AI applications impact on improving EFL University Academic writing skills and their logical thinking

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Abstract:

The study aimed to investigate the effect of the artificial intelligence (AI) applications on improving University Senior students' academic writing skills and their logical thinking skills. The participants were all senior students majoring in English language teaching in the Education department in Dhofar university, (N=32), enrolled in two courses namely; Teaching English Language I and Teaching English language II. The researcher followed the quasi experimental approach. A prep-post test was used as a data collection tool. The experiment lasted for 10 weeks (fall semester, 2022). The researcher used AI programs namely: Grammarly, Jasper, Quillbot, Sudowrite and Chibi, where students used the programs to do the assignments and other writing duties. The results showed that the AI dictionary programs and applications were effective to improve the students' academic writing skills and their logical thinking.

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Introduction

Communication is considered as one of the most important requirements that the human being needs in his/her life, because it is the work that helps people to completely eradicate their concerns, as well as that communication helps to elevate people spiritually and mentally in a great and notable way. In addition, it is a means that is used to acquire knowledge, which is a basic feature in enjoying life in various ways. Writing is one of the most important and prominent means of communication between people from ancient times to present times, and of great importance through the history of mankind. Several specialists have discovered the writing of one of humanity's most important achievements through history. Thornbury (2018), Aladini (2022) state that writing is a means of expressing our ideas and messages clearly and directly to listeners. University students and academics improve their writing skills to become academics that helps the readers understand and interact with the written text. Thus academic writing is essential at the university level and research skills.

Lynch and Anderson (2013) stated that academic writing focuses on grammar, spelling, cohesion, organizing ideas and punctuation. One essential feature that improves writing and interrelated with it is the logical thinking. This type of thinking is the process in which one uses reasoning consistently to come to a conclusion. Problems or situations that involve logical thinking call for structure, for relationships between facts, and for chains of reasoning that "make sense." This can be done through writing. The current study sheds the light on contemporary features of teaching a language in a gulf country, where most Arabs find many challenges in writing eligibly and accurately due to the mother tongue interference and other reasons. Scholars confirm that using technology especially AI programs can help improve students' writing skills and their logical thinking as Abdelkader (2022) and Chong (2020).

Academic writing

Academic writing activities encompass various elements, including the writer's role, content, reader, and the appropriate

language style commonly utilized. Within the context of academic writing, it is crucial for writers to present supporting reasons that support their conveyed ideas. The writer's message should be communicated clearly and effectively, adhering to the accepted language conventions within the academic community. Academic writing is characterized by its structured, formal, and objective nature, often employing abstract and intricate language. The term "Academic Writing" pertains to writing undertaken for academic purposes, such as assignments or scholarly publications and conferences attended by academics (Learning Hub, 2023; Thais and Zawachi, 2006; Paquot, 2010 outlines five competencies that students must develop in Academic Writing. Firstly, students should possess strong organizational skills to ensure clarity in their written ideas. Additionally, accuracy in writing is essential, with attention given to technical terms to avoid any misinterpretation. Thirdly, students, as writers, need to exhibit control over grammar usage to effectively convey information. Moreover, authors should possess discipline-specific vocabulary knowledge to enable students to assume the role of writers and possess the ability to combine these competencies harmoniously. This is to generate a writing style that aligns with the reader's expectations and the specific context. Errors in writing, particularly in second language acquisition, can arise from various factors. Myles (2002) categorizes these factors into social and cognitive aspects. Social factors encompass negative attitudes towards English, limited advancements in language proficiency, significant social and psychological barriers between learners and the target language's culture, as well as a lack of motivation in the learning process.

From writing to Academic writing

Academic writing encompasses a specific mode of expression characterized by distinct features. These features include maintaining a formal tone, utilizing the third-person perspective instead of the first person, maintaining a clear focus on the subject matter rather than the writer's personal opinion, and employing precise and appropriate vocabulary. In formal academic writing, writers avoid the use of

jargon, slang, and abbreviations. However, distinguishing between informal and formal writing can be challenging for many inexperienced writers. They tend to opt for informal writing because it feels more comfortable and familiar. Informal writing is characterized by the use of colloquial language, jargon, first-person narratives, direct personal statements, and imprecise word choices. Just as you wouldn't wear shorts and flip-flops to a wedding, there is a time and place for informal writing. The most informal form of writing is commonly found in text messages, where abbreviations like "R U here?" are used for quick questions and responses. On the other end of the spectrum, the most formal writing can be observed in legal documents. It is worth mentioning that informal writing is acceptable in diary entries, blogs, personal writing, or correspondence with friends, writers working on academic papers, college application essays, scientific research papers, conference presentations, and business proposals generally adopt a more formal style (Fang, 2021 and Shefield, 2023).

