Scientific Research Publishing

Creative Education, 2025, 16(9), 1441-1459
https://www.scirp.org/journal/ce
ISSN Online: 2151-4771
ISSN Print: 2151-4755

"AI Can, but Can You?" Analysing the Impact of Text Generative AI on Students' Creativity in the EFL Writing Classroom

Sohani Gandhioke, Chanchal Singh

English Language Center, College of Liberal Arts, Shantou University, Shantou, China
Email: SohaniG1809@outlook.com, ChanchalS82@outlook.com

How to cite this paper: Gandhioke, S., & Singh, C. (2025). "AI Can, but Can You?" Analysing the Impact of Text Generative AI on Students' Creativity in the EFL Writing Classroom. *Creative Education, 16,* 1441-1459.
https://doi.org/10.4236/ce.2025.169085

Received: August 30, 2025
Accepted: September 22, 2025
Published: September 25, 2025

Copyright © 2025 by author(s) and Scientific Research Publishing Inc.
This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).
http://creativecommons.org/licenses/by/4.0/
Open Access

Abstract

How can students preserve their creativity and critical thinking in the ubiquitous and unstoppable, rapidly advancing age of Text Generative Artificial Intelligence (TGAI) tools like ChatGPT and DeepSeek, among others? It has become a significant instrument for English writing in an English as a Foreign Language/English as a Second Language (EFL/ESL) classroom. TGAI is pervasive and noticeable in the world of English Language Teaching (ELT), influencing the variety of ways teachers teach and the innumerable ways in which students learn from the application of various writing software and applications (apps) available online. It has been observed that there is a significant improvement in the grammar/sentence structures of the writing tasks after students use TGAI. Students appear to even learn from the considerable transformation their essays undergo once TGAI technologies have reformed their writings. Now, teachers need to ensure that students use their own creativity while applying the technology at their disposal, rather than blindly handing over the TGAI-altered output to the teacher. This research implements the rubrics to analyse the quantitative findings, along with observations, attitudinal and interview data of the stakeholders, the students, to better understand the application of Artificial Intelligence (AI), and suggest strategies to employ for writing assignments. To this effect, the paper elucidates several recommendations that could be adopted and executed by educators to investigate and create positive pathways for the application of TGAI in writing, keeping in view the predominant possible downsides, namely, lack of creativity/critical thinking skills development and ways of avoiding the damaging possibility of simply copy-pasting material from the script writing software available. The student-centred scenario in this research, supports the integration of TGAI as an effective and engaging tool to incentivize the writing assignments in an EFL/ESL classroom, provided certain strategies to overcome the shortcomings are adhered to. The

outcome of this study was the development of various recommendations made through class observations, interviews and tests by the facilitators and by the users of the TGAI technology, the students themselves. These recommendations and ideas can be implemented by educators when assigning writing projects to learners. A noteworthy outcome of this research was the opportunity presented to the students and teachers, to make an estimated projection of the writing final examination scores because of the use/overuse of AI during class writing tasks. The scores received in the writing assignment during the study, corresponded largely with the final exam scores, thereby making this study a reliable predictor to help in timely alerting the teacher and the student to prepare for the final examination. This analytical study goes on to develop strategies for the effective and practical implementation of TGAI when teaching/learning writing in the EFL/ESL classroom, while encouraging students to rely on their own creativity instead of depending solely on AI.

Keywords

Text Generative Artificial Intelligence (TGAI), Creativity, Collaboration, Cooperation, EFL/ESL Writing Practice

1. Introduction

"Whose essay am I grading, AI's or the students'?" and "How much of this essay demonstrates the students' own creativity?" These are questions often raised by most EFL/ESL teachers as AI has made inroads into the EFL/ESL classrooms. Granted, students are encouraged to use AI. However, as mentors and guides developing the potential of the young minds in our care, teachers need to stimulate the practice of incorporating AI in a fruitful way to assist students in augmenting their writing, without harming their true potential.

Although research on the impact of AI on ESL/EFL learners' writings is in its early stages, as anticipated, the influence of AI on learning in an EFL/ESL classroom is becoming progressively significant. As stated by Michel M. et al. (2025), "The introduction of generative AI (GenAI, e.g., ChatGPT) has transformed second language (L2) writing practices." It has also been noticed that there has been an increased danger of the "copy pasting" phenomenon which was an obvious fear among many EFL/ESL educators. On the one hand, scholars are singing praises of the advent of AI tools, particularly for essay writing, and are rightly embracing their myriad benefits in English writing. On the flip side, there are many who argue that in specific spheres of education, AI has sadly impacted creativity and given rise to "lazy learners" and "copy-pasters". This has led to the important research enquiry aimed to be addressed in this paper, which is, to what extent can we monitor, assess, and most importantly, give grades fairly for the out-of-class digital assignments. We ask again—whose creativity are we grading: our students' or their AI bots'?

The aim of this study is to determine the extent to which AI, especially software that provides ideas, complete sentences, paragraphs, essays and summaries, could be used by learners to accomplish writing tasks and whether it is helping or destroying creativity and the language learning objectives designed by the various English Language Learning programs/curricula. One needs to understand from the students' perspective, the availability of such technology and how they can apply it carefully to help them learn and be inspired by. Additionally, the intention is to provide some alternate methods and strategies to use AI to our advantage to help promote more learning through AI, without it becoming a gargantuan threat to creativity or human-centred language production.

Importance and Need for This Study

The current study aims to investigate and decipher the reasons behind learners' dependency on AI software to get a sense of confidence while submitting revised versions to gain higher scores in digital writing assignments.

Furthermore, this study aims to provide crucial resources through observations and analysis of the interview data of the students' perspectives about their intentions and learning needs. These findings could help curriculum developers and language learning program organizers use as valuable resources for future learning materials development.

Moreover, this research paper has taken one step further to chronicle ideas and strategies with regard to learning writing skills, eliminating the requirement to be excessively dependent on AI software. The strategies devised worked successfully for learners during this research, which demonstrated the potential of this method to work effectively for students in the future. Analyses and trials of these approaches give scholars and academics a better chance of success when implementing these practices in various other areas of research on writing with AI in the future.

