Learning Management System: Case study Effectiveness of the ADDIE Instructional Design Model in Creative Writing in EFL Students

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ABSTRACT

The purpose of this study is to determine the effectiveness of the ADDIE model in online teaching in Indonesia LMS in increasing the creativity of EFL students' writing skills. The researcher used a quasi-experimental design with pre-test, post-test, and control group designs. The research topic used in this case is Sixty freshmen from English departments who were chosen at random and assigned equally to the research group. The experimental group was exposed to an e-learning environment that aims to develop students' creative writing skills, whereas the control group was exposed to traditional teaching methods. Using creative writing checklists and writing tests designed to assess specific features of creative writing (originality, accuracy, self-expression, fluency, flexibility, and overall writing performance to assess creative writing in study participants, the results of the t-test and eta square statistical test indicate the existence of a statistically significant difference between the mean scores obtained by the experimental group and those obtained by the control group. The article concludes with more conclusions and pedagogical implications.

Keywords: Creative writing, Learning Management System, ADDIE model

I. INTRODUCTION

Writing has always been regarded as an important component of language learning (Aziz, Hoesny, et al., 2022). All texts are inevitably made up of lexical and grammatical words that convey a content or message (Sholah, 2019). In texts, lexical words aid in meaning formation, whereas grammatical words allow one to arrange meanings coherently (Aziz, Setyosari, et al., 2022). The message will be poorly articulated if the meaning is not presented clearly. Learners must master these basic writing conventions in order to write effectively. However, low proficiency second language (L2) learners face difficulties in completing writing tasks, due to a lack of lexical and grammatical knowledge to put their thoughts into words that convey a specific meaning or story. Furthermore, according to (Kim & Yoon, 2014), "writing is a complex metacognitive activity that draws on an individual's knowledge, basic skill, strategies, and ability to coordinate multiple processes." In this case, the writers should have text-creation skills, writing knowledge, and the process of energizing and motivating participants to write with enthusiasm and act through strategies to archive writing goals. The entire writing process stems from the process of creative writing or from a specific creative process (Ulu, 2019).

Students can own more opportunities to express their ideas and thoughts in such an LMS and associate social media with a thriving digital learner community, while the interactive reader's a similar opportunity to read and record their persistent feedback on the author's writing (Ezeani, 2011). According to research, using an LMS platform such as Blackboard improves students' writing skills and sub-skills while also projecting a stimulating and inspiring learning environment to develop writing. language learners' competency (Pinkman, 2005). LMSs can also boost learner autonomy and serve as a reliable substitute for learning logs, which allow language learners to record their progress in writing (Ward, 2004).

During the CBT (Computer-Based Training) era, e-learning applications were packaged on CD-ROM. It is filled in the writing material or multimedia (Video and Audio) in mov, mped-1, or format; In 1994, along with the community's receipt of CBT. Since 1994, CBT has appeared in the form of more appealing and mass-produced packages; in 1997, there was LMS (Learning Management System). The community is currently working to connect to the internet. Everything can be obtained and felt the absolute needs, and location is no longer an

impediment; and in 1999, the year that was a Web-based e-learning application. LMS development towards a fully developed Web-based e-learning application. E-learning is one of the fields that are being developed in communication technology. Furthermore, e-learning is well-known and widely used by educational institutions and training to facilitate learning implementation. E-learning can be viewed as a developing system to improve learning quality by attempting to overcome space and time constraints. The use of internet technology for education in Indonesia began with the establishment of telematics in 1996. The Asian Internet Interconnections Initiatives were formed in the same year. So far, 21 higher education institutions (public and private), national research institutions, and related organizations have joined. Due to the quick development of internet-based technology, higher education institutions have recently implemented a variety of electronic learning (e-learning) services, including online learning resources and learning management systems (LMS) (Almomen et al., 2016).

Developing educational and training programs systematically for better learner performance is known as instructional design (ID) (Almomen et al., 2016).

Understanding, enhancing, and putting into practice learning strategies are referred to as instructional design (Reigeluth, 2014). For educational programs, instructional design is systematically created. An organized process for creating educational and training programs that will increase student performance is called instructional systems design (Putri et al., 2017). the 1975 debut of the ADDIE instructional model. The Florida State University Center for Educational Technology was responsible for its creation. Dick and Cary's 1978 ADDIE model, which Russell Watson refined in 1981, was seen as crucial for creating educational and training initiatives (Hubackova & Sarca, 2016). Through synchronous or asynchronous media, e-learning serves as a means of communication that communicates knowledge. E-learning is the educational process that makes use of cutting-edge techniques for knowledge transmission over the Internet, extranet and intranet technologies, audio, video, and flash animations (Eaton et al., 2017). E-learning, according to (Belaya, 2018) is a word used to refer to all forms of media-based learning, including intranet- and internet-based learning.

Alhujaylan (2019) investigated the effectiveness of Saudi students' computer-

assisted English writing skills when investigating the significance of such text-based tools. His research found that when Saudi EFL students used computer-assisted programs to correct their grammar and paragraph writing, their writing abilities improved significantly, as the E-learning setting allows students ample time to reflect and focus. (Hassan et al., 2021) also discovered that computers can be programmed to provide corrective instruction in order to detect errors in writing. This arguably assists students in correcting their errors, thereby enriching their writing. According to the Previous Research explanation above, the purpose of this study is to adopt the *Learning Management System*: Case study Effectiveness of the ADDIE Instructional Design Model in Creative Writing in EFL Students. It is anticipated that by Effectiveness of the ADDIE Instructional Design Model will increase Creative Writing in EFL Students

II.   METHOD

This study was designed in a quasi-experimental setting using a pretest-posttest control group design. The researcher employed a randomly chosen sample of 60 students for this study-30 for the experimental group and 30 for the control group-who were all first-year English

Program students. Both groups successfully completed the pre- and post-testing procedures as intended. Writing I, an introductory upper-intermediate course in academic writing was given to members of the experimental group using Blackboard's LMS in accordance with the steps of the ADDIE instructional design model, which aimed to improve the students' creative writing abilities. Writing I was taught to the control group in a traditional face-to-face classroom setting. After being instructed on how to set up personal blogs, experimental students were asked to create their own blogs. The ADDIE (Analysis, Design, Development, Implementation, and Evaluation) instructional model was incorporated into the blog design process.
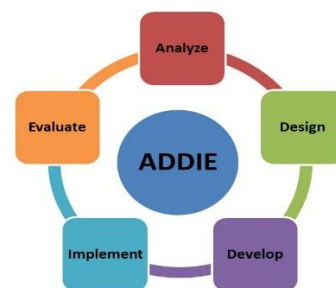

Figure 1. The ADDIE Model. Adapted from Allen, 2017, p. 75

They were then introduced to the writing tasks and activities assigned to them in the writing topics. They were assigned a writing topic as a discussion thread on Blackboard during each class session. They were given writing assignments such as

brainstorming ideas, listing, freewriting, developing advanced organizers, and so on. The activities and tasks were graded across the various stages of the writing process, including the pre-writing phase (such as deciding on a writing topic/title, listing, creating graphic organizers, and other relevant brainstorming tasks), the writing per se phase (developing the essay outline, writing the first draft, and writing a second and/or third draft), and the post-writing phase (peer-proofing, peer-draft reading, revising and editing in collaborative work) (writing the final draft). The students reused these tasks and activities throughout the phases by publishing their products online. The following diagram summarizes these steps.

Figure 2. The Instructional Creative Writing Process

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III. RESULT AND DISCUSSION

The current study's findings are presented here in accordance with each hypothesis, followed by a brief explanation of the findings.

Hypothesis One:
To test the first hypothesis, "there is a statistically significant difference between the posttest mean scores of the experimental group and the control group in writing skills that feature originality in favor of the experimental group at the 0.01 level," a t-test for independent samples was used to compare the mean scores of the two groups in the posttest on the skill of originality.

Table 1 shows the t-test results for writing skills with originality. Post-test Mean Score Comparison of the Control and Experimental Groups

Group	n	Mean	SD	D.F.	t-Value	Effect Size ($\eta2$)
Control	30	9.70	3.087	58	7.65*	0.703**
Experimental	30	14.57	1.61			

* Significant at the 0.01 level ** High effect size

Table (1) shows that the calculated t-value (7.65) is statistically significant at the 0.01 level of confidence. As a result, there is a statistically significant difference between the mean scores of the experimental and control groups on the skill of originality

post-test in favor of the experimental group. So, the first hypothesis is accepted. Furthermore, the effect size value was as high as 2 = 0.703. As a result, the proposed strategy had a significant impact on the participants' performance.

The following graph shows how the post-administration mean scores for the two groups differed.
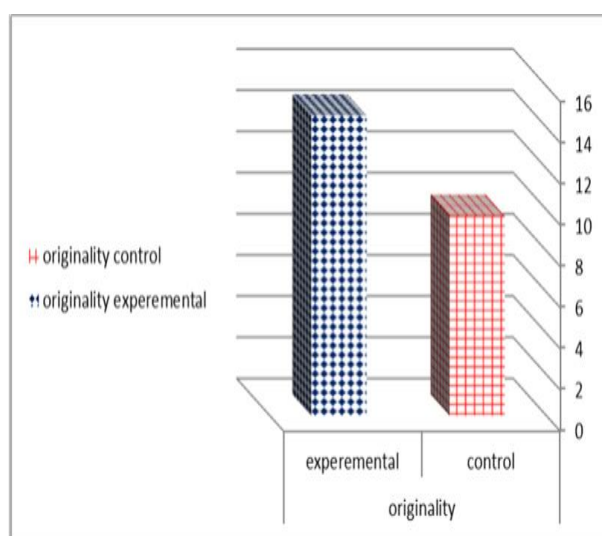

Figure 3. Comparison of Mean Scores of the Two Groups in the Post Administration of the Originality Skill

The explanation for this result could be that the e-learning approach to teaching English to the students in the experimental group was one of a few earlier ELT methods that viewed language as a means of communication in an interactive learning environment (Wang & Hsu, 2009). The e-learning environment could initially assist learners in this group in communicating efficiently using appropriate linguistic and grammatical structures in conversational language situations, where students are required to supply a variety of ideas in communicative language tasks and practices. This research confirms previous research findings that writing is an essentially creative process involving the three aspects of creativity - producer, product, and process - and that writing is a problem-solving activity for EFL learners to learn about novel solutions (Zamel, 1983). This could be due to the strategies used, which assisted learners in engaging in brainstorming sessions, being open to tolerating ambiguity, collecting ideas and exploring alternatives, having enough time with home e-learning activities, reading widely at home online, and assuming a broad perspective to thinking and writing (Harper & Harper, 2015).

Hypothesis Two:

It was proposed that there was a statistically significant difference in the skill of accuracy between the posttest mean scores of the experimental group and the control group at the 0.01 level. To test this hypothesis, the t-test for independent samples was used to compare the mean accuracy skill scores of the two groups in the post-test.

Table 2. t-Test Results of the Writing Skills with Accuracy Post-Test Comparing the Mean Scores of the Control and Experimental Groups

Group	n	Mean	SD	D.F.	t-Value	Effect Size ($\eta2$)
Control	30	12.17	3.27	58	5.77*	0.59 **
Experimental	30	16.20	1.98			

* Significant at the 0.01 level ** Medium effect size

The calculated t-value (5.77) is statistically significant at the 0.01 level of significance, according to Table (2).

As a result, it is clear that there is a significant difference in the means of the scores obtained by experimental and control participants on the skill of accuracy on post-testing to the benefit of the experimental group participants. As a result, the second hypothesis is confirmed. Furthermore, the effect size value was determined to be medium, with 2 = 0.59. Thus, the ADDIE model design in the LMS medium of Blackboard had a medium effect on the participants' creative writing performance. The graph below depicts the difference in post-administration means scores between the two groups.
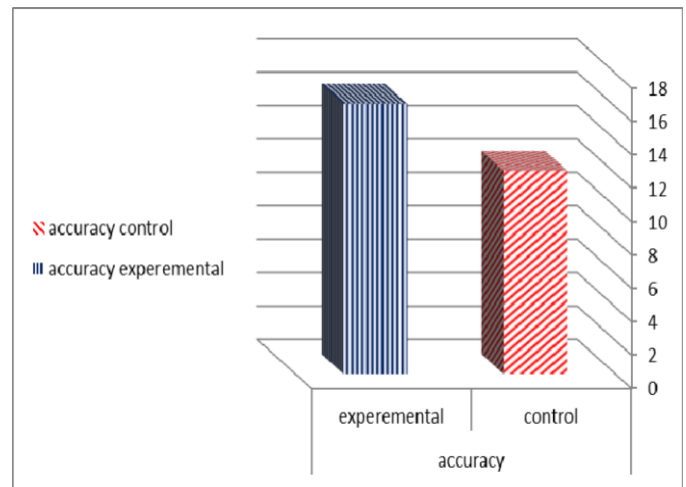
IV.
V.
VI.

Figure 4. Comparison of Mean Scores of the Two Groups in the Post Administration of the Accuracy Skill

Common sense and experience, supported by the current study's findings, indicate that e-learning could promote writing competence in approximate precision, which is the result of accuracy attained in online communicative EFL classrooms, which is associated with creativity - an important criterion of which is the fluency of ideas. Providing EFL learning materials in e-learning environments based on the ADDIE instructional model could aid in effective creative writing by cultivating accuracy and fluency (Almomen et al., 2016)

Hypotheses Three:

Furthermore, it was suggested that there was a statistically significant difference between the experimental and control participants' mean scores on post-testing in the skill of self-expression to the benefit of the experimental group participants (= 0.01).

To (dis)confirm this hypothesis, a t-test for independent samples was used to compare the mean scores of the two groups' participants on their ability to express themselves after post-testing.

Table 3. t-Test Results of the Self-Expression Skill Post- Test Comparing the Control and Experimental Groups' Mean Scores

Figure 5. Comparison of Mean Scores of the Two Groups in the Post Administration of the Self-Expression Skill

Group	N	Mean	SD	D.F.	t-Value	Effect Size (n2)
Control	30	9.13	3.14	58	6.73*	0.66 **
Experimental	30	13.80	2.12			

* Significant at the 0.01 level ** High effect size

The calculated t-value (6.73) is statistically significant at an alpha of 0.01 according to Table (3). As a result, it is clear that there is a statistically significant difference in the mean scores of the experimental and control groups on the self-expression skill upon post-testing, to the benefit of the experimental group. As a result, the third hypothesis is supported. In addition, the effect size value was as high as 2 = 0.66. Thus, the suggested ADDIE instructional design model within the Blackboard LMS had a significant impact on the participants' performance.

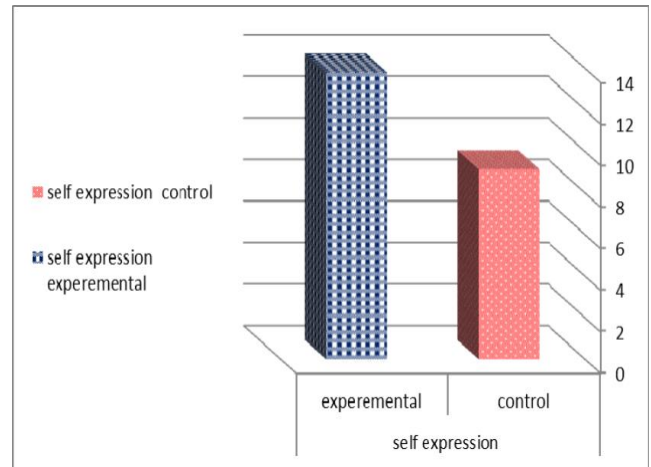The graph below shows the difference in post-administration mean scores for both groups.