The sub skills of writing

Bengoa (2023) mentioned the sub skills of writing as follows:

1. Manipulating the script of the language: handwriting, spelling and punctuation.
2. Expressing grammatical [syntactic and morphological] relationships at the sentence level.
3. Expressing relationships between parts of a written text through cohesive devices [especially through grammatical devices such as noun-pronoun reference].
4. Using markers in written discourse.
5. Expressing the communicative function of written sentences:
6. Expressing information or knowledge in writing:
7. Expressing conceptual meaning
8. Planning and organising written information in expository language

Features of academic writing

EAP foundation (2022) stated that academic writing involves conveying ideas, information, and research to the broader academic

community. It encompasses two main categories: student academic writing, which serves as an assessment method at the university level and as preparation for higher education during schooling. Secondly, expert academic writing that intended for publication in academic journals or books. Both types of academic writing (student and expert) are held to the same standards, which can pose challenges for students to grasp. The distinguishing features of academic writing, setting it apart from other forms of writing, include the following:

Structured

Academic writing necessitates a well-defined organization that aligns with the particular genre of writing.

Evidenced

Opinions and arguments in academic writing must be supported by evidence. Frequently, such writing draws upon information provided by experts in the field, necessitating appropriate referencing through in-text citations and a reference section.

Critical

Academic writing surpasses mere description. As an academic writer, one should not unquestioningly accept everything encountered as factual.

Balanced

Academic writing should maintain a balanced perspective. This entails considering all aspects of the issue and avoiding bias. As mentioned earlier, all research, evidence, and arguments can be subject to scrutiny. Hence, it is important for academic writers to demonstrate the strength of their claims.

Precise

Academic writing employs clear and precise language to ensure reader comprehension. This involves the use of technical vocabulary specific to the subject, chosen when it conveys meaning more accurately than non-technical terms.

Objective

Academic writing maintains an objective tone, emphasizing arguments and information over the writer's perspective.

Consequently, it relies more heavily on nouns and noun phrases than on verbs and adverbs. Passive structures are often preferred over active voice. For example, "The water was heated" rather than "I heated the water."

Formal

Lastly, academic writing adopts a more formal style compared to everyday writing. It employs longer words and complex sentence structures while avoiding contractions and colloquial or informal language commonly used in spoken English.

AI in Education

The world is now moving towards a new digital era, and artificial intelligence technology is one of its fundamental pillars. Its concept revolves around creating computer devices and software that can think in a way that simulates the human brain's functioning. It has the ability to learn, acquire information, analyze data, make decisions, and solve various problems.. Artificial intelligence is considered as one of the most significant inventions of the modern age. Artificial intelligence has managed to penetrate all areas of our lives including learning and teaching, starting from electronic applications that perform tasks automatically and quickly, to computer devices that input data and save files (Ma & Siau, 2018). Artificial intelligence systems can manage the educational process and provide high-quality services by transforming traditional management systems into electronic systems based on artificial intelligence. This, in turn, contributes to making sound administrative decisions, distributing courses and lessons to teachers according to their abilities and preferences. It also enables the discovery and enhancement of talented students, identification of learning difficulties, provision of special programs for them, monitoring learning progress with students, and direct and continuous communication with parents without human effort.

How AI programs improve academic writing skills

Artificial intelligence writing programs are concerned with writing and computer-assisted writing. They can function in various ways, such as suggesting possible words to replace misspellings,

converting text into different languages, or providing more context for word choices. AI writers are still in the early stages of development, but they can provide the assistance that many writers need. AI writing tools as Blog Topics feature that lets students automatically generate blog topic ideas by simply typing in keywords related to their niche. Additionally, AI programs include meanings and inflections of vocabulary needed for students. Thus, it is easy to recall the vocabulary quickly, and it is expanded as much as possible to include the largest amount of vocabulary, in addition, to sentences and essays. In writing better introductions and conclusions, the general idea is to provide the reader with all of the available information to help them build a framework for what they are about to read. And to do that, learners just need to type in keywords, and Al writing tools like WordHero will provide learners with a set of introductions and conclusions. Learners can ask AI for feedback on their writing, which could help them with their creative process. This technique allows the writer to learn from the AI, which will improve their writing skills. AI uses various analytical methods that enable it to provide feedback with great accuracy (Alastal, 2022; Yuting, 2019 and Chong, 2020).

