

Exploring the Use of Technology in Academic Writing

Sonal Pandya

PhD Research Scholar, VNSGU, Surat.

Dr. Vaishali Parekh

Principal, S. S. Agrawal College of Commerce Studies.

Abstract

Nowadays, technology is widely used all over the world in every field. There are plenty of practices of technology in the academic field of research and English language teaching purposes. In this paper, my major focus is on discussion regarding the present scenario of English language teaching, conceptual frame work of Academic writing in the digital age, theoretical perspectives on technology in academic writing and the use of technology in writing. Moreover, mention literature review part its methodologies, synthesis and trends as well as theoretical reflection of the studies.

Key words: Technology, Academic writing, English language teaching (ELT), Digital Literacy, Collaborative Writing, Online Publishing

1.0 Introduction

English is used as a 'lingua franca' in all over the world. In most of the country, English is taught as a second language. Kumar Manish (2019), states in his work that English is the language of science and technology, a language of competitive tests at the local, countrywide, and worldwide levels. It is a very beneficial language to converse with foreign people for trade purposes and to get knowledge from foreign experts for academic purposes through the medium of technology. Furthermore, technology is the best tool for changing the academic paradigm. In English language teaching, there are four main skills: listening, speaking, reading and writing. Here we are discussing the writing portion. There are two types of writing styles: formal and informal. In formal writing, we use the language in academic books, journals, and research, whereas informal writing is very short in length and applies to personal settings. Formal writing is applied in academic research writing and for to write literature. Academic writing is used in higher classes. It is differ than creative writing and personal writing in which writer used short abbreviation but in academic writing apply the professional writing (Oshima, A., & Hogue, A., 2007). In addition to this, Technology plays a very important role in academic writing also. Digital technology has acquired acceptance in academic writing in numerous academia and research bodies due to its noteworthy role in enhanced learning (MdH.Iqbal et. al., 2021).

1.1 Significance of Technology in Academic Writing

Technology is a substantial portion of the world today. J. L. Harris mentions in his work the quote of Johnson (2003): The computer and technology have the capability of "invoking dreams in the minds of visionary educators who saw endless potential for alerting traditional notions of teaching and learning". Martin (2008) states that technology is very significant to know that literacy in education are our student's thoughts and their acts with surrounded people. The latest technology idea is not just restricted to the practice of modern utilizations and expedients, but rather attains to the overview of advanced arrangements and processes of teaching which enable more swiftly and more complete learning development (Mofareh A., 2019). It has had a considerable effect on the way learners and specialized authors accept their work. Technology has upgraded the research proficiency of authors where extra details are encompassed and articulated. Technology has fostered creativity among writers, allowing them to generate novel notions. On the contrary, job quality has been significantly impacted, and as a result, this has affected the writing quality. An abundance of plagiarism is also being caught in many academic assignments as writers are increasingly electing to duplicate the work of others rather than generate unique content (Berman 2020). According to Lisa Sandolo (2010), technology is very useful in enhancing students encouragement in writing skills. Moreover, in academic writing, technology has become helpful for improving grammar and spelling, checking plagiarism and citations, and many other way Ferdousi (2022) noted in his work Purcell's (2013) statement, that the use of digital technologies can be meaningfully advantageous for learners' academic writing perfection.

1.2 Scope and Purpose of the Literature Review

The literature review on technology in academic writing find out present researches, theories and practices connected to the combination of technology in this field. Its purpose is to provide a comprehensive understanding of the current state of knowledge, identify gaps or trends, and inform the development of new insights. By reviewing relevant literature, one can access the impact of technology on writing skills, instructional methods and student outcomes, ultimately contributing to the advancement of effective strategies in the intersection of technology and academic writing.

1.3 Objective

The objective of exploring the use of technology in academic writing is to explore how various technological tools and platforms impact the writing process in educational settings. The focus is on understanding the benefits, challenges and implications of integrating technology, such as word processing software, collaborative platforms, citation management tools, into academic writing practices. The goal is to provide insight into how technology enhances traditional writing methods influences writing skills development, and shapes the overall landscape of academic writing in a digital context. This exploration aims to inform educators, researchers and students about effective and innovative approaches to technology leverage for improved academic writing outcomes.

2.1 Conceptual Framework

A. Overview of Academic writing in the Digital age

In the digital age students perspectives on academic writing have evolved due to increased reliance on technology. Access to online resources has expanded, influencing research methodologies collaboration through digital platforms and the prevalence of online submissions have shaped the dynamics of peer review. Additionally, the demand for multimedia elements in academic work reflects a shift towards a more engaging and interactive formats. However, challenges such as information overload and the need for digital literacy skills also play a role in shaping students experiences with academic writing in the digital era (Christine, 2015).

B. Theoretical Perspectives on Technology in Academic Writing

- **Social Cognitive Theory:** Bandura's social cognitive theory is very useful to better understand people's acceptance of new technology. This theoretical model proposed by Bandura in 1986, it introduces the concept of self – efficacy. Bandura posits that there is a reciprocal relationship between environmental factors, cognitive factors and human behaviour. He believes that in shaping individual's choice of activities, level of effort exerted and persistence in achieving those activities their belief plays a pivotal role. According to Bandura , is influenced by various factors such as observation of others, as experiences, social persuasion, success and failures and physiological states like emotional arousal. Fundamentally, self-efficacy is an individual's judgment of their own capability to implement necessary actions to achieve a performance (Ferdousi, 2022).
- **Socio Cultural Theory:** Learning is a communal process, whose key belief are human interaction and culturally influenced activities (Vygotsky 1978). The process of writing, involving a dialogic approach, serves not only as a means of communication but also as a mode of social action (Prior,2006). Collaborative dialogues that shape writing practices cultivate mediated learning and the negotiation of meaning (Lantolf,2000). The assimilation of technology opens up opportunities for collaborative and interactive approaches in diverse instructional settings. Online collaborative writing tasks play a role in encouraging peer feedback and the exchange of ideas (Limbu & Markaukaite, 2015) and facilitating instructional feedback and enhancing engagement (Bikowski & Vithanage ,2016).
- **Multi literacies and Multimodality:** The concept of multiliteracies in education utilizing various forms of communication and embracing linguistic diversity that involve multiple modes. Multimodality is a key facet that shapes the experiences of constructing meaning and multiliteracies provide the necessary tools for these experiences (New London Group 1996; Rowsel& Walsh, 2011). The framework of multimodality suggests that the formation of meaning involves diverse modes such as prints, visuals, motion, speech and sound (Smith, 2014). The integration of digital technologies further enhances the possibilities of multimodal communication, impacting the dynamics of how we learn, communicate and engage in social interactions (Lotherington & Jenson 2011). Multimodal media not only allow us to express our thoughts but also support collaborative knowledge creation in the social context of learning (Cope & Kalantzis, 2015).

C. Key Concepts:

- **Digital Literacy:** Digital literacy is a awareness about online platforms, its application and to understand digital interpretation in practices. It is a practice that answered on web literacy, knowledge literacy, internet literacy, (Ayhan, 2016). It covers cognitive skill as well as technical and sociological abilities include in performing task in the digital setting (Eshet Alkalai,2004). Readers have to decide about which information is valid and reliable for their study because digital setting is thought-provoking for the users(Medlok et. al.,2017). Concepts related to the Use of Technology in Writing:
- **Collaborative Writing Tools:** This is a open platform where community can share their knowledge on any particular topic with the group, they work in group and discuss the problems critically (Cattafi & Metzner, 2007). Web 2.0 applications are collaborative writing tools where many users collaborate on any topic. Blogs and wikis are common platform where experts share teaching materials. Moreover, Google Docs and Ether Pad both are alternative synchronous editing and collaborate actual time platforms (Brodahl, 2011).
- **Word Processor Tools:** Microsoft Word has various uses in every field. In the Formulation process, referencing, document formulation and for collaboration in academic writing (Wrobel,1997,2002). As well as Google Docs is a collaborative platform where the online material is share on academic writing platform for the learners. There are other tools such as La Tex, Scrivener, Libre office writer, all are significant in respected area. M.S. Office is very significant for writing editing, revising, entering, handling, and formulating files. In research paradigm this technological tool is applied for writing, spelling checking, synonyms, tabling the data, citation references and many more. In a reference citation, within a minute number of references arrange with alphabetical order as well as selected style by the researcher. Thus, it support in research work, language formulation, grammar, punctuation, hyphenation and spelling correction and all these are very crucial for academic writing portion (Kruse et.al.,2023).
- **Citation Management Tools:** Citation Management tools is useful for researcher to collect and move references from database (resources / webpages) to personal research database as well as annotate, arrange, sort and search through references, images and PDFs. They help researchers to embedded reference lists and in- text citations into documents using diverse styles such as MLA, APA and so on. There are some apps for citation like Mendeley, Zotero, CiteULike, Bibligo and varied. These types of tools are facilitating the management of bibliographic information, saving time for researchers and ensuring accuracy in citation formats (Ale Ebrahim, 2017).
- **AI as Educational Tools:** Artificial Intelligence (AI) holds considerable potential to enhance human learning and help achieve educational goals more efficiently. Given this potential, it is unsurprising that numerous AI-driven innovations and advancements are currently being integrated, with many more anticipated, to support and streamline the learning process. However, the introduction of AI in the educational sector has generated concerns among educators, presenting a unique challenge: to ensure that education's foundational role and purpose are preserved. Many educators maintain a firm belief that AI cannot replace teachers but instead can serve as a collaborative tool within the teaching and learning environment (Fitria, 2021). To utilize AI effectively, teachers must develop competencies in science and technology, enabling them to leverage AI for administrative tasks, such as creating lesson plans, managing student attendance, reporting academic performance, and producing educational media and resources. This study, therefore, aims to explore the role of AI in education, with particular emphasis on its application in teaching and learning processes.

3.0 Literature Reviews

The integration of technology into academic writing has transformed how scholars, students, and educators engage with research, composition, and publication processes. As digital tools become more sophisticated and accessible, their impact on academic writing practices continues to grow. The literature on this subject explores a wide array of technological advancements, from basic word processors to more complex artificial intelligence-driven platforms. These technologies enhance writing efficiency, facilitate collaboration, improve the quality of work through grammar and plagiarism checks, and open new avenues for data analysis and organization. This review delves into existing studies that examine the role of technology in academic writing. It focuses on the benefits, challenges, and implications of using digital tools in the writing process. Furthermore, the review identifies key gaps in the current literature and highlights areas for future research, particularly with regard to how technology influences the quality of academic output and the development of writing skills across different educational levels.

3.1 Technological tools for writing and editing

Technological tools has been an important resources in enhancing the writing and editing skills. Nowadays diverse tools are available online and each tool appear with very distinguished features. These tools are helpful for both

students and teachers in their everyday work. We shall comprehend the practice of tools in writing and editing by reviewing three papers of following researchers.

Cristiane Vicentini (2018) has conducted research on using technology tools in writing, the researcher here reviewed 39 papers wherein the focus was on evaluating which technology tools are beneficial in face-to-face and distance learning also what benefits can these technology tools bring help in teaching and writing. The researcher while going through the papers identified an important of how technology can be helpful in enhancing the writing instruction in face-to-face and online scenario. The research concludes that the use of various technological tools has helped both the students and teachers in effective communication and collaboration practices.

Charles A. MacArthur (2000) has done research on how computers can help in the aid of students with educational disabilities write more effectively. The article reviews research on various computer features such as writing problems, word processing, word processing and revising, word processing and collaboration, and editing tools such as spelling and grammar checking, speech synthesis help students in easing and facilitating out issues and thus improve writing skills.

Muhammed Miah (2014) has investigated in his research paper the relationship of technology use and writing skills. The researcher review problems and suggest a way out with regards to future technological espousal which will help English language writing. In this article an online questionnaire was administered both to students and teacher. While students and teachers have both believed that technologies have been helpful in enhancing writing skills. However, the researcher feel much work is needed in this area to educate on new technologies and how it can be used to educate literacy and improving writing skills in this digital era.

3.2 Impact of Technology on Writing Skills Development

Technology has been helpful in improving writing skills development. Today various software are available online that can enhance the writing and content development. In this era without technology support nothing can be limited. We shall see how the three researchers have

Ali Alkhalidi (2023) in his case study research of first year students of English at Al Al-Bayt University in Jordan has gone through to find out that whether the use of technological tools improved student's creative writing skills. The 20 students were taught creative writing without the use of technology and had administered with a questionnaire conducting a pre-test, while same students were taught creative writing using technological tools and after completion had conducted post-test. The Post-test results of the same group have been very encouraging of the students with regards to writing performance, lexical abilities and imagination. Here, researcher observed that the technological tools like Grammarly, Hemingway and Reverso Context had significantly improved the student's creativity in writing, imagination and idea generation and therefore correct grammatical and spelling errors.

Turki Rabah Al Mukhallafi (2021) in his experimental research design and also with the study of quasi-experimental research applied on 64 students of second year, English department. Students were divided into two groups of experimental and control groups. Further, the objective of the research was to understand the impact of technology in developing creative writing skills and academic self-efficacy with a descriptive logical approach. A questionnaire was given to both the groups on various facets of creative writing and academic self-efficacy, the Experimental group were taught with the help of technological tools on creative writing (fluency, flexibility and originality) and improving academic self-efficacy (self-motivation, self-confidence, perseverance and continuity, self-regulation) post which studies results were analyzed through statistical tools to understand the correlation of the two groups. It was very encouraging to see that the mean scores had a significant difference between the experimental group and the control group on all parameters, hence concluding that there was a positive correlation between scores of experimental group after application of the creative writing skills and also of the scores on the academic self-efficacy scale.

José María Fernández Batanero (2021) in his paper had examined 16 selected articles between the year 2010 and 2020 to measure the effectiveness of ICT in the application of writing and reading skills of students. The study revealed that despite the progress was slow the technology can aid in the enhance reading and writing skills of students. The research is a combination of descriptive and quantitative methods. The researcher highlights the larger number of articles published stating increase in the technology enhancement in reading and writing skills.

3.3 Collaborative Writing Platforms and Technologies

Yong Mei Fung (2010) in his qualitative research application conducted for students, enrolled in an English Speaking language proficiency course on academic writing at undergraduate level in university of Malaysia. The researcher used verbatim transcribed process for collecting the data. His interpretation of the audio recorded

questions and answers from focus group face-to-face collaboration, conversations on various issues help understand the issues defining features with respect to interaction, negotiation, conflict and shared expertise, while issues require facilitating feature include affective factors, use of LI, backtracking and humor. All features that occur during collaboration reveal that students are capable of constructing knowledge and developing writing and social skills through peer interactions.

Supiani (2017) in literature review involving pedagogical process, although a primary research conducted on school students of Indonesia, the objective of this research was having a theoretical perspