted by language and education. The word ‘critical’ originated from ‘kriticos’ or discerning judgment and ‘kiterion’ meaning standard which etymologically implies the development of discerning judgment based on standards (Pithers and Soden, 2001). ‘Critical’ is a word that dates back to the Greek language which literally means the ability to argue and judge, while the word literacy refers to reading and writing.

Two types of writing include descriptive and critical writing. Descriptive writing is a summary of a sequence of events, but critical writing is a more complex skill, and it needs more descriptions, analysis, and evaluation. Critical writing is a type of academic debate. It is a refusal to accept the conclusions of other writers without evaluating the arguments and evidence they provide (University of Leicester, Learning Development Centre, 2013).

Writing critically means presenting your conclusion in a clear and well-reasoned way to persuade others. The most important aspect of

critical writing is the clear refusal to accept writers' conclusions without evaluation of evidence to accept or refuse what writers provided and the recognition of the limitation in evidence, argument, and conclusion. (University of Leicester, 2009, Student Learning Development Section, part 2)

Critical writers do not accept information at face value. They need to weigh up the evidence and arguments of others to contribute their own ideas. Critical writing is not writing negatively about a topic. However, it is about developing one's own academic writing skills. It is a process of reflecting, researching, note-making, reading, and writing. Critical writing involves a variety of skills including argument, justification, evaluation, analysis, considering the relevance or validity of information from different writers, and distinguishing the important and less important findings.

It is indicated that online learning, in the field of teaching and learning English, can increase students' achievement in EFL reading, writing, vocabulary, grammar, and critical thinking (Zang, 2007; Isa 2012). Murry and Perez (2015) highlighted that the application of technology in EFL learning facilitates real-time dynamic learning based on students' individual differences. The impact of adaptive learning on education outcomes plays an important role in shaping the learning experiences of students. Esichaikul (2011) pointed out that the main goal of adaptive learning is to gain the best results of learning by providing the right content at the right time. The advantages of the adaptive learning system are presenting the learning content in various ways, providing students with learning that fits their different prerequisites, providing different activities for each objective, and providing learners with control over the learning content.

Yang (2013) highlighted that adaptive learning has gained interest with the increase in online education. Three levels for an adaptive e-learning system are the macro level, the mezzo level, and the micro level. The macro level refers to the curriculum or the instructional

strategies that can be changed to fit students' needs, the mezzo level is where the instructional strategies can be changed, and the micro level is the changing of learning in real-time based on students' responses that reflects the students' needs (Lee and Park, 2008).

The main goal of an adaptive e-learning platform is to customize and adapt the content to meet the requirement of the learners. The adaptive e-learning model delivers the right content to the right person at the proper time in the appropriate way. The evaluation of e-learning is accurately a non-trivial task because it demands both correct measurement of learning processes and outcomes. The real power of e-learning comes from the manipulation of technological capabilities in a wide range.

Undergraduate students should take advantage of flexible learning and distance education. Adaptive e-learning platforms use attractive and interactive activities in multiple pathways to redirect students to lesson material and to provide appropriate remediation that enables the instructors to deliver the information to all students according to their progress. The multiple pathways allow students who have a good comprehension of the content to move through the lesson easily. The interactivity of an adaptive e-learning platform makes a shift away from the static (or linear) presentation of information by adapting instruction, and learning activities, and giving feedback to individual needs of the learners.

Adaptive e-learning platforms facilitated learning experiences in which active learning, explicit instruction, and evaluation combine to enable success among diverse learners (Murray & Perez, 2015). They enabled instructors to cater to a diverse range of students who are comfortable with using technology and those who are uncertain about using technology for learning. They also responded to students' individual needs using well-suited technologies such as adaptive literacies.

Adaptive pedagogy

An adaptive learning system is a new approach that can make an e-learning system more effective by adapting the presentation of information and overall linkage structure to individual users in accordance with their knowledge and behavior (Yang, 2013). According to individual differences among learners, some students explain why they find it easy to learn online while others find it difficult.

The adaptive learning system consists of three models: learner, domain, and adaption. Esichaikul (2011) pointed out that the learner model is responsible for keeping information about students' learning styles and knowledge levels and continuously updating the learners' interactions and responses to assessments. The domain level is responsible for gathering or compiling information about which contents and topics should be presented to the learner. The adaption model is about when and how the adaption occurs. The adaption model combines the domain model with the learner model.