The aims of the AI programs to improve EFL Senior students' academic writing skills

Among the objectives of the AI programs are the following:

- Explaining the texts for learners, any text either words or meanings, or in the form of sentences, phrases or essays.
- Translating foreign texts, as if it were a human version of the language translation, taking into account that it is the process is toggling between languages.
- Writing a concise and clear introduction and conclusion are essential to captivating readers and emphasising your argument.
- Using cohesive devices and suitable connectors to smoothly connect sentences.
- Creating a logical argument requires strong critical thinking to understand your research.

- Converting the written into spoken transcript that enables learners to better write and speak English language.
- Using correct grammar, punctuation, and spelling.

In a study for Abdelkader (2022), who conducted a study to examine the impact of employing specific AI activities in improving the writing fluency of English as a Foreign Language (EFL) students at the preparatory stage in Distinguished Governmental Language Schools. The study included 33 participants from Hassan Abu Bakr governmental language school in the academic year 2021-2022. The research utilized various tools such as a checklist for assessing writing fluency components, a rating scoring rubric, and a pre/post writing fluency test. The students were instructed using AI applications developed by the researcher, including the use of Minecraft game with grammerly mood, Semantris vocabulary AI game, and virtual reality with AI features, allowing students to practice English in realistic scenarios. The researcher employed a T-test and effect size analysis to statistically evaluate the participants' scores on the pre and posttests. Additionally, a qualitative analysis was conducted to assess the students' level of writing fluency. The findings of the study indicated a positive impact of using AI applications on enhancing the writing fluency of third preparatory stage students.

In the same regard, Chong (2020) conducted research and innovation on an English writing blended teaching model based on artificial intelligence. The study focused on university English majors and involved a 19-week teaching experiment. By combining the strengths of both approaches, the traditional English writing teaching mode was enhanced, and an artificial intelligence English writing mixed teaching mode was established. The findings of the study demonstrated that this model not only improved students' English writing proficiency but also increased their interest in English writing.

Logical thinking

It is defined as the transition from one relevant statement to another or from one related idea to another. The initial statements are referred to as premises, while the subsequent statements are called

conclusions. The classic example of logical thinking is based on a series of inferences. For instance, if we consider the premise that all cows are animals, it follows that every cow is an animal. This process begins with an assumed hypothesis and attempts to draw a specific inference about a particular case (Aldeeb and Aladini (2021)).

There are three notable aspects of this form of thinking. Firstly, it aims to be objective, relying on facts rather than personal perspectives, opinions, or beliefs. The conclusion should be clear to everyone. Secondly, the inference must arise from the premise, and the validity of considering all cows as animals cannot be questioned. Furthermore, the structure of logical thinking often follows an "if-then" format and typically involves a series of ideas or sets of chains. The term "chain" suggests a means of connecting ideas or pieces of information together:

Types of logical thinking include:

Deductive reasoning: This form of reasoning starts with a general rule or premise and ends with a specific and conclusive inference. If the original facts are true, the conclusion must also be true.

Inductive reasoning: Inductive reasoning begins with specific and precise observations and leads to a general conclusion. This type of inference is based on accumulated evidence. The conclusions reached may not necessarily be logical, but in the process of inductive reasoning, extensive scientific research, data collection, and pattern recognition are conducted to explain what is discovered.

Abductive reasoning: This type of logical thinking involves a form of educated guesswork. It begins with an incomplete set of observations and ends with a plausible explanation based on the available information. Abductive reasoning is also useful for making daily decisions when faced with incomplete information (Kaplan, 2023).

The steps of logical thinking involve several stages, including:

Abstraction: This process involves extracting the essence of a subject, person, or thing. The aim is to isolate these entities for analysis and thought.

Generalization: it involves forming a general concept or idea to identify the common characteristics of subjects, individuals, or objects and bring them together into a unified notion.