VII.

E-learning environments provide a rich environment for developing creative self-expression in writing. Students can use the pre-writing stage as a plan to apply during the writing stage by using self-expression and reflecting on their writing in the post-writing stage. E-learning encourages the development of functional language used in everyday situations (Savignon, 1991). The e-learning environment provided both students and teachers with an authentic task, as e-learning activities in various stages of pre-writing and writing are now common and have become a relevant and credible forum for people all over the world to express their opinions and share information. In this setting, experimental students could promote writing fluency by encouraging students to recycle vocabulary and to be

aware of their language use. The ADDIE instructional model's recursiveness was evident in student writings in the e-learning environment.

Hypothesis Four:

It was further hypothesized that there was a statistically significant difference between the posttest mean scores of the experimental group and the control group in the skill of fluency in favor of the experimental group at the 0.01 level. To test the validity of this hypothesis, the t-test for independent samples was used to compare the mean scores of the two groups in the skill of fluency in the posttest.

Table 4. t-Test Results of the Skill of Fluency Post-test Comparing the Control and Experimental Groups' Mean Scores

Group	n	Mean	SD	D.F.	t-Value	Effect Size ($\eta2$)
Control	30	11.07	2.81	58	5.89*	0.604**
Experimental	30	15.23	2.67			

* Significant at the 0.01 level ** High effect size

Table (4) demonstrated that the calculated t-value (5.89) is statistically significant at an alpha of 0.01. As a result, there is a statistically significant difference between the mean scores of the experimental and control groups on fluency skill in the post-test in favor of the experimental group.

Thus, the fourth hypothesis is accepted. Furthermore, the effect size value was as high as 2 = 0. 604. As a result, the suggested ADDIE model for the instructional design had a significant impact on the participants' performance. The graph below depicts the difference in post-administration means scores for both groups.
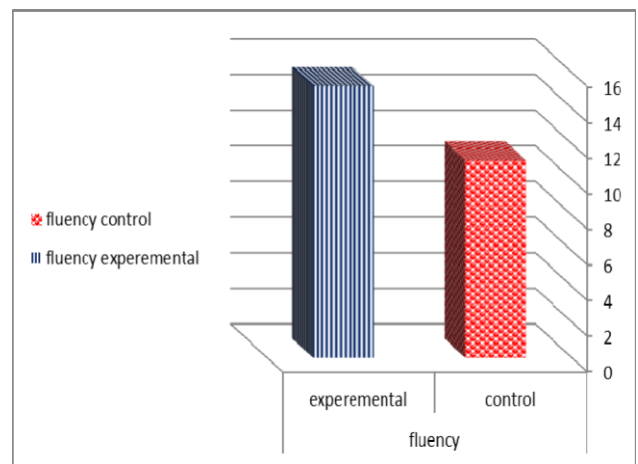

Figure 6. Comparison of Mean Scores of the Two Groups in the Post Administration of the Fluency Skill

In this experiment, the e-learning environment instructionally designed after the ADDIE model for teaching writing could provide sufficient time online and offline for student writers to receive adequate creative writing training and assistance in improving their writing fluency. The ADDIE model's instructional design could help students develop their writing skills because the LMS e-learning environment with such a design motivated them to write creatively. The e-community of writers in the Blackboard

LMS, combined with the recursiveness of the ADDIE model steps, enabled teachers and student writers to receive ongoing feedback for improving their specific writing abilities on an individual basis. The ADDIE model as an instructional design and the power of the LMS assisted in the creation of an online learning community in which students learned from their peers and the writing instructor served as a fellow writer rather than a summative evaluator of students' written works (Alhujaylan, 2019).

Hypothesis Five:

Furthermore, the researcher hypothesized that there was a significant difference between the posttest mean scores of the experimental group and the control group in the skill of flexibility in favor of the experimental group at the 0.01 level of significance.