Students acknowledged the teacher's attempt to help them progress into becoming proficient in the usage of English through the application of their creativity and tact. Learners quickly understood and appreciated that AI should not be depended upon as a life support, as there could be circumstances in the future when one does not have access to AI and might need to depend solely on oneself. It is for those contingencies that teachers prepare their students. Students understood that AI-generated writings were good to have as an immediate solution to a problem, but they had long-term ramifications. Hence, the development of more self-reliance and less dependency on AI got the immediate attention of the students, who cooperated wholeheartedly in making this research a success.

2. Literature and Research Objectives

Creativity, as defined by Dictionary.com (2016) is "the ability to transcend traditional ideas, rules, patterns, relationships, or the like, and to create meaningful new ideas, forms, methods, interpretations, etc". Creativity is the originality that

emerges directly from a writer's mind. It grows from deep perceptions, emotions and past experiences, all of which are the limitations of AI, which is more standardized, structured, and most often, does not capture the exactness required by the writer. While AI technologies have been known to immaculately imitate the mental abilities of the human mind (Ni, Shen, & Yu, 2021), it is the authenticity and originality of the creative output produced only within the human cognizance that distinguishes it from output produced by AI.

When one thinks about creativity, one generally associates it with instinctive perceptions in human beings which generate outcomes that are uniquely characteristic to every individual. Creativity in writing or speaking aims to inspire, involve and teach (Blanco et al., 2023). The challenge that needs to be addressed is, to what extent does the rapid integration of AI influence the creative transformation of output, and what is the degree to which the application of the various AI tools learners have at their disposal affects the originality, and even the authenticity of the writing produced.

While students' creativity in writing is an integral aspect of this research, the impact of cooperation and collaboration is also directly observed and its influence is noticed in the research outcomes. Cooperation has been defined as "a structure of interaction designed to facilitate the accomplishment of a specific end product or goal through people working together in groups" (Panitz, 1999: p. 3). Researchers have implied that cooperation is "the division of labour among participants, as an activity where each person is responsible for a portion of the problem solving" (Roschelle & Teasley, 1995, p: 70). Studies have found that in comparison, collaborative learning, as stated by Bruffee (1981), "personalizes knowledge by socializing it, providing students with a social context of learning peers with whom they are engaged on conceptual issues". Many researchers have suggested that students' creativity and overall learning can be enhanced through cooperation (e.g., Panitz, 1999). Granted, cooperative learning has its varied aims and emphasis; this method of learning inclines towards structuring group exchanges to ensure equal participation and a sense of responsibility which is borne by each individual of the group (Bruffee, 1995; Oxford, 1997). As a noteworthy observation and outcome of this research, the two aspects, collaboration and cooperation, were seen to have a direct influence on the creativity of the participants.

Important Issues that Need to Be Addressed by Educators

There are several pressing issues that need our attention, as educators, and have been sincerely tried to be addressed in this research to achieve the desired objectives.

It is imperative that we, as educators, understand how much out-of-class AI assistance students depend on while learning another language, especially when developing writing skills. Students need to take ownership of their language output and become more self-reliant. Hence, the issue is how curriculum developers and language instructors should design (out-of-class) assignments that ensure students' minimal dependency on TGAI to help complete the creative features in

the writing tasks. This aspect has been addressed in our research by way of tasks that encourage students to rely more on their own creative abilities than depend solely on TGAI. Every person has the capacity to think creatively, to a larger or smaller degree, but they all have it within them (OECD, 2017).

Educators need to take into consideration how much use of AI should be allowed (and can be allowed). Studies conducted on students' excessive and uncontrolled usage of AI tools have found students becoming overly dependent on them, resulting in hampering their abilities to make decisions, think critically for solving problems and have even marred the development of their practical skills (Yunus, 2024). With the intention to enhance learning to preserve and augment self-thinking, the problem that arises is identifying strategies that can be introduced for digital writing assignments, to foster better learning outcomes without compromising critical thinking. Once again, this study is based on the outcomes of creativity that was demonstrated in the presence of the teacher in class and recorded by the students themselves by way of submissions of the first draft developed in the class. This ensured preservation of the creative ideas produced by the learners in the presence of the teacher.

One does not, cannot, and should not exist in isolation. Students need to appreciate the benefits of peer collaboration and cooperation. It becomes the responsibility of the educators to encourage interdependency with more group/teamwork, especially during a writing task. This leads to the matter of how interdependency impacts the writing production of the students working in groups both inside and outside class. The correlation between creativity and collaboration/cooperation was clearly noticed in the research outcomes.

Here, it must be clarified that the aim of the present study is not to diminish or patronise the existence of this awe-inspiring technology, TGAI. We are genuinely trying to optimise learning and minimize the negative impacts such AI tools could potentially have on language learning, students' creative writing skills development, and to have a deeper understanding of the uses and even 'misuses' of this technology. In this study, students were encouraged to depend on their own competencies while creating ideas in English, rather than to completely rely on AI-generated ideas. Studies have shown that besides the many advantages of AI writing tools, they may lead to students' over-reliance on these tools (Stojanovic et al., 2023). During the study, students were reassured that the teacher greatly valued their attempts to revamp their writings by using AI tools to achieve stylistic accuracy and allure in their English writing. They were made aware of the need for and requirement for proper ownership of their product. Dependable evidence should support every declaration made in the writing (Gupta et al., 2022). Students must become proficient at learning the appropriate use of specific terminology and logical structure to enhance the writing quality. To uphold the academic integrity of their writing, correctly citing and referencing of sources is vital, which can be a challenging and laborious task, especially for non-native English speakers (Morris, 2018). A relatively tiny aspect of making learners aware of the responsibility

of taking ownership of their language output is the cornerstone of goodness, an important trait that leads to trust and dependability, both of which are important aspects for the future of the learners. Building strong character is a gift a teacher gives to the learner.

