

A Study on the Use of Information Technology to Facilitate Deep Learning in Secondary School English Writing

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Abstract: English writing is a vital component of secondary school English teaching; it serves not only as a key means for students to apply their knowledge and skills of the English language in an integrated manner, but also as an important avenue for cultivating their thinking abilities and creativity. However, traditional secondary school English writing instruction suffers from issues such as insufficient writing practice, monotonous teaching methods, and one-sided teacher assessment. The integration of information technology offers new approaches to addressing these challenges. Taking the ‘Animals in Danger’ writing lesson as an example, this paper details the implementation pathways for IT-enabled deep learning in secondary school English writing. These include: using IT to generate multimodal materials to activate background schemas; utilising IT to assist in analysing discourse features and cultivate higher-order thinking; providing writing resource packs to support personalised learning; and employing IT to facilitate immediate, multi-dimensional assessment to enhance learning capabilities. These approaches collectively contribute to improving students’ English writing proficiency and deep learning abilities.

Keywords: Secondary School English; English Writing; Information Technology; Deep Learning

1. Introduction

The “Compulsory Education English Curriculum Standards (2022 Edition)” sets out in its curriculum philosophy the aim of ‘promoting the deep integration of information technology with English teaching’, requiring teachers to ‘fully leverage the supportive and service-oriented functions of modern information technology in the teaching and learning of the English curriculum’ and to ‘make judicious and innovative use of digital technologies and online

teaching platforms ... to provide support for meeting students’ individualised learning needs’ [1]. The deep integration of English teaching and information technology necessitates “researching and exploring how to use information technology to improve and enhance the effectiveness of existing practices in traditional English teaching” [2]; “how to use information technology to achieve what was previously impossible in English teaching”; and “how to appropriately apply teaching strategies involving information technology”, amongst other considerations [3].

Currently, secondary school English writing instruction places excessive emphasis on superficial imitation of model essays from textbooks, lacking in-depth exploration of the thematic significance, textual structure, and linguistic expression of these examples [4]. There is an over-reliance on teachers’ evaluation of students’ work, with assessments often focusing primarily on the correctness of linguistic expression. Furthermore, unrealistic writing contexts, limited writing materials, and the inability to showcase writing outcomes result in low student motivation, a lack of initiative and creativity, and writing instruction remaining at a superficial level of learning.

Modern information technology empowers writing instruction by ‘leveraging its instrumental nature to construct an environment that fosters deep learning: teacher-led to stimulate the deep learning process; student-centred to cultivate a positive emotional experience of deep learning’. This approach stimulates students’ interest in writing, supports the development of higher-order thinking skills, and meets individualised learning needs; immediate and diverse forms of assessment provide motivation, whilst the demonstration of achievements fosters a sense of success, thereby enhancing students’ writing abilities and capacity for deep learning. In response to the current challenges in writing instruction, this paper aims to explore strategies for deep

learning in junior high school English writing teaching through the integration of pedagogical principles and specific lesson examples, thereby contributing to the enhancement of students' English writing skills and deep learning capabilities.

2. Problems with Traditional English Writing Instruction in Secondary Schools

English writing is an integral part of secondary school English teaching; it is not only a key means for students to apply their knowledge and skills of the English language in a comprehensive manner, but also an important avenue for cultivating their thinking abilities and creativity [5]. However, in traditional secondary school English writing instruction, there are a number of issues that cannot be overlooked [6]; to a certain extent, these issues have hindered the improvement of students' writing abilities and the development of their overall English proficiency.

2.1 A Severe Lack of Writing Practice

As a form of language practice, English writing is a complex task, and improvements in students' writing proficiency are closely linked to extensive writing practice [7]. In traditional English writing instruction, not only are class sizes large and student numbers high, but all students submit their written assignments simultaneously, making the marking of essays a burdensome task for teachers. Given limited time and energy, most teachers are unable to mark every single student's essay in full.

Furthermore, the marking process takes a considerable amount of time, meaning students often have to wait a long time to receive feedback, resulting in a severe lack of writing practice. Traditional marking methods make it difficult for teachers to swiftly complete the enormous workload, thereby preventing them from providing timely feedback on students' writing, which hinders the improvement of their writing skills. Language learning, however, requires teachers to provide timely and effective feedback, allowing students to develop effectively through this process. Only when language practice reaches a certain volume is a qualitative change in students' writing ability likely to occur [8]; therefore, extensive writing practice is indispensable.

2.2 A One-size-fits-all Teaching Approach is

Not Conducive to Personalised Instruction

English writing is not only a communicative practice through which students interact and engage with society, but also a creative process in which students are the creative agents. In traditional English writing instruction, teachers often insist that students memorise essay templates and provide them with a list of key vocabulary terms for specific writing topics; this assembly-line style of essay training overlooks individual differences among students. Consequently, the traditional teaching model fails to deliver differentiated and personalised instruction, and the learning materials provided cannot meet the needs of all students. Encouraging students to question boldly and explore courageously is a prerequisite for fostering their innovative spirit; a single teaching method undermines students' confidence in innovation and hinders the development of their innovative abilities.

2.3 Teachers' Assessments and Feedback are Overly One-sided

In traditional secondary school English writing instruction, although teachers devote considerable time and effort to marking students' essays, students show little interest in the teachers' assessments and feedback. The reasons are as follows: Firstly, when marking essays, teachers focus excessively on linguistic errors, primarily assessing whether the grammar, word choice, and spelling are correct, whilst often neglecting the overall structure of the piece. An overemphasis on linguistic correctness leads students to rely heavily on simple sentence structures to avoid mistakes, thereby neglecting the substance of their writing.

Furthermore, teachers' assessment criteria tend to be rather one-dimensional, failing to truly tailor teaching to individual needs, which can lead to misjudgements during marking. Teachers overlook the emotional aspects of teaching when marking essays; their comments focus on the shortcomings of the students' work, and some teachers even offer harsh criticism of students' mistakes. Such a strict approach often causes students to feel a sense of defeat and lose interest in learning.

3. The Significance of Information Technology in Empowering Deep Learning in Secondary School English Writing Instruction

Deep learning is defined as ‘a meaningful learning process in which, under the guidance of a teacher, students engage wholeheartedly and actively with challenging learning topics, experience success, and achieve personal development’ [9]. In English writing instruction, teachers need to utilise information technology as a tool for creating learning environments, facilitating independent inquiry, supporting collaborative knowledge construction, and motivating emotional engagement. This enables the creation of learning environments conducive to deep learning, deepens the learning process, enhances learning outcomes, and enriches emotional experiences [10]. The author believes that the use of information technology to empower deep learning in junior secondary English writing instruction holds the following significance.

3.1 Information Technology Facilitates Immediate Feedback and Efficient Marking in Writing Practice

The use of artificial intelligence-based writing marking tools enables the instantaneous marking of large volumes of student essays, unrestricted by class size or student numbers. These tools can provide immediate feedback upon submission, identifying errors and offering suggestions for revision. This significantly reduces the time students spend waiting for feedback, allowing them to promptly understand their writing performance and make targeted revisions and improvements. Consequently, this effectively addresses the issue of insufficient writing practice caused by lengthy marking cycles in traditional teaching.

3.2 Information Technology as a Tool for Personalised Teaching Support in English Writing

Current information technology can generate a wide variety of learning resources tailored to students’ different levels of proficiency and interests. For example, for students with stronger academic abilities, information technology can provide more challenging writing topics and advanced vocabulary; for students with weaker academic abilities, it can provide more basic writing frameworks and simpler vocabulary. Furthermore, information technology can generate writing materials aligned with students’ interests, such as content covering various fields including science and technology, sports, and the

arts, enabling students to practise writing within areas that engage them and thereby better meet their individual needs.

Information technology is also capable of monitoring students’ learning progress and writing performance in real time, providing teachers with detailed data analysis. Teachers can use this data to identify each student’s strengths and weaknesses, thereby adjusting teaching strategies to implement differentiated instruction. For instance, for students with weaker writing skills, teachers can arrange more basic writing exercises and one-to-one tutoring; for those with stronger writing abilities, teachers can encourage creative and exploratory writing. This supportive function of information technology helps teachers deliver personalised instruction more effectively, enabling every student to learn at a pace and level of difficulty that suits them.

3.3 Information Technology Enables Multi-Dimensional Assessment and Personalised Feedback, Optimising the Writing Guidance System

Current information technology allows for a comprehensive, multi-dimensional assessment of students’ essays, focusing not only on linguistic accuracy but also on analysing and evaluating various aspects such as overall structure, logical coherence, richness of expression, and originality [11]. For example, information technology can identify whether the structure of an essay is clear and logical, whether the transitions between paragraphs are natural, and whether the arguments are clear and persuasive. This provides students with more comprehensive and objective feedback, helping them to better understand their strengths and weaknesses in writing, rather than focusing solely on details such as grammar and spelling.

Furthermore, information technology can provide personalised feedback and suggestions for improvement based on each student’s writing characteristics and progress. It is able to track students’ writing performance at different stages and analyse their development trends, thereby enabling the creation of targeted plans for improving their writing. For example, if a student shows significant improvement in grammar but still relies on a limited vocabulary, the technology can emphasise the importance of vocabulary acquisition and application in subsequent feedback, whilst providing relevant

learning resources and exercises. This personalised feedback and continuous improvement mechanism is better equipped to help students enhance their writing skills, unlike traditional teaching methods, where a single evaluation criterion often prevents students from receiving effective guidance.