Table 5. t-test Results of the Skill of Flexibility Post-test Comparing the Control and Experimental Groups' Mean Scores

Group	n	Mean	SD	D.F.	t-Value	Effect Size ($\eta2$)
Control	30	13.20	2.85	58	6.92*	0.67 **
Experimental	30	17.40	2.69			

VIII.   * Significant at the 0.01 level ** High effect size

According to Table (5), the calculated t-value (6.92) is statistically significant at the 0.01 level of significance.

As a result, there is a statistically significant difference between the mean scores of the experimental and control groups on the flexibility skill in the post-test in favor of the experimental group. Thus, the fifth hypothesis is accepted. Furthermore, the effect size value was high, with 2 = 0.67. As a result, the proposed strategy had a significant impact on the participants' performance. The graph below depicts the difference in post-administration means scores for both groups.
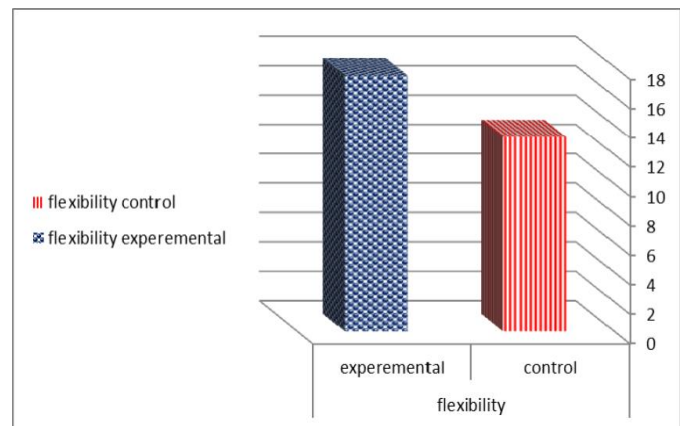

Figure 7. Comparison of Mean Scores of the Two Groups in the Post Administration of the Flexibility Skill

Flexibility is a higher-order thinking skill that has been identified as critical for learning in technologically enhanced environments. Prior research considered 'flexibility,' along with elaboration, fluency,

and originality, as one of the four basic functions of divergent thinking (Oye, 2012). Prior research findings frequently cited the environments of LMSs as having significant effects on the development of student's abilities to create imaginative expression and produce signs of divergent thinking when students attempted to write in search of identity or when they were trained to write and read on personal topics (Nagai & Taura, 2011). Open-mindedness in a way that helps learners adapt and conform to new learning methods and mediums is referred to as flexible thinking. The study could prove that the ADDIE model in the e-learning medium of Blackboard improved cognitive flexibility during the writing process by enhancing the ability to naturally rearrange bits of knowledge in novel and unique ways to adaptively respond to the demands of changing situations. In fact, flexibility is a necessary skill for adjusting to the demands of new e-learning environments, relocating and recycling knowledge in new situations, and decoding and resolving unfamiliar problems. This could be explained by three main elements that define learners' natural tendencies to think in flexible ways in technology-driven e-learning environments. These elements were identified as follows: 1) Acceptance of new or changing technologies (Technology acceptance); 2) Openness to other people's ideas (Open-mindedness), and 3) Adapting to changes in learning situations (Adapting to new situations).

Hypothesis Six:

Assuming that there is a statistically significant difference between the posttest mean scores of the experimental group and the control group in overall creative writing test scores to the good of the experimental group at the 0.01 significance level, the researcher sought to test the validity of this hypothesis with a t-test for independent samples. This test was used to compare the mean scores of the two groups in creative writing skills on post-testing. The t-test results were statistically consistent with the hypothesis.

Table 6. t-Test Results of All Creative Writing Skill Post- Test Comparing the Control and Experimental Groups' Mean Scores

Group	n	Mean	SD	D.F.	t-Value	Effect Size ($\eta2$)
Control	30	55.27	10.59	58	9.14*	0.76 **
Experimental	30	77.20	7.78			

* Significant at the 0.01 level ** High effect size

Table (6) shows that the calculated t-value (9.14) is statistically significant at the 0.01 level of confidence.