3. Methodology and Participants

This research delved deeper into the analysis of AI applied in students' writing assignments, to expose the loopholes and search for some workable solutions. In this mixed study, a qualitative and quantitative approach was implemented to further understand the questions that arose during the research. 108 participants, who were university students of varying levels of English skills, were involved in this study. The proficiency level of the participants was between intermediate and advanced, with an occasional beginner in some groups to balance the number of members in each group. The groups established for this task were set in such a way, that there would be a healthy mix of the levels of abilities in every group, thereby ensuring an even playing field for such group tasks throughout the semester. All the same, how the weaker students perform finally during a task is a variable that can be expected and taken in stride as the number of participants was large enough to give the researchers a clear result of the study. It was noticed that the students willingly shared their experiences, concerns, and ideas to contribute towards better and more productive learning outcomes. Results of the face-to-face interviews and analysis of the writings produced by the students, based on rubrics, proved that with careful planning, strategizing and meticulous execution of writing tasks, like those used for this study, AI could be applied to give positive outcomes. These outcomes would help in the development of students' writing skills, without interfering with their own creativity. Included in this paper are ideas and strategies applied by the researchers, who were also the teachers of the study participants.

Research methodology implemented in the assignment of the writing task was divided into the following three stages:

The first stage began with the teacher explaining the aims of the writing task to the students, who were instructed to brainstorm and come up with reasons for and against an essay topic the teacher would provide. They would work on the writing, without use of any technological devices, submit the draft to the teacher, with reasons for and against the topic with examples, all a product of their own creativity, demonstrated right there in the presence of the teacher in class. The second stage of the study was completed outside class. Students were required to write out the essay using exactly the same ideas brainstormed in class, with no use of AI outside the class for the generation of ideas. The use of AI could be only for grammar or sentence formations, to check for some information, to add citations, if required, etc., while keeping intact the central ideas expressed during the brainstorming session in class. The third stage of the writing task was accomplished once the students were back in class. The aim of the

study, at this stage, was to quantify the number of students who deviated from their first drafts to check how much dependency was displayed on AI and how much on self-produced ideas generated earlier in class. The three stages were noted, based on observations in class and rubrics applied to the essays produced which were documented onto Excel spreadsheets. Conclusions were scrutinised, and outcomes were measured to gauge the extent of reliance on self and the degree of dependency on AI.

3.1. The First Stage of the Writing Task Done in Class

1) Teacher instructed the students to put away any electronic devices at the outset of the task. Students could use only pens and paper for the first stage of the task which was conducted in class.

2) A topic for writing an Argumentative Essay was selected by the teacher and given to the students on a worksheet that had clear demarcations for guided writing.

3) Students were assigned into 6 groups of 6 students each, with the teacher appointing a Group Leader who had been given the task of seeing the assignment to fruition within the deadline, while maintaining equal distribution of work, co-operation and collaboration.

4) Together, the groups were told to follow the essay structure taught earlier in class; Students had to come up with pros and cons to the given topic, giving 2 reasons to support the topic, with 1 example per reason and 1 reason to refute the topic, with 1 example to support the reason for the refutation. The structure of the essay required one introduction paragraph with a thesis statement, topic sentences to the 3 body paragraphs and one concluding paragraph. The essay needed to have a minimum of 5 paragraphs.

5) The teacher instructed students in groups to make a rough draft through brainstorming, right there, in the presence of the teacher as she closely monitored each group.

6) Students were given the entire remaining class time to put their heads together to think of the possible reasons to support and contradict the topic. They had to even come up with examples to support their reasons. They had to clearly write this information in the space set aside in the brainstorming worksheets that the teacher had provided to each group.

7) At the end of the class time, the students took photos of their group's worksheets for their reference and submitted the rough first draft to the teacher.

3.2. The Second Stage of the Writing Task Done out of Class

1) Students were then instructed to complete their essays, with their groups, outside of class.

2) Students were required to maintain the creativity showcased in the first draft that was written after brainstorming in class in the teacher's presence, to be compared to the creativity displayed on completion of the final product completed out of class.

3) The teacher explained that the aim of the in-class writing draft was to compare students' own creativity and how much they depended on AI for creative writing.

4) Students were allowed to freely use AI tools to assist them in completing their essays to a quality expected from university-level students in an English class, while refraining from changing their ideas expressed in class.

5) Citations to support and contest the topic were compulsory. The use of AI was encouraged out of class, as it would not affect the creativity of the students who had brainstormed for ideas by giving the 2 supporting reasons with 2 examples, and one opposing reason with one example. All this was done in class during the brainstorming session without the use of any AI.

6) All the students were encouraged to use the grammar tools available to them, PeGai in particular, as it is popular among students at the university where the research was conducted.

3.3. The Third Stage of the Writing Task Done Back in Class

1) The students brought their completed essays back to class, which they had written in groups outside class.

2) The teacher handed over the students' drafts to the groups to tick off the reasons and examples that were similarly used during the brainstorming task in class.

3) Students were then asked to give a plus 1 (+1) for every reason and example that was similar to the draft and the finished product. (2 reasons in support = 2 points, 2 examples in support = 2 points, 1 reason to refute = 1 point and 1 example to support the refutation = 1 point). In all, students just needed to calculate their scores on a total of 6 points.

4) The students worked in groups and analysed their final essay in comparison with the first draft. They gave themselves the score as was instructed by the teacher and submitted their essays with the final drafts attached for the teacher's evaluation, critique and feedback for reflection.

5) Teacher then graded the essays based on rubrics, of which the students were already aware, for grading.

4. Observation and Production

Students understood that they were being encouraged to think for themselves and rely on their own thinking skills and on their own creative streak. It was observed that most of the group leaders encouraged their groups to contribute and participate equally, while the students appeared to be showing good results through collaboration and cooperation all along. Earlier research has proven that weaker students learn from the stronger students by following their lead (Gandhioke & Singh, 2024).

During Stage One, everyone in the group was seen to be talking, thinking and adding their background knowledge on the topic to contribute towards developing the essay. The observer, the teacher, was moving amidst the students marking

and noting the observations based on parts of the rubrics previously shared with the students. The clear demarcations being noticed for the observation data were based on the level of participation, peer collaboration and cooperation. This is where the groups earned their scores for Peer Collaboration and Cooperation at the end of the task as can be seen in **Figures 1-3** and **Figure 6** of the analysis charts. As seen in previously conducted research regarding group tasks, this time too, during this group task, the atmosphere in class got very lively and exciting, which was conducive to active learning. "A harmonizing environment and a state of mind which lowers the affective filters will enhance the students' learning experience and give expected effective outcomes", Kalanithi (2021: p. 91). As previously noted by Gandhioke and Singh (2024: p. 1860) during this task as well, "Students appeared to be more at ease and relaxed which led them to come out of their comfort zones and express themselves freely and fearlessly as they did not feel judged." Groups wrote their views on the worksheet provided by the teacher. The topic was given to them right there, in the class, after the students put away their electronic devices. They looked at the demarcations made on the paper. The topic of the argumentative essay was written at the top. Students had to work on planning two arguments with examples in favour of the topic and one refutation with one example to elaborate on the refutation of the topic. The rest of the essay, including the introduction and conclusion, was to be developed in groups and outside of class. All that the students had to do in the presence of the teacher was work on two reasons for and one reason against the topic with at least one suitable example for each of the three points.

After students collaborated on the brainstorming session and jotted down notes, they finally put the two points in favour of the topic in the space provided by the teacher on the paper, and one point with a supporting example in the space for the refutation part of the essay. When the time for the first stage of the study was up, the group leader submitted the group's creative output to the teacher after they had taken photos of the writing paper on which they had written the first draft. They had the basic points that they would need to work on to complete the group task of writing a 5-paragraph essay with their groups out of class, while keeping the brainstorming worksheet with them as a reference for the complete essay. They knew that they were encouraged by the teacher to write the essay using their own creativity, but they needed the essay to be of good quality to get the maximum scores. So, on one side they had to write a convincing essay using their creativity, after brainstorming together as a group in class. On the other hand, they could use AI only if they felt that their own ideas were not suitable, or they lacked the quality to present the pros and cons of the argumentative essay. This was quite a challenging and tempting proposition. They could simply put the topic into ChatGPT or DeepSeek and voila (!), they would have a near-perfect essay. Conversely, working on the essay by themselves would challenge their own mental abilities with the fear of getting beaten by AI tools! However, the outcomes were remarkable and exceeded all expectations with nearly 84% average Creativity Scores of all three

classes!

The research demonstrated the strong ability of the students to use their past knowledge and shared experiences to complete the task without the use of AI. Such simple topics were assigned to them again and again during the semester. This helped students to hone their creativity and critical thinking skills. They soon began to depend on their own capabilities and were seen to outperform themselves. The students' final exam scores saw an outstanding improvement compared to the results of the previous year's final exam. A significant point to be noted here is that those students who relied solely/more on the use of AI in the class tasks and assignments had a noticeable drop in their final exam grades as well. This drop in their grades made them realise the value of self-dependence, rather than complete dependence on AI for class writing assignments in preparation for the final exams.

5. Results and Data Analysis

The data analysis was based on the qualitative findings of the research—according to the guidelines of the rubrics awarded to gauge the quality of the tasks performed—as well as observations and interview data of the stakeholders, namely the students. These findings helped to better understand the outcomes of the partial or no use of AI, in completing the writing assignments by the students. The calculations were based on writing assessment rubrics for qualitative analysis.

Outcomes were then measured for quantitative study through statistical data obtained in the proficiency reports (demonstrated through pie charts and bar charts using Excel spreadsheets for data recording and analysis). Furthermore, the quantitative analysis measured the numbers by weighing the four parameters, namely, Creativity, Cohesion, Language, and Collaboration (Cooperation), based on the data collected from the materials submitted by the students. On submission of the writing assignments, students were awarded scores by the teacher, based on the rubrics. Students performed very well.

However, our study focused primarily on analysing students' creativity in writing with or without the use of AI tools available at their disposal.

5.1. Research Data Showed the Following Results

The 108 participants were from 3 different classes of the same English course—Class A, Class B, and Class C. Each class had 36 students. The students were divided into 6 groups of 6 members each. Class A consisted of groups identified as A1, A2, A3, A4, A5, A6. Class B consisted of groups identified as B1, B2, B3, B4, B5, B6. Class C consisted of groups identified as C1, C2, C3, C4, C5, C6.

Figure 1 shows the overall essay writing results of all 6 groups in Class A—A1, A2, A3, A4, A5, A6, regarding the four parameters, Creativity, Cohesion, Collaboration (Cooperation), and Language.

Figures 1-3 show the detailed results of the four parameters being tested: Re-

sults showed the overall writing scores received for the assignment given to the students. The rubrics were shared with the learners before the onset of the task so they could focus on the requirements of the essay and the teacher's expectations. Although the research focus was on Creativity and the influence of AI tools on creativity in essay writing, overall scores on Cohesion, Collaboration (Cooperation), and Language were noticed to be above average as well. Students followed all that was taught in class and did quite well in general.

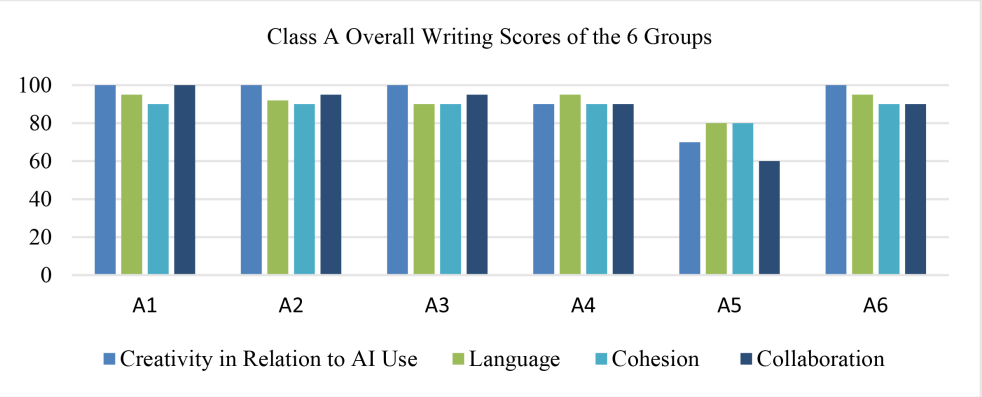

Figure 1. Writing scores of Class A.

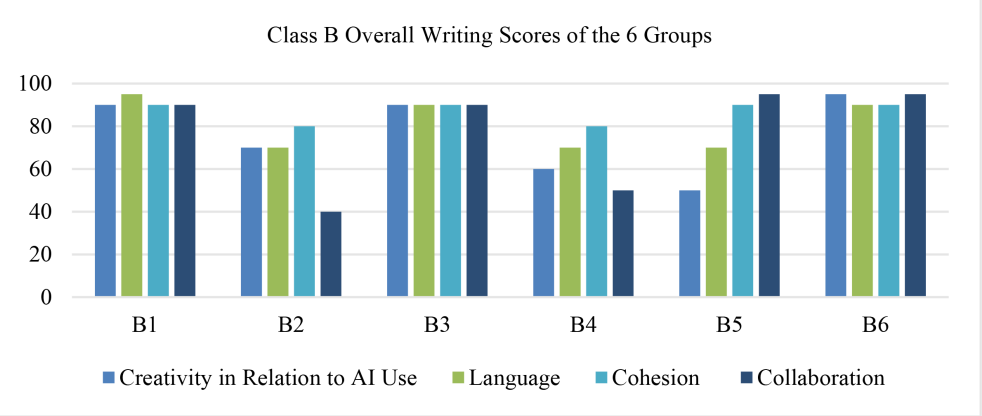

Figure 2. Writing scores of Class B.

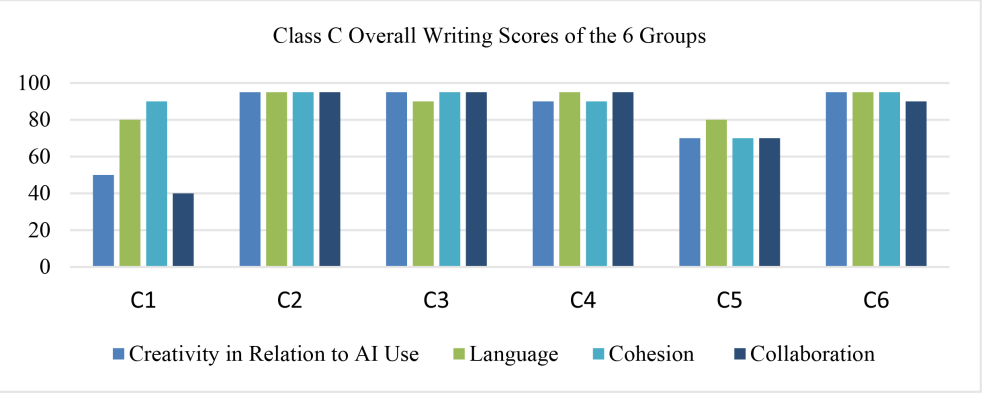

Figure 3. Writing scores of Class C.

5.2. Analysis of the Writing Scores

Class A, (**Figure 1**), has been taken as an example to explain the details of the outcomes of the research.

Creativity Scores: This study was primarily aimed at gauging the amount of creativity that students displayed when depending on themselves and had no help from any AI tools available to them. Overall creativity scores of the entire group were recorded for the purpose of the study. It can be seen that Groups A1, A2, A3, and A6 received 100% Creativity Scores. This means that the four groups used the exact same ideas that they had submitted to the teacher during the group's brainstorming session in class and elaborated upon the same ideas while completing the task outside class. Group A4 and Group A5 received lower Creativity Scores because they either completely or partially changed their ideas from those submitted in class. Those groups that applied the creative skills generated within their groups received high creativity scores, while those who depended more on AI for their creative spark received lower creativity scores. As seen in the chart, Group 4 received less than 100% Creativity Scores with a similar dip in the Collaboration and Cooperation Scores. They had deviated very marginally from their original submission and had to change just one idea as they felt the idea substituted by AI was more appropriate (data according to the face-to-face interview). However, Group A5 received the lowest scores overall. They displayed poor peer collaboration and cooperation, which demonstrated the correlation with the dip in their creativity scores. Researchers have acknowledged that students' creativity and overall learning can be enhanced through collaboration among students during a task (e.g., Panitz, 1999). They had depended too much on ideas that they received from AI rather than from each other. The group's lack of interest in expressing themselves during the time assigned for brainstorming session in the class, in the presence of the teacher, was noticeable during the study (based on the observation data gathered in class). Despite being encouraged and motivated by the teacher during the in-class session, the outcome was quite expected. This group in particular did not show much class participation and appeared to have decided to choose the "easy" path to the writing task, namely resorting to reasons and examples given by TGAI rather than collaborating and creating their own writing materials.

Collaboration (Cooperation) Scores: The second most important aspect of the study was to examine the correlation between the Creativity Scores and the Collaboration/Cooperation Scores. As a matter of fact, some researchers have found collaboration to be a necessity for the learning and creative process (e.g., Bruffee, cited in John-Steiner, 2000). As observed in our research, the charts clearly demonstrate the significance of peer collaboration and cooperation during the writing process. Over-dependence on AI tools may hamper teacher-student or student-student interactions leading to a hindrance in the enhancement of students' communication skills, sensitivity and even their abilities to work in teams, (Yunus, 2024). Our research results brought into focus the resulting drop in the scores of those groups that did not give importance to peer collaboration and co-

operation during the brainstorming session. Hence, those groups had to depend more on AI for their material on the topic of the assignment, namely, reasons and examples, to support their arguments to be expressed in the essay. Another highly noteworthy outcome observed was that the groups that depended on AI for the essay writing ideas, performed poorly even in the final exam—as indicated earlier in this paper. At the examination centre, they had to completely depend on themselves with no assistance from AI during the exam. This correlation was of great significance as it sent alarm bells ringing for both the teachers and the learners. This study made the students realize that they needed to start working on their creative skills, be it through more readings, observations, or interactions with peers and people around them, to perform better in the final exams.