4. Implementation Strategies for Using Information Technology to Enhance English Writing Instruction in Secondary Schools

In this section, the author will explore strategies for using information technology to enhance English writing instruction in secondary schools, using the writing lesson in Unit 6, 'Animals in Danger', from the Foreign Language Teaching and Research Press's Year 8, Volume 1 textbook as an example.

4.1 Using Information Technology to Generate Multimodal Materials and Activate Prior Knowledge

Before writing, teachers can use information technology tools to generate multimodal materials related to wildlife conservation, such as images, videos, and audio clips. These materials, which are relevant to the unit's theme, can activate students' prior knowledge, enabling them to draw on their past experiences and engage with the current learning.

For example, teachers can organise students to watch excerpts from the BBC's Planet Earth II concerning the survival challenges faced by wildlife, guiding them to observe and reflect: "What animals can you see?" "How do you feel when you see them?" By watching the video, students revise the names of wildlife they have learnt, such as lion, giraffe, elephant, bear, snake, and fox, whilst expressing their feelings: "I feel excited because they can live freely not only in the wild but also in our cities." The teacher agrees: "We should live in harmony with wild animals." However, some of them are in danger. The teacher then plays another self-produced video to prompt students to consider: 'What dangers are wild animals facing?' Using the 'Share Views' function in Seewo Easy Classroom, students type in the dangers facing wild animals, creating a word cloud (e.g., Figure 1). In response to these threats, the teacher organises a discussion on how to save wild animals. Students brainstorm ideas, applying key vocabulary and revising them in the process.

Through multimodal materials such as videos and word clouds, students can make associations, draw upon, and activate their prior experience and knowledge of the topic, laying the groundwork for constructing a new knowledge structure. At the same time, this stimulates their interest in and emotional connection to the topic of wildlife conservation, thereby activating background knowledge for subsequent writing tasks.



Figure 1. Word Cloud on Animals Facing Danger

4.2 Using Information Technology to Analyse Discourse Features and Foster Higher-Order Thinking

During the model text study phase, teachers can utilise information technology tools to help students identify discourse features, guiding them to analyse the model texts from the three perspectives of 'What', 'Why', and 'How', thereby helping them to better grasp the text's genre, content structure, linguistic characteristics, and writing purpose.

For example, students read the model texts in this section and discuss: What is the genre of the passage? Why did the author write it? How did the author write it? Subsequently, students use mind-mapping tools such as X-Mind to create mind maps (e.g., Figure 2), further organising the textual features. Through the structured information generated by information technology, students quickly understand that the article is a report on wildlife conservation, the author's purpose is to call on people to protect wildlife, and the article has a clear structure, covering the animals' appearance, habits, the dangers they face, and conservation measures.

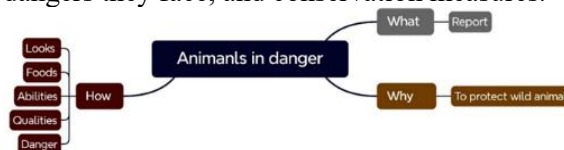


Figure 2. Mind Map

Furthermore, information technology tools can assist students in analysing the linguistic features of model essays, such as elegant phrases and

sentences, enabling them to appreciate the precision and impact of the text. As a result, students are not only able to comprehend the content of the text but also to explore its underlying structure and linguistic techniques in depth, thereby cultivating higher-order thinking skills.

4.3 Utilising Information Technology to Provide Writing Resource Packs and Support Personalised Learning

To meet the needs of students with varying learning abilities, teachers can use information technology to generate writing resource packs at different levels of difficulty, tailoring personalised writing materials for each student based on their actual ability and progress.

For example, for students with weaker learning abilities, the resource packs generated by information technology include detailed writing frameworks and a wealth of writing materials, such as detailed information on the appearance, habits, and conservation measures of pandas; students need only fill in the content according to the framework to complete their writing. For students with average learning abilities, the resource packs provide some keywords and simple writing prompts, such as the characteristics and conservation recommendations for Amur tigers and Asian elephants; students need to organise their own language, write complete sentences, and select appropriate connecting words. For students with stronger academic abilities, the resource pack contains only basic information on the Yangtze finless porpoise; students must conduct in-depth research themselves and independently complete the entire report.

Current information technology can also dynamically adjust the content of the resource packs according to students' learning progress and needs, providing personalised learning support. Furthermore, students can utilise IT tools to independently gather writing materials before class, or use IT during lessons to rapidly generate better writing materials, thereby further enriching their writing content.