Adaptive learning is a recent and new approach in which teachers adapt the learning materials to meet students' learning needs and preferences. An adaptive e-learning platform referred to the ability of a system of e-learning to provide courses and learning materials tailored to the instructional needs of the learners (Khamis, 2015). The adaptive e-learning model facilitates learning ability by personalizing the learning objects to the students' needs and directing it to the learning domain. The adaptive e-learning model can be divided into four processes including:

- (1) Adaptive content aggregation: the content can be adapted to provide students with different materials depending on simulations and games.
- (2) Adaptive presentation: this means that the page presentation can be adapted by additional or comparative explanations. The explanation means that the same content page can be displayed in different ways related to student background knowledge.

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- (3) Adaptive navigation: page navigations are presented to achieve several adaption goals.
 - (4) Adaptive collaboration support: using a network-based educational system can provide communication between users with collaboration applications.

The features of an adaptive e-learning platform as mentioned by AlKhamis & Mohammed (2022). were *the richness of the structure* which meant the content should be based on the learners' needs, backgrounds, learning entities, and educational situations. *The knowledge that* meant the content is determined based on the metadata tagged with meaning-based content. The metadata is used to describe the meaning of learning entities. Using adaptive e-learning platform such as the Google search engine make it easy for the participants to discover, search and determine what is closely related to their course or not. The ease of discovery refers to the easy way to search using engines to access content that is tagged with metadata. Reusability and interoperability of the learning entities and platform content can be reused several times by participants in their learning situations and courses.

Adaptive e-learning is a stimulating learning process that supports and improves learners' engagement and participation by personalizing the content to reinforce the learning outcomes. Kolekar et al. (2017) highlighted that adaptive e-learning is a customized environment that offers adaptable content based on learners' needs, abilities, and styles. The adaptive e-learning environment was an educational learning environment available via the web, considering individual differences, learning, styles, and abilities to achieve learners' satisfaction, develop students' skills, and increase their skill performance in all areas (Adeel,2021). Brusilovsky and Nejdil (2004) explained that no suitable lesson is for anyone, but a suitable lesson is for every student. Therefore, platforms adapt the content, feedback, assessments, and

ways of presentation according to learners' preferences, styles, abilities, and needs.

Critical writing

Writing is a productive skill that includes various sub-skills including correct spelling, correct grammar, and finally good layout and organization (Gabrielatos, 2002). Nazim (2012) stated that EFL students have a lot of writing problems and difficulties. Additionally, Salem (2013) asserted that EFL undergraduate students at Hurghada, Faculty of Education had many writing difficulties. Oxman & Wong, 2014 regarded that the adaptive learning process is based on the adaptation of the content and personalize the instruction to suit learners' abilities, styles, and preferences.

Criticism is the production of deep knowledge of a piece of art and performance. It is an evaluation, analysis, and judgment of a text whether positive or negative. Wolsely (1973, cited in Ahmud, 2015) was one of the classical writers who defined criticism as "the intelligent appreciation of any work of art, and by consequence, the just estimate of its value and rank" and "the general nature of the functions of criticism is much the same whether the object criticized by literature, or painting, or sculpture, or painting". Wilson (2000) stated that critical writing was the literary art of assessing and judging any texts, books, and creative and fine arts.

Critical writing is about making logical connections between ideas, evaluating the evidence, and analyzing information to understand a topic from several perspectives. Critical writing as mentioned by Berigu (2015) was a matter of considering all sides of arguments. The role of critical writers is to reflect on the topics and not accept the information at face value.

The main two types of writing are descriptive and critical. In descriptive writing, the writer describes a situation as it is without presenting any analysis or evaluation. They only report the ideas without any analysis or interpretation, state and explain what happened

in a situation. They outline lists of the texts' ideas or perspectives to help readers to understand the topics. Descriptive writing will describe or give a summary of events or situations. The features of critical writing include being confident to refuse or accept the conclusions of writers without evaluating the evidence or arguments. Critical writers should identify the quality of the evidence and the arguments of the topic and assess the usefulness of arguing or debate what they have written (Bengu Aksu ATAC, 2015).

A study conducted by Goher & El-Ghool (2016) investigated using an adaptive learning environment to improve writing skills and usability for EFL students at the Faculty of Education. This study was adopted by 60 students of the 2nd year English majors at Mansoura University. The participants were divided into two groups: experimental and control. It was quasi-experimental research. The study results indicated that the adaptive online learning environment could develop EFL students' writing skills.