Language Scores and Cohesion Scores: Overall, most of the groups used the AI grammar tool PeGai to correct their language usage. Hence, correct grammar/language use, sentence structures, and other finer syntactical and grammatical corrections were evident in their final essays submitted to the teacher. Cohesion, namely, the flow of the text, in relation to how smoothly arguments are handled with appropriate use of connectors that are taught to students in the EFL/ESL classes all along, was also applied by most of the groups, as can be seen in **Figures 1-3**. Being university-level students, they understand and implement the knowledge they have garnered over time. With the advancement of AI technologies, students are independently consolidating their learning. Group 5's poor performance could be attributed to overconfidence or just simply a lackadaisical attitude towards learning the English language, rather than striving to achieve perfection with open-mindedness and hard work.

Overall, the results demonstrated that if students are rightly made aware of their own potential to create ideas from their own minds, along with peer collaboration and cooperation, they can definitely begin to rely on themselves for their creative outcomes rather than solely depend on writing production from AI tools. A noteworthy connection between creativity and peer collaboration and cooperation that was clearly observed, needs special mention here.

5.3. Comparative Outcomes of the 3 Main Scores—Writing, Creativity, Collaboration

Now, let us closely examine the comparative outcomes of the averages of the Writing Scores, as seen in **Figure 4**, the Creativity Scores, as seen in **Figure 5**, and the Collaboration (Cooperation) Scores, as seen in **Figure 6**, of the three classes, Class A, Class B, and Class C. Please note that the Language and Cohesion Scores can be seen in the overall performance as indicated in **Figures 1-3**. Due to paucity of space in this paper and the self-evident nature of the markings visible in the three charts, further charts have not been added here. Additionally, the primary goal of this research is to discourage the dependence on AI for creativity and encourage the learners to develop self-reliance for their creative tasks, in an immersive, collaborative, learning environment.

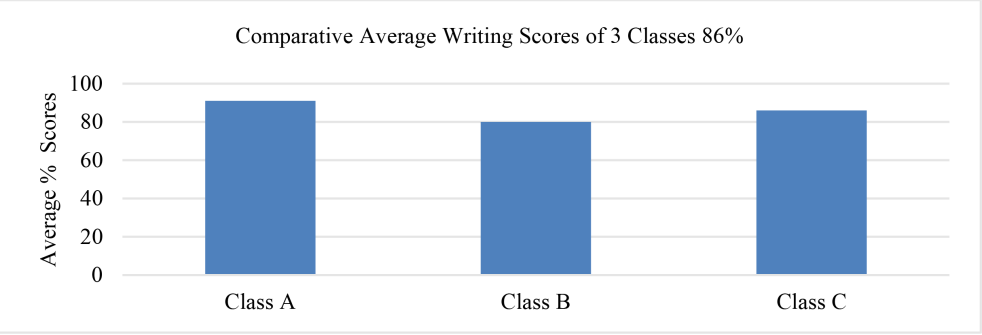

Figure 4. Comparative average writing scores of the three classes.

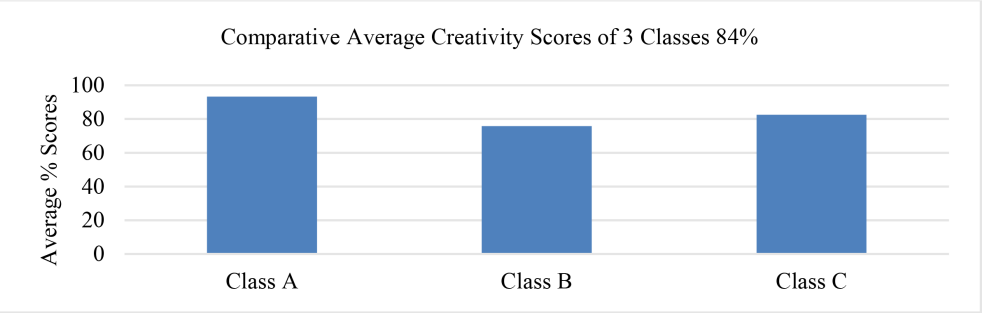

Figure 5. Comparative average creativity scores of the three classes.

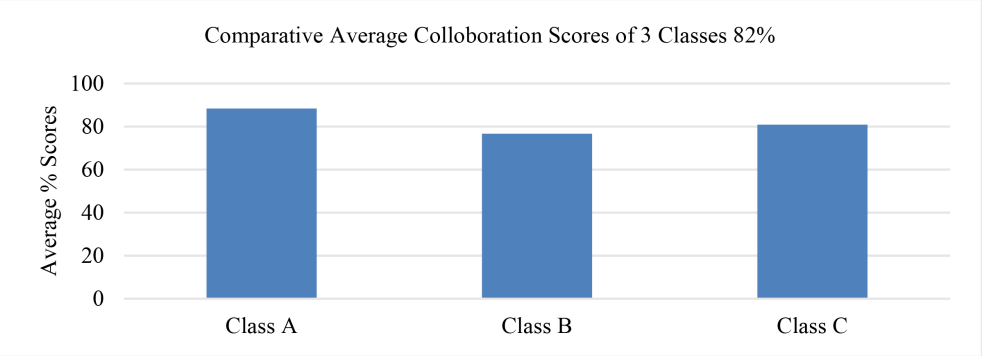

Figure 6. Comparative average collaboration scores of the three classes.