4.4 Utilising Information Technology to Implement Real-time, Multi-dimensional Assessment and Enhance Learning Abilities

Once students have completed their writing, teachers can use intelligent marking tools to conduct an initial assessment of their essays,

quickly identifying errors in vocabulary, spelling, grammar, and punctuation, and providing suggestions for improvement. Students can then revise their work based on the feedback provided by these tools, thereby enhancing their ability to learn independently. For example, if a student misspells the word 'bamboo' in an essay, the intelligent marking tool will immediately flag this and provide the correct spelling; furthermore, information technology tools can analyse patterns in students' spelling errors—such as whether they result from confusion over phonetic symbols or incorrect letter combinations—thereby providing students with more targeted spelling exercises and advice to help them avoid making similar mistakes in the future.

Subsequently, teachers conduct multi-faceted assessments based on writing evaluation criteria, utilising interactive IT platforms. These platforms offer features such as multiple-choice options and annotation tools, facilitating demonstration assessments, peer-to-peer evaluations, and random peer reviews. For instance, a teacher might display a student's essay, and students can use the platform to vote on its strengths and areas for improvement, such as 'clear structure', 'accurate language', or 'needs more transitional words'. The smart platform can also compile evaluation results in real time and generate visual charts, helping both teachers and students to better understand the assessment outcomes. Through real-time, multi-faceted assessment facilitated by information technology, students are able to receive prompt feedback, reflect on their learning process, and adjust their learning strategies, thereby enhancing their learning abilities and writing skills.

5. Conclusion

Modern information technology—characterised by digital audiovisual technology, multimedia interactive technology, intelligent online learning platforms, and artificial intelligence—has brought about a transformation in students' learning environments, content, methods, and processes. In the practice of using information technology to facilitate deep learning in English writing, it is necessary to construct a new model of teaching that is teacher-led, student-centred, and technology-supported, fostering mutual growth and progress. Teachers must fully leverage the

supportive and service-oriented functions of information technology in writing instruction. By designing coherent, tiered, and meaningful learning activities, they should guide students through processes involving association and structuring, activity and experience, internalisation and communication, transfer and innovation, as well as reflection and evaluation. This will enable students to organise new knowledge, develop critical thinking skills, and enhance problem-solving abilities, thereby fostering the formation and development of subject-specific core competencies.

References

- [1] Al-Garaady, J. & Mahyoob, M. ChatGPT's capabilities in spotting and analyzing writing errors experienced by EFL learners. *Arab World English Journals*. 45.2 (2023):84-117.
- [2] Dunleavy, J. & Milton, P. Student Engagement for Effective Teaching and Deep Learning. *Education Canada* 48.5 (2015):4-8.
- [3] Limo, F. A. F., Tiza, D. R. H., Roque, M. M., Herrera, E. E., Murillo, J. P. M., Huallpa, J. J. & Gonzáles, J. L. A. Personalized tutoring: ChatGPT as a virtual tutor for personalized learning experiences. *Przestrzeń Społeczna (Social Space)* 23.1 (2023):293-312.
- [4] Godwin-Jones, R. Partnering with AI: Intelligent writing assistance and instructed language learning. *Language Learning & Technology* 26.2 (2022):5-24.
- [5] Masuku, M. M., Jili, N. N. & Sabela, P. T. Assessment as A Pedagogy and Measuring Tool in Promoting Deep Learning In Institutions of Higher Learning. *International Journal of Higher Education* 10.2 (2020):274.
- [6] Moybeka, A. M., Syariatn, N., Tatipang, D. P., Mushthoza, D. A., Dewi, N. P. J. L. & Tineh, S. Artificial Intelligence and English classroom: the implications of AI toward EFL students' motivation. *Edumaspul: Jurnal Pendidikan* 7.2 (2023):2444-2454.
- [7] Bozkurt, A. Tell me your prompts, and I will make them true: The alchemy of prompt engineering and generative AI. *Open Praxis* 16.2 (2024):111-118.
- [8] Guo, K. & Wang, D. To resist it or to embrace it? Examining ChatGPT's potential to support teacher feedback in EFL writing. *Education and Information Technologies* 29.7 (2024):8435-8463.
- [9] Almegren, A., Mahdi, H. S., Hazaea, A. N., Ali, J. K. & Almegren, R. M. Evaluating the quality of AI feedback: A comparative study of AI and human essay grading. *Innovations in Education and Teaching International* 62.6 (2025):1858-1873.
- [10] Ghafouri, M., Hassaskhah, J., & A. Mahdavi- Zafarghandi. From virtual assistant to writing mentor: Exploring the impact of a ChatGPT-based writing instruction protocol on EFL teachers' self-efficacy and learners' writing skill. *Language Teaching Research*. 17.3 (2024): 43-45.
- [11] Zhang, Z. & Hyland, K. Student engagement with teacher and automated feedback on L2 writing. *Assessing Writing* 36.1(2018):90-102.