Critical writing is about writing essays, articles, or any publication that analyzes, evaluates, or judges the qualities of the arts whether positive or negative. Critical writing may be concluded by appreciating the qualities of the article production, judging the qualities of the art, evaluating its value, and, being familiar and knowledgeable about all parts or aspects of any text, object, or production. Critical writing is a sense of the discussion. Wolsely (1973) cited in Ahmed (2015) added if critical reading was about paying attention to the relationship with the language, critical writing was about paying attention to sharing the relationship with others.

Being a critical writer means criticizing, asking questions, evaluating, and judging the opinions in a text. Critical writers can see the ideas of the texts from different perspectives to criticize and evaluate the qualities of any text. The current study focuses on four critical writing sub-skills: justification, analysis, argument, and evaluation. Ataca (2015) defined these critical writing sub-skills as fellow: *Analysis* was

the way to separate the main ideas from the sub-ones to understand how these ideas were related, connected, or even affected each other. *Evaluation* referred to the type of judging and examining the importance of a topic. Through evaluation, critical writers determine the weak and strong points according to their criteria. *Justification* is related to providing reasoning support to the topic or giving logical explanations or reasons for your ideas. The argument was the need to understand and use more sources and evidence to support your ideas and look deeply at the given information. Critical writers should support their ideas with reasonable and relevant evidence to their topic.

Context of the study

To document the problem of the current study, the researcher administered two instruments on 80 EFL third-year majors at the Faculty of Education, Minia University at the beginning of the second term of the academic year of 2021/2022. The two instruments included: a critical writing test, prepared by the researcher, and a critical writing test, prepared by the researcher. The critical writing test was divided into two parts: critical writing knowledge and critical writing skills.

Hypotheses

- 1- There would be a statistically significant difference between mean scores obtained by the participants of the experimental group and those of the control group in the post-test of the critical writing in favor of the experimental group.
 - 2- There would be a statistically significant difference between mean scores obtained by the participants of the experimental group and those of the control group in the post-test of the critical writing (the knowledge component) in favor of the experimental group.
 - 3- There would be a statistically significant difference between mean scores obtained by the participants of the experimental
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group and those of the control group in the post-test of critical writing (the skills component) in favor of the experimental group.

Method

The study adopted the pre-post experimental-control group design. Experimental and control groups were exposed to the pre-post means of collecting data. The experimental group was trained in the adaptive e-learning platform during a Micro-teaching course for developing critical writing knowledge and skills, whereas the control group did not receive such training. Alternatively, they took the Micro-teaching course with another instructor and followed the conventional way to teach it. Mainly, the control group participants were taught through the lecture and discussion formats as well as the micro-teaching practice followed by the teacher and student commentary.

Participants

The participants of the present study consisted of eighty male and female third-year English majors at the Faculty of Education, Minia University. The sample consisted of two groups that were randomly assigned to an experimental group and a control one. To achieve homogeneity and equality of the two groups, they had an equal level of critical writing knowledge and skills as ensured by pre-testing of the two groups in the test of critical writing knowledge and the test of critical writing skills. Besides, the participants' grade level was controlled. All the participants were third-year English majors at the Faculty of Education, Minia University after excluding grade repeaters from the sample. The gender was also controlled as the two groups were heterogeneous including male and female participants in both groups.

Instruments

The Critical Writing Test

The test of critical writing was prepared by the researcher. It consists of two components: knowledge and skills. The critical writing

knowledge components consist of five subskills such as (argument, justification, evaluation, analysis, and critical writing process). The skill component consists of four subskills (argument, justification, evaluation, analysis, and critical writing process). The knowledge component was measured by means of a knowledge test whereas the second component was measured by an essay question. The first part consisted of 25 multiple-choice items, constructed according to the sub-areas of critical writing mentioned above. The participant would reflect on what they have learned about critical writing. Each question is followed by four alternative choices and the participant would choose the best option that reflects the understanding of the application of critical writing subskills. As for the skill component of the test, the participants were asked to write an opinion essay with no less than 250 words to assess the participants' application of the four critical writing skills under investigation.