Judgment: In this step, a comparison is made between two things, subjects, or individuals to discover their similarities and differences.

Reasoning: it involves comparing two things, subjects, or objects to clarify their relationship with a person or topic.

Statement of the Problem:

The researcher is a professor of ELT in the department of Education in Dhofar university in Oman. He is teaching English language teaching courses. He has noticed in the assignments of the courses written by the students, that they have several mistakes and problems in the writing skills namely: organizing ideas, extracting ideas from a certain topic, inducing certain ideas, guessing possible reasons and writing a well-designed essay. The researcher got students to use two AI applications as grammerly and Quillbot, it was clear that the students have a slight improvement in the writing skills and their logical thinking, they could express themselves in certain ways with a few mistakes done by them. Thus, the researcher proposed using different AI apps with his students to get more improvement. And, he proposed a long period of implementation to give more time for his students to use the AI applications. In the current researcher, the researcher aims to use artificial intelligence apps to increase university EFL students' academic writing and logical thinking skills.

Significance of the Study

To the researcher knowledge, no studies have been conducted on AI and its impact on writing in Oman. So this research is a good contribution in the literature. Additionally, this study will advance pedagogical techniques in Omani higher educational institutions that support conventional methods in the field of education. The results of this study and the recommendations that will be provided should help shed light on the application of AI apps in Omani educational system. Also, teachers and stakeholders may make the required improvements

to the Omani educational system that support the traditional and conventional teaching methods with the aid of the study's findings and recommendations.

Purpose of the Study

This study aims to investigate the impact of AI applications on improving EFL University Academic writing skills and their logical thinking.

Research Question

- What is the impact of applying AI apps on improving EFL University Academic writing skills and logical thinking skills?

Research Hypothesis

Based on the research question above, the following null hypothesis was developed:

- There is no statistically significant difference at ($a \leq 0.05$) in the mean scores of the pre and the post application of the university academic writing and logical thinking skills test.

Objectives of the study

- Identifying the logical thinking skills that EFL learners' should posses.
- Identifying the university academic writing skills.
- Investigating the differences between the mean scores of the pre application of the test and the post application of the experimental group in the logical thinking skills and the writing skills.

Method

The study utilized a quasi-experimental research design. In this study, AI applications act as an independent variable (IV), and the academic writing and logical thinking skills act as dependent variables (DV) among university-level EFL students in Oman. The participants were all senior students majoring in English language teaching in the Education department in Dhofar university, (N=32), enrolled in two courses namely; Teaching English Language as a foreign language I, course code:(350E) and Curriculum development and analysis, code (300). The researcher followed the quasi-experimental approach. A prep-post test was used as a data collection tool. The experiment

lasted for 10 weeks (Fall semester, 2022) as from the mid of October 2022 to the start of January. The researcher was the students' professor, he used AI programs as Grammarly, Jasper, Quillbot, Sudowrite and Chibi.

The study tools

A pre-post test was used to collect the needed data. The test was designed for the academic writing skills and the logical thinking skills. This test consists of 8 essay questions concerning the terms of the two courses. The questions aims to identify the students' abilities to answer the academic writing questions regarding the following skills; first, forming a general concept or idea to identify the common characteristics of a certain subject; secondly, comparing two things, subjects, or objects to clarify their relationship with a person or topic, thirdly, extracting the essence of a subject, person, or thing, it aims to isolate these entities for analysis and thought; last, organizing ideas in a certain topic. Also, the test aims to identify the students' abilities to answer the logical thinking skills namely: induction, deduction, problem solving, expressing oneself, guessing.

Validity of the test:

The researcher presented the initial form of the tests to a group of expert reviewers to verify the linguistic and scientific accuracy, clarity of instructions, coherence of topics and paragraphs, and the appropriateness for measuring the study's objectives. The reviewers' expertise and specialization were taken into consideration, ensuring the credibility of their feedback. Based on the reviewers' comments, appropriate modifications were made, ensuring the test's validity from the reviewers' perspective.

Internal consistency validity

The researcher calculated the Pearson's Correlation Coefficients between the test domains and the total score of the academic writing and the logical thinking skills test, and calculating the correlation coefficient between the test questions and the total degree of the test.