As a result, there is a statistically significant difference between the mean scores of the experimental and control groups on all creative writing skills in the post-test in favor of the experimental group. As a result, the sixth hypothesis is confirmed. Furthermore, the effect size value was high, with 2 = 0.76. As a result, the proposed strategy had a significant impact on the participants' performance. The graph below depicts the difference in post-administration means scores for both groups.
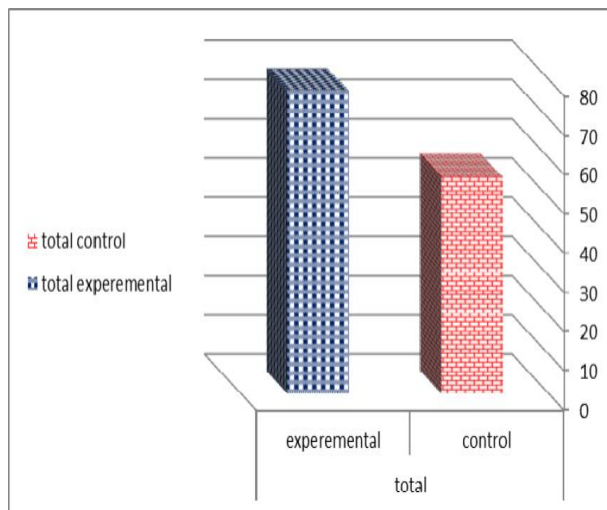

Figure 8. Comparison of Mean Scores of the Two Groups in the Post Administration of the Creative Writing Skills

IX. CONCLUSION

The statistical analysis revealed that the ADDIE model used in the e-learning environment was effective for teaching creative writing, as the experimental group's mean scores on the creative writing posttest improved significantly in favor of the experimental group in the overall test at the 0.01 level of significance. The study's findings revealed that using a weblog as a medium for projecting students' writings in the instructional design of the ADDIE model functioned as an effective teaching and learning tool supportive of the creative writing process. Thus, the e-learning environment of Blackboard blogs and discussion boards was effective in developing students' writing performance, gradually increasing their development of creative writing skills in English. The study's findings revealed a significant difference in the mean scores of the experimental group in the pre-and post-administration of the CWT in overall creative writing skills. This indicates that the experimental group trained to use an e-learning environment outperformed the control group in terms of overall creative writing skills. Similarly, the amount of growth in overall creative writing skills between the pre-test and post-test for the experimental group students was significant. The high scores obtained by the experimental group participants reflect the effect of using an e-learning environment. Some factors related to the proposed strategy and the implemented teaching/learning methodology appear to account for the observed progress in their overall creative writing skills.

In conclusion, when compared to their peers in the control group, experimental participants were able to improve their creative writing performance by the end of the study. This may be attributed to the instructional design of the ADDIE model in the Blackboard LMS, which may have induced the experimental participants to identify and emphasize their efforts to understand the relationship between brainstormed ideas and to select appropriate transitional words and phrases to signal new ideas in paragraphs. Furthermore, these findings can be attributed to both the characteristics of the e-learning environment and the benefits of creative writing activities following the instructional design of the ADDIE model. The researcher also noticed that experimental students' confidence increased when they were given the opportunity to practice creative writing on their weblogs using the ADDIE e-learning strategy used in this study. This could also be attributed to the asynchronous nature of weblogs, which gave them more freedom and momentum to reread their own and their peers' projects without space or time constraints. This suggests that EFL students work devotedly and passionately on their creative writing projects when they believe their writing teacher, other peers, and blog readers will have access to their work at any time and from any location. Pedagogically, the findings of this study suggest that EFL instructors should be aware of the importance of e-learning resources and strategies inherent in the full utilization of Blackboard facilities, including blogs and discussion boards, as teaching and learning tools supportive of the processes of reading and writing and for improving developing students' writing performance when compared to the conventional method.

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