From the chart in Figure 4, we notice that Class A and Class C had the best overall averages based on Creativity, Collaboration (Cooperation), Language, and Cohesion, while Class B demonstrated the lowest scores due to a sharp fall in Creativity, Collaboration/Cooperation and even the Language and Cohesion markers. Overall, the average Writing Scores of all three classes were 86%.

As can be seen in Figure 5, Class A had the highest overall scores based on Creativity (93%), which meant that students in Class A, on average, used AI for generation of ideas marginally, or not at all. Class B had a very low score of 76%. This meant that at least half the class, nearly 3 groups, B2, B4, and B5, relied more on AI for their content development done out of class with the use of AI tools, while the other three groups, B1, B3, and B6, showed a higher degree of dependency as compared to Class A and Class C. Class C had quite high scores, overall

touching 83%. This was because they, too, had very few students in Class C, groups C1, C5, depending solely/more on AI for the generation of creative ideas and content. Since correlation between self-creativity and AI-generated creativity was the main aspect of the study, encouraging self-dependence for creativity was the aim of the lesson through the writing task. A high bar was set by the teacher to motivate students to depend on their own capabilities to generate ideas rather than to depend on ideas generated by AI tools available so freely to the students. The class had an average score of 84%, which goes to show that most groups of students in that class relied more on themselves rather than on AI tools for their creative productions.

As seen in **Figure 6**, on comparing the results with the high performers in Class A (88%) and in Class C (81%), it was noticed that they had more groups of students who had depended less on AI. They noticeably displayed high Collaboration and Cooperation with fellow group members as noticed by the teacher during the class observations at the in-class sessions. Groups that had a positive attitude toward the motivation and encouragement received from the teacher and their peers, showed that creativity can be awoken with active participation, avid interest, and willingness to cooperate and contribute to the successful outcomes for the entire group. In the case of those groups that had reduced outcomes, as seen in Class B (77%), the low scores indicated that the teacher's and group leaders' encouragement and push failed to yield the best results. Other possible reasons for the lack of self-dependability and enhanced dependence on AI were attributed to a lack of prior knowledge, inability to develop on the original ideas discussed in class during brainstorming, or simply "disinterest" leading to an over-dependence on AI. All, or a few of these reasons found these groups receiving low scores in class and even in the final exams at the end of the semester. Hence, this study showing the correlation between creativity and peer collaboration and cooperation could be used by fellow educators to help students predict their final outcomes and gear up their efforts to improve their learning strategies for enhanced results. Overall, the average Creativity Scores of all three classes were at 82%.

6. Caveats, Variations and Future Research

Low language proficiency level of some of the subjects was one of the major limitations of this study. Observations and detailed analysis of the overall scores received by all three classes revealed that most of the subjects in Class B, who participated in the current study, possessed a weaker background of English education. This could be one of the reasons for their overdependence on the use of AI software, in their efforts to help generate ideas and review their own ideas contributed during the brainstorming in class, to better support their group's output.

A variation to this task could be made by students swapping each other's writing assignments to assess or simply scrutinize the essays. Teachers can instruct learners to exchange their essays and assess the output of the other groups. Students could compare their own writing productions with their peers, give sugges-

tions using their creativity, and come up with some new ideas to help those groups that are experiencing a mental block to support their perspective on the essay topic assigned by the teacher in class. They can then go on to closely examine the writing assignments of their peers to look out for grammatical, spelling, vocabulary, or other errors, as perceived by them before submitting to the teacher for correction, assessment, and feedback. Through this additional task, students not only get to see their own output reviewed by their peers but also get exposure to acquiring further knowledge from their peers' writing assignments. As stated by Johnson & Johnson (2001), "Students can learn a great deal from assessing the quality of their own and their classmates' work". A win-win situation all around.

The scope for future research could be based on students from various other academic levels. This study is based on university-level students being assigned a complex topic with high standards set as expectations by the teacher for the writing tasks. Future studies could be conducted by reducing the complexity of the topic of the writing assignment as well. The sole idea of the research is to analyse the effects of creativity, self-reliability, collaboration and cooperation as significant markers to gauge the writing outcomes of the learners.

Finally, an important outcome observed at the end of this research, which calls for deeper investigation, was the connection clearly seen between the total dependence on AI to generate ideas and the fall in the final examination results at the end of the semester. Studies have demonstrated the risk of students becoming so adept at using technology that they are able to give instructions for cognitive processes and tasks to machines, which results in making the students less able to do things by themselves and becoming more dependent on technology (Duggan, 2020). Some students who depended more or completely on TGAI for their creative output, probably did so mindlessly or mechanically without paying close attention, hence failing to learn from the process and thereby not enhancing their writing skills, the effect of which was clearly noticed in the final exam results. Researchers could delve deeper into this crucial connection between complete or over-dependence on TGAI during class tasks and the adverse consequences on performance in the end-of-semester final examination. Granted, there could be, and were, exceptions even during our study. However, this direct connection between excessive use of TGAI and actual learning, helped to alert the teachers and students. Hence, this vital link could be used by fellow academicians as a point to be noted while assigning out-of-class writing tasks to their learners. Since this paper mainly focuses on the effects of AI on creativity of the students, further research could be conducted to investigate the impact on the final examination results of the over-dependency on TGAI for writing assignments throughout the semester.

7. Conclusion

A noteworthy point here is that although students relied partially on AI for this research task, it resulted in tremendous language development. Students learned

from their errors, and from the modifications recommended by AI. The vast benefits of AI, due to the personalization of language learning experiences, have been studied by researchers (Zhang & Zou, 2022); it has been found that AI has a cognitive and affective influence on the entire experience of language learning; it lowers the level of anxiety within the EFL/ESL learners; accompanied by rich and immediate feedback (Chen et al., 2021), received during the writing production. Students cherished the outcomes and the constructive feedback, received from both the teacher and the AI tools, which led to active learning with self-dependency and self-confidence, clearly being the crucial, positive results.