Correlation coefficients between the test domains and the total score of the test:

Table (1): Correlation coefficients for each domain from domains of the test with the total score of the test

Academic writing and logical thinking skills	Correlation Coefficient
Forming a general concept/deduction	0.733**
Comparing /expressing oneself	0.916**
Extracting the essence of a subject/induction	0.576**
Organizing ideas/ guessing/problem solving	0.598**

**The value of the correlation coefficient at the level of significance (0.01).

As shown in table No. (1), there is a statistically significant correlation at the level of (0.01) between the domains of the test and the total score of the test, which confirms that the test has a high degree of internal consistency.

Correlation coefficients between the test items and the total score of tests:

Table (2): Correlation coefficients between the items of the writing skills test and the total score of the test

Questions	Correlation Coefficient
1	0.656**
2	0.614**
3	0.585**
4	0.345*

**The value of the correlation coefficient at the level of significance (0.01).

* The value of the correlation coefficient at the level of significance (0.05).

As shown in table No. (2), there is a statistically significant correlation at the level of (0.05. 0.01) between the questions of the test and the total score of the test, which confirms that the test has a high degree of internal consistency.

Test Reliability:

Split-half: The Pearson correlation coefficient was calculated between the two halves of the test, and then the researcher adjusted the correlation coefficient through the Spearman Brown equation. The researcher used the following equation in calculating the reliability coefficient:

$$r_{SB} = \left(\frac{2r_{hh}}{1 + r_{hh}}\right)$$

Table (3): Split-Half to check reliability

Academic writing and logical thinking skills	No. of Questions	Pearson correlation	Reliability Coefficient
	10	0.768	0.869

As shown in table (3), the test is reliable.

Analysis and findings

The researcher implemented the test before and after the implementation of the intervention. The results were as follows:

Table (4): T-test results for the averages pre and post test results of the experimental.

Domain	Group	No.	Mean	Std. Dev.	T	Sig. value	Eta square (η2)
Forming a general concept/deduction	Pre test	32	3.31	1.55	5.559	0.001	0.333
	Post test	32	4.88	0.34			
Comparing /expressing oneself	Pre test	32	4.38	1.41	3.009	0.004	0.127
	Post test	32	6.28	0.96			
Extracting the essence of a subject/induction	Pre test	32	2.31	0.86	3.697	0.001	0.181
	Post test	32	3.91	0.30			
Organizing ideas/ guessing/problem solving	Pre test	32	2.34	1.18	3.694	0.001	0.180
	Post test	32	3.25	0.73			
Total	Pre test	32	12.34	3.60	5.812	0.001	0.353
	Post test	32	18.31	1.41			

It is clear from the results above that there is an improvement in the students performance in the post test. The total mean of the pre test application was 12.34 while in the post test, students got 18.31. while the standard deviation was 3.60 in the pre test and in the post test, it was 1.41. This confirms that implementing the AI apps and programs is helpful to improve students skills in the academic writing skills and the logical thinking skills.

Discussion and Conclusion

The current study aims to investigate students' improvement in the academic writing skills and the logical thinking skills through using the Artificial intelligence applications and programs in the higher educational institutions in the Sultanate of Oman. It is known that using technology in the Sultanate of Oman spreads in all fields of life. Specifically, in the educational sector at universities, where professor use a diverse number of applications and programs that help students be improved academically and socially. The current research is a sample of how technology improves students' life in all fields. Yet, using the artificial intelligence applications and programs is increasing, which has negative and positive use and effect. Several students use these AI apps to improve while others use them to do assignments without even understanding how things go. That's why, in this research, the researcher tried to get students make good use of the AI apps and programs.

Apparently, the careful analysis of the study's results reveals that the pre test of the study group was in a low level. However, after implementing the experiment, the experimental group showed better results in the application of academic writing skills and logical thinking skills test. The researcher attributes this difference to the use of artificial intelligence applications, which assisted students in enhancing their creative writing skills, particularly in organizing their thoughts and ideas. The researcher observed a significant improvement in the post-test results of the experimental group when they used artificial intelligence applications for writing paragraphs and essays. These applications generated mental images based on the AI's answers, allowing students to link these visualizations with real-life scenarios, according to their feedback. This enthusiasm and positive engagement led to the development of students' logical and writing skills, enabling them to generate diverse and unique ideas and add details and enhancements to their work. The use of varied applications also contributed to the creation of an interactive atmosphere in the classroom, where students felt comfortable expressing their thoughts and ideas, breaking the barrier of fear. Clearly, by employing AI-

based applications in a diverse range of teaching methods, the experimental group was able to break free from conventional teaching methods. This, in turn, enhanced their logical thinking skills. The preparation and organization of scientific material, the implementation of worksheets, and practical projects using AI-based applications all had a positive impact on the study's results. The researcher found evidence of the lasting effect of creative writing and critical thinking skills in the long run. In the same regard, the availability of various educational resources and AI-based applications within the university classroom contributed significantly to the success of the study. These technological tools fostered an interactive learning environment where students actively participated in discussions, shared their ideas, and displayed their writings before their peers. The comfortable and supportive classroom atmosphere, coupled with the use of cutting-edge AI technologies, facilitated a positive and engaging learning experience for the students.

In conclusion, this study highlights the positive influence of AI-based applications on students' academic writing and logical thinking skills. The implementation of these technologies has paved the way for enhanced writing abilities, the generation of unique ideas, and the development of critical thinking capabilities. By breaking away from traditional teaching methods and embracing AI-based tools, educators can foster an interactive and stimulating classroom environment, ultimately nurturing students' creativity and problem-solving skills for a brighter and more innovative future

References

Aldeeb, M. and Aladini, A. (2021) CLIL and drama on conceptual knowledge and logical thinking in mathematics. *Turkish Journal of Computer and Mathematics* . 12 (13). 6897-6910.

Aladini, A., Alrantisi, M. and Wahdan, M. (2022). Employing Technological Innovations to Develop 9th graders' English Grammar Skills. *Specialusis Ugdymas*, 1 (43). 10978-10993.

Alastal, M.; Aladini, A. ; Jalambo, M. and Alattal, H. (2022). The Impact Of Using The Padlet Application On Improving 7th Graders'english Speaking And Deductive Thinking Skills. *European Journal of English Language Teaching*, 7 (2).

Abdelkader, Sh. (2022). *Using Artificial Intelligence to improve Writing Fluency for The Preparatory Stage Students in Distinguished Governmental Language Schools.* Unpublished dissertation. Ain shams University.

Bengoa, M. (2023). Writing sub skills. Retrieved in June, 2023 from: https://bengoa.wordpress.com/2008/02/25/writing-sub-skills

Chong, D. (2021). Research on Artificial Intelligence-based English Writing Blended Teaching Mode. *Journal of Physics: Conference Series. 1852. 032018 IOP Publishing* doi:10.1088/1742-6596/1852/3/032018

EAP Foundation (2023). Academic writing. Retrieved in May, 2023 from: https://www.eapfoundation.com/writing/what

Fang, Z. (2021). *Demystifying academic writing: Genres, moves, skills, and strategies*. New York: Routledge, xii+270 pp. ISBN: 978-0-367-67508-0 (hbk).

Kaplan, Z. (2023). Intro to Deductive Reasoning: Definition and Examples. Forage. Retrieved from: https://www.theforage.com/blog/skills/deductive-reasoning

Learning hup (2023). Writing processes and strategies. Retrieved in May, 2023, from: https://www.uis.edu/learning-hub/resources/writing-resources/writing-handouts

Lynch, T. and Anderson, K. (2013) Grammar in Academic writing. Independent materials. University of Edinburgh.

Ma, Yizhi and Siau, Keng L., (2018). Artificial Intelligence Impacts on Higher Edu7rdeszcation. MWAIS 2018 Proceedings. 42. https://aisel.aisnet.org/mwais2018/42

Myles, j. (2002). Second Language Writing and Research: The Writing Process and Error Analysis in Student Texts. TESL, EJ. 6 (2).

Paquot, M. (2010). Academic Vocabulary in Learner Writing: From Extraction to Analysis. International Journal of Corpus Linguistics 17(1). DOI: 10.1075/ijcl.17.1.05kil

Shefield (2023). Academic Writing, strategies and advice. Retrieved in June, 2023 from: https://www.sheffield.ac.uk/academic-skills/study-skills-online/academic-writing

Thais and Zawachi, (2006). *Engaged writers and dynamics disciplines*. Boyton and cook publishers.

Thornbury S. (2018). *An A-Z ELT*. Macmillan publishing.

Yuting, Li (2019). Design and Application of Smart English Classroom Teaching in Senior High School[D]. Kashgar University.