For scoring the knowledge component, a point is given for each correct choice. The agreed-upon correct choices were based on the researcher's review of related literature and understanding of the adaptive e-learning platform to deal with critical reading knowledge and application of the subskills in the EFL classroom. They were also based on the modifications of the members of the jury. The researcher marked the correct choices for the members of the jury to decide whether they are the best options according to the appropriateness of the correct answer and its relationship to the focus of the application of the adaptive e-learning platform in the EFL classroom. As for the skill component, a writing rubric was used to guide the rating process (see appendix ... for the essay writing rubric).

The validity and reliability of the test were checked. The content validity of the test was verified by members of the jury. The test was submitted to a jury of TEFL experts to judge its validity according to the following criteria: linguistic stating of the items, whether the items measure how far the objectives have been achieved, suitability and

fitness of the items to the participants and coverage of the number of the items for the skills measured in the test, and suitability of the model answers. The members of the jury confirmed the suitability and applicability of the test after making the suggested modifications. The final version of the test was given to the participants after making the modifications suggested by members of the jury. Another example of the modifications was changing some of the distractors to avoid ambiguity. The reliability of the test was determined using Alpha Cronbach's method. The reliability coefficient of the test was 0.888.

Results

Hypothesis 1

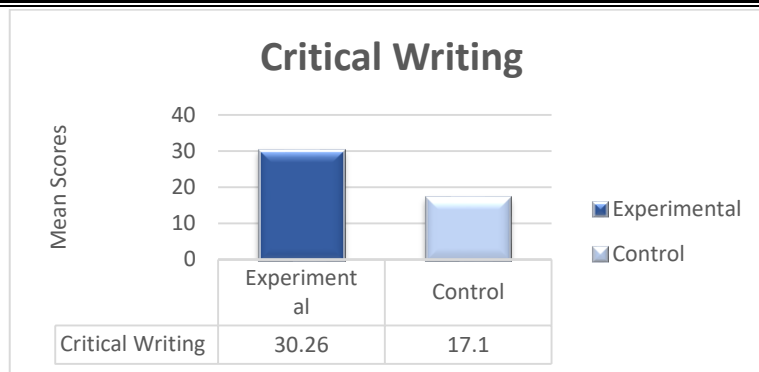
Data analysis of the results in this study using *t-test*, as shown in Table (1), reveals that there is support for *Hypothesis 1* as the results from the experimental group post-test ($M = 30.26$, $SD = 2.80$) and the control group post-test ($M = 17.10$, $SD = 2.57$) indicate that the use of adaptive learning platform resulted in an improvement in critical writing, $t(78) = 22.47$, $p = .000$. Therefore, *Hypothesis 3* is accepted as the results indicate a statistically significant difference in the means of scores obtained by the participants in the experimental group and those of the group in the critical writing test in favor of the experimental group with a large effect size as calculated by Eta squared ($d = 4.89$).

Table (1): *t-test* results of the post-test of critical writing

Critical Writing	N	Mean	SD	t-value	DF	p. value
Experimental	40	30.26	2.80	22.47	78	.000**
Control	40	17.10	2.57			

* Significant at (0.05) ** Significant at (0.01)

Chart (1) illustrates the participants' improvement levels in the critical writing post-test in favor of the experimental group.



The results reveal that the experimental group has improved significantly compared to the control group. Data analysis of the critical writing test (i.e., critical writing knowledge and critical writing application) also revealed that these two components mainly contributed to the overall statistically significant difference in favor of the experimental group. These components, as shown in Table (2), were found to be statistically significant as reported below:

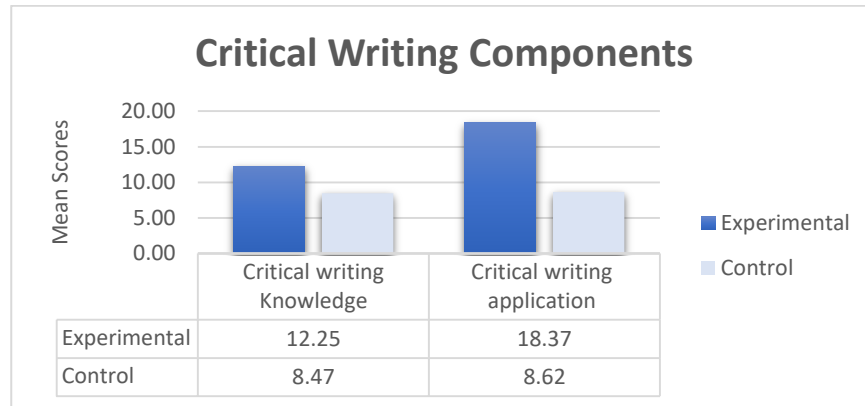
- (1) The results from the critical writing knowledge post-test of the experimental group ($M = 12.25$, $SD = 2.43$) and the control group ($M = 8.47$, $SD = 2.02$) indicate an improvement in favor of the experimental group, $t(78) = 7.53$, $p = .000$.
- (2) The results from the critical writing application post-test of the experimental group ($M = 18.37$, $SD = 1.64$) and the control group ($M = 8.62$, $SD = 1.58$) indicate an improvement in favor of the experimental group, $t(78) = 27.04$, $p = .000$.

Table (2): *t*-test results of the post-test of critical writing

Critical Writing	Group	N	Mean	SD	t-value	DF	p. value
Critical writing knowledge	Experimental	40	12.25	2.43	7.53	78	.000**
	Control	40	8.47	2.02			
Critical writing application	Experimental	40	18.37	1.64	27.04	78	.000**
	Control	40	8.62	1.58			

* Significant at (0.05) ** Significant at (0.01)

Chart (2) illustrates the participants' improvement levels in the critical writing components (knowledge and skills) post-test in favor of the experimental group.



Hypothesis 2

Data analysis of critical writing knowledge areas (i.e., evaluation, analysis, argument, justification, and critical writing process) also revealed that these five areas mainly contributed to the overall statistically significant difference in favor of the experimental group. Therefore, hypothesis 2 is accepted. These areas are shown in Table (3).

- (1) The results from the evaluation post-test of the experimental group ($M = 2.12$, $SD = 1.28$) and the control group ($M = 1.50$, $SD = 1.08$) indicate an improvement in favor of the experimental group, $t(78) = 2.35$, $p = .021$.
- (2) The results from the analysis post-test of the experimental group ($M = 2.35$, $SD = .89$) and the control group ($M = 1.57$, $SD = .84$) indicate an improvement in favor of the experimental group, $t(78) = 3.98$, $p = .000$.
- (3) The results from the argument post-test of the experimental group ($M = 2.47$, $SD = 1.06$) and the control group ($M = 1.60$, $SD = 1.00$) indicate an improvement in favor of the experimental group, $t(78) = 3.78$, $p = .000$.

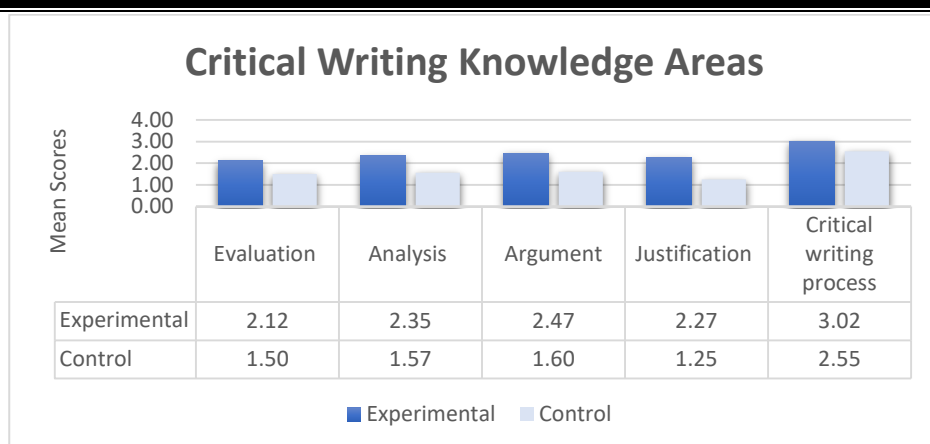
- (4) The results from the justification post-test of the experimental group ($M = 2.27$, $SD = .93$) and the control group ($M = 1.25$, $SD = 1.10$) indicate an improvement in favor of the experimental group, $t(78) = 4.59$, $p = .000$.
- (5) The results from the critical writing process post-test of the experimental group ($M = 3.02$, $SD = .89$) and the control group ($M = 2.55$, $SD = 1.55$) indicate an improvement in favor of the experimental group, $t(78) = 1.67$, $p = .097$.

Table (3): *t*-test results of the post-test of critical writing knowledge areas

Knowledge Area	Group	N	Mean	SD	t-value	DF	p. value
Evaluation	Experimental	40	2.12	1.28	2.35	78	.021*
	Control	40	1.50	1.08			
Analysis	Experimental	40	2.35	.89	3.98	78	.000**
	Control	40	1.57	.84			
Argument	Experimental	40	2.47	1.06	3.78	78	.000**
	Control	40	1.60	1.00			
Justification	Experimental	40	2.27	.93	4.59	78	.000**
	Control	40	1.25	1.10			
Critical writing process	Experimental	40	3.02	.89	1.67	78	.097
	Control	40	2.55	1.55			

* Significant at (0.05) ** Significant at (0.01)

Chart (3) illustrates the participants' improvement levels in critical writing knowledge areas (i.e., evaluation, analysis, argument, justification, and critical writing process).



According to the findings of the post-test of critical writing knowledge area, the participants mastered most of the knowledge areas related to (evaluation, analysis, argument, and justification) and the overall results are statistically significant. However, the participants, in the critical writing process, have not made any improvement as they dealt with this knowledge area with less attention. Obviously, the participants have taken the critical writing process knowledge for granted and did not focus to improve their knowledge level.

Hypothesis 3

Data analysis of critical writing application in terms of four skills (i.e., evaluation, analysis, argument, and justification) also revealed that these four skills mainly contributed to the overall statistically significant difference in favor of the experimental group. Therefore, hypothesis 3 is accepted. These skills are shown in Table (4).

- (1) The results from the evaluation post-test of the experimental group ($M = 4.77$, $SD = .42$) and the control group ($M = 2.52$, $SD = .50$) indicate an improvement in favor of the experimental group, $t(78) = 21.58$, $p = .000$.
- (2) The results from the analysis post-test of the experimental group ($M = 4.45$, $SD = .50$) and the control group ($M = 1.80$, $SD = .40$) indicate an improvement in favor of the experimental group, $t(78) = 25.92$, $p = .000$.

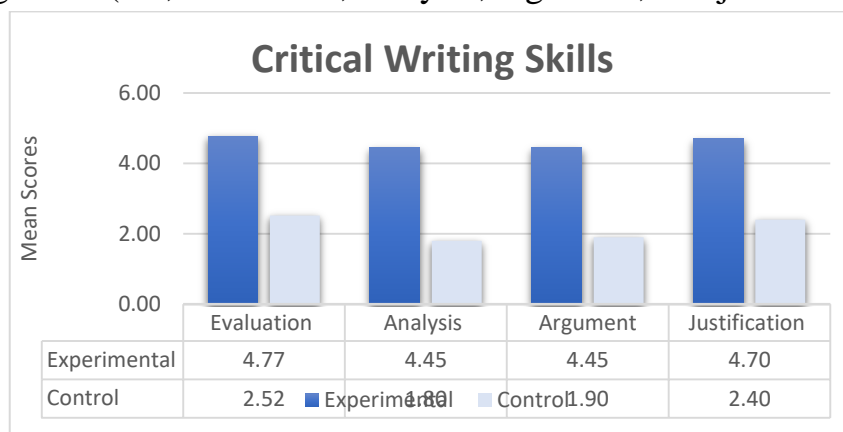
- (3) The results from the argument post-test of the experimental group ($M = 4.45$, $SD = .50$) and the control group ($M = 1.90$, $SD = .30$) indicate an improvement in favor of the experimental group, $t(78) = 27.41$, $p = .000$.
- (4) The results from the justification post-test of the experimental group ($M = 4.70$, $SD = .46$) and the control group ($M = 2.40$, $SD = .63$) indicate an improvement in favor of the experimental group, $t(78) = 18.54$, $p = .000$.

Table (4): *t*-test results of the post-test of critical writing skills

Knowledge Area	Group	N	Mean	SD	t-value	DF	p. value
Evaluation	Experimental	40	4.77	.42	21.58	78	.000**
	Control	40	2.52	.50			
Analysis	Experimental	40	4.45	.50	25.92	78	.000**
	Control	40	1.80	.40			
Argument	Experimental	40	4.55	.50	27.41	78	.000**
	Control	40	1.90	.30			
Justification	Experimental	40	4.70	.46	18.54	78	.000**
	Control	40	2.40	.63			

* Significant at (0.05) ** Significant at (0.01)

Chart (4) illustrates the participants' improvement levels in critical writing skills (i.e., evaluation, analysis, argument, and justification).



According to the results of the post-test of critical writing skills, the critical writing four skills of evaluation, analysis, argument, and justification have statistically significant improvement in favor of the

experimental group. The improvement in these skills may be attributed to the intensive practice of critical writing skills either during sessions or through the platform.

Discussion

The present study was conducted to investigate the use of an adaptive e-learning platform to develop Minia University Faculty of Education third-year English majors' critical writing skills. The participants in the experimental group were taught adaptive e-learning training through a Micro-teaching course. The program was based on a set of adaptive e-learning systems that has four basic techniques (i.e. adaptation of content, navigation, presentation, and feedback) that were used to develop the participants' critical writing knowledge and skills.

Critical writing was divided into two parts: part 1 (critical writing knowledge in terms of using the critical writing process, evaluation, analysis, argument, and justification) and Part 2 (critical writing skills in terms of using argument, justification, evaluation, and analysis). The results of the present study have confirmed that critical writing knowledge and skills can be developed through systematic instruction using the adaptive e-learning system. The participants in the experimental group performed far better than their counterparts in the control group. Statistical differences in the three hypotheses favored the experimental group. This reveals that the adaptive e-learning system employed while giving the program was effective in developing the participants' critical writing knowledge and skills.

It is highlighted that students need to receive adapted and individualized feedback according to their learning preferences (Oertig, 2010). Using an adaptive e-learning platform help students to be divided into groups and provided adapted content according to their learning abilities (Limongeli et al. ,2011). In education, adaptation refers to the personalizing of the learning environment or process to facilitate individuals' learning performance in an effective way. Al-Shammari (2015) stated that designing well-designed adaptive e-

learning is a challenge according to the complexity of adapting to the different needs of students. Ahmed (2016) stated that adaptivity is the ability of the learning process to define the differences in individual approaches.

Recommendations

Based on the results of the study, some recommendations are made and can be used to develop English language education. These recommendations include:

- 1- Redesigning the content of the courses Methods of Teaching and Micro-teaching to integrate an adaptive e-learning platform and modify the other elements of the course accordingly.
- 2- Following student teachers during the teaching practice period to make sure that they made use of the adaptive e-learning platform and their applications in teaching and providing feedback as appropriate to enhance their teaching practice in general and critical and digital literacies.
- 3- Introducing the concept of the adaptive e-learning platform in a course to be taught to students at the Faculty of Education to develop their understanding of the adaptive e-learning platform and its applications in developing teaching skills.
- 4- Relying on the adaptive e-learning platform approaches in training student teachers through courses of Curricula, Methods of Teaching EFL, Micro-teaching, and Teaching Practice.
- 5- Training staff members at the department of curricula and methods of teaching EFL on the applications of the adaptive e-learning platform to develop teaching skills.

References

- Ahmed, M. (2016). Web Quest and EFL Critical Reading and Writing. *Cultural and Religious Studies*, 4(3), 175-184.
- AI-Adeel, Abdullah bin Khalifa bin Abdul Latif. (2021). Designing an adaptive e-learning environment and its effectiveness in developing the e-lesson design skills of the student teacher. *The Scientific Journal of King Faisal University - Humanities and Administrative Sciences*, 22(1), 118 - 128.
- AlKhamis, A. S., & Mohammed, A. M. A. (2022). Designing An Adaptive E-Learning Environment and Its Effectiveness in Developing Critical Reading Skills Of Literary Texts. *Journal of Positive School Psychology*, 6(9), 126-142.
- Alshammari, M., Anane, R., & Hendley, R. (2015). Design and Usability Evaluation of Adaptive E-learning Systems based on Learner Knowledge and Learning Style. *Human-Computer Interaction Conference- INTERACT* , Vol. (9297), (pp. 157–186).
- Brusilovsky and C. Peylo, "Adaptive and intelligent web-based educational systems," *International Journal of Artificial Intelligence in Education (IJAIED)*, vol. 13, pp. 159-172, 2003.
- Esichaikul, V., Lamnoi, S., & Bechter, C. (2011). Student modelling in adaptive e-learning systems. *Knowledge Management & E-Learning: An International Journal*, 3(3), 342–355.
- Gabrielatos, C. (2002). EFL Writing: Product and Process. Eric No. Ed 476839.
- Gohar& El-Ghool, (2016). Designing an Adaptive Learning Environment to improve writing skills and usability for EFL students at the Faculty of Education.
- Isa, F. (2012). The Effect of Using Wikis on Improving Palestinian 9th graders' and their Attitudes towards Writing. *M.A. Dissertation*, Faculty of Education, the Islamic University of Gaza.
- Karabay, A. (2015). The Guiding Effects of a Critical Reading Program on the Use of External Reading Strategies when Confronting an Ironic Text. *Educational Research Review*, 10, 2297-2304.
- Khamis, M. A. (2015). Adaptive E-learning Environment Systems and Technologies. The First International Conference of the Faculty of Education, Albaha University, during the period 13-15 / 4/2015, Albaha, KSA.
- Kolekar, S. V., Pai, R., & Pai. M. (2017). Prediction of Learner's Profile based on Learning Styles in Adaptive E-learning System. *International Journal of Emerging Technologies in Learning (iJET)*, 12(06), pp. 31–51.
- Lee, J., & Park, O. (2008). Adaptive instructional systems. In J.M. Spector, M. D. Merrill, J. vanMerriënboer, & M. P. Driscoll (Eds.), *Handbook of research on*
-
-

educational communications and technology (3rd ed., pp. 469–484). New York: Lawrence Erlbaum.

Luke, A. (2000). Critical Literacy in Australia: A matter of context and standpoint. *Journal of Adolescent & Adult Literacy*, 43 (5), 448-461.

Murray, M. C., & Pérez, J. (2015). Informing and Performing: A Study Comparing Adaptive Learning to Traditional Learning. *Informing Science: the International Journal of an Emerging Transdiscipline*, 18, 111-125.

Nazim, M. (2012). A Practical Remedy of Common Writing Problems among Students of Writing Skills Courses at Preparatory Year. *Published Ph.D. Thesis*, Najran University KSA.

Norton, B., & Toohey, K. (2004). *Critical pedagogies and language learning*. Cambridge; New York: Cambridge University Press.

Oxman, S. & Wong, W. (2014). White Paper: Adaptive Learning Systems.

Integrated Education Solutions, Retrieved from:

<https://pdfs.semanticscholar.org/4e57/2108fa1591d21d980a6efe78673edc48c652.pdf>

Pithers, R. T. & Soden, R. (2001). Critical thinking in education: a review. *Educational Research*, 42 (3), 237-249. doi: 10.1080/ 001318800440579.

Salem, M. S. (2013). The Effectiveness of a Proposed Program Based on Using Workshops in Developing the Functional Writing Skills of Primary Stage Prospective Teachers of English. *Unpublished MA Thesis in TEFL*, Institute of Educational Studies, Cairo University, Egypt.

Sultan, Rofiuddin, A., Nurhadi, & Prihatni, E. T. (2017). The Effect of the Critical Literacy Approach on Pre-service Language Teachers' Critical Reading Skills. *Eurasian Journal of Educational Research*, 71: 159-174.

Tan, L., & Guo, L. (2009). From print to critical multimedia literacy: One teacher's foray into New Literacies practices. *Journal of Adolescent & Adult Literacy*, 53 (4), 315-324.

Tsai, P., Chen, S., Chang, H., Chang, W. (2013). Effect of Prompting Critical Reading of Science News on Seventh Graders' Cognitive Development. *International Journal of Environmental & Science Education*, 8 (1): 85-107.

University of Leicester. (2009) What is Critical Writing?. www.le.ac.uk/succeedinyourstudies

University of Leicester. Learning Development Centre. (2013) What is critical writing? Retrieved from

<http://www2.le.ac.uk/offices/ld/resources/writing/writing-resources/critical-writing>

استخدم منصة تعلم إلكتروني معدلة لتنمية معرفة ومهارات الكتابة الناقدة لدى طلاب كلية التربية...

Yang, D. F. Catterall, J., & Davis, J. (2013). Supporting new students from vocational education and training: Finding a reusable solution to address recurring difficulties in eLearning. *Australasian Journal of Educational Technology*, 29(5), 640 - 650.

Zhang, T., et al. (2007). Using Online Discussions Forums to Assist a Traditional English Class. *International Journal on E-Learning*, 6(4), 632-643.