All in all, the strategy applied in brainstorming for ideas in class with peers, in the presence of the teacher and without the use of AI to generate ideas, while depending solely on individual knowledge and the group's information repertoire, goes to prove that if students are encouraged to show their own creativity, they can certainly do it. It just requires the right amount of determination, self-reliance, self-confidence, and motivation. The first three aspects come from within the learners, which can be enthused by the motivation from the teacher and peers (the group leaders, in particular, which was a requirement in the task used in this study). Researchers have documented the importance of motivation during a task to inspire creativity (Amabile & Pratt, 2016). The strategies applied in this research helped to raise students' self-esteem and trust in their self-reliance for the outpouring of creativity from within. They felt empowered and confident that if they produced a high-quality essay, engaging their own creativity, they could scale any exam, be it an IELTS test, or TOEFL, or a professional exam that required them to be creative and unique.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

Amabile, T., & Pratt, M. (2016). The Dynamic Componential Model of Creativity and Innovation in Organizations: Making Progress, Making Meaning. *Research in Organizational Behavior, 36,* 157-183. https://doi.org/10.1016/j.riob.2016.10.001

Bruffee, K. (1981). Collaborative Learning. *College English, 43,* 745-747. https://www.jstor.org/stable/376907 https://doi.org/10.2307/376907

Bruffee, K. (1995). Sharing Our Toys: Cooperative Learning versus Collaborative Learning. *Change: The Magazine of Higher Learning, 27,* 12-18. https://doi.org/10.1080/00091383.1995.9937722

Chen, X., Zou, D., Xie, H. R., & Su, F. (2021). Twenty-Five Years of Computer-Assisted Language Learning: A Topic Modelling Analysis. *Language Learning & Technology, 25,* 151-185. http://hdl.handle.net/10125/73454 https://doi.org/10.64152/10125/73454

Dictionary.com (2016). *Creativity (Definition #2).* http://www.dictionary.com/browse/creativity

Duggan, S. (2020). AI in Education: Change at the Speed of Lightening. *UNESCO IITE*

Policy Brief.

Gandhioke, S., & Singh, C. (2024). English Through ART—Incorporating Art in the ESL/EFL Classroom through Peer Collaboration to Encourage Language Production, Acquisition and Learning Outcomes. *Creative Education, 15,* 1846-1864. https://doi.org/10.4236/ce.2024.159113

Gupta, S., Jaiswal, A., Paramasivam, A. & Kotecha, J. (2022). Academic Writing Challenges and Supports: Perspectives of International Doctoral Students and Their Supervisors. *Frontiers in Education, 7,* Article 891534. https://www.researchgate.net/publication/361613196 https://doi.org/10.3389/feduc.2022.891534

Johnson, D. W., & Johnson, R. (2001). *Cooperative Learning Methods: A Meta-Analysis.* University of Minnesota, Cooperative Learning Center, Research Report. Submitted for publication. https://www.researchgate.net/publication/31640337

John-Steiner, V. (2000). *Creative Collaboration.* Oxford University Press.

Kalanithi, L. S. R. (2021). *Reducing the Affective Filter in Tertiary Level ESL Learners—Some Effective Strategies*. https://www.researchgate.net/publication/352707328

Landa Blanco, M., & Agüero-Flores, M. & Mercado, M. (2023). *Human vs. AI Authorship: Does it Matter in Evaluating Creative Writing? A Pilot Study Using ChatGPT.* https://www.researchgate.net/publication/369111252 https://doi.org/10.31234/osf.io/wjsm3

Michel, M., Bazhutkina, I., Abel, N., & Strobl, C. (2025). Collaborative Writing Based on Generative AI Models: Revision and Deliberation Processes in German as a Foreign Language. *Journal of Second Language Writing, 67,* Article 101185. https://www.sciencedirect.com/science/article/pii/S1060374325000104 https://doi.org/10.1016/j.jslw.2025.101185

Morris, E. J. (2018). Academic Integrity Matters: Five Considerations for Addressing Contract Cheating. *Morris International Journal for Educational Integrity, 14,* Article No. 15. https://doi.org/10.1007/s40979-018-0038-5

Ni, T., Shen, Y., & Yu, F. (2021). The Influence of Artificial Intelligence on Art Design in the Digital Age. *Scientific Programming, 2021,* Article ID: 838957. https://doi.org/10.1155/2021/4838957

OECD (2017). *PISA 2021 Creative Thinking Strategic Advisory Group Report.* Organisation for Economic Co-Operation and Development. https://doi.org/10.1787/dcr-2017-en

Oxford, R. L. (1997). Cooperative Learning, Collaborative Learning, and Interaction: Three Communicative Strands in the Language Classroom. *The Modern Language Journal, 81,* 443-456. https://doi.org/10.1111/j.1540-4781.1997.tb05510.x

Panitz, T. (1999). *Collaborative versus Cooperative Learning: A Comparison of the Two Concepts which Will Help Us Understand the Underlying Nature of Interactive Learning*. https://files.eric.ed.gov/fulltext/ED448443.pdf

Roschelle, J., & Teasley, S. D. (1995). The Construction of Shared Knowledge in Collaborative Problem Solving. In C. E. O'Malley (Ed.), *Computer-Supported Collaborative Learning* (pp. 69-97). Springer. https://doi.org/10.1007/978-3-642-85098-1_5

Stojanovic, L., Radojcic, V., Savic, S. & Sarcevic, D. (2023). The Influence of Artificial Intelligence on Creative Writing: Exploring the Synergy between AI and Creative Authorship. *International Journal of Engineering Inventions, 12,* 70-74. https://www.researchgate.net/publication/376478785

Yunus Basha, J. (2024). The Negative Impacts of AI Tools on Students in Academic and

Real-Life Performance. *International Journal of Social Sciences, 1,* 1-16.

Zhang, R., & Zou, D. (2022). Types, Purposes, and Effectiveness of State-of-the-Art Technologies for Second and Foreign Language Learning. *Computer Assisted Language Learning, 35,* 696-742. https://doi.org/10.1080/09588221.2020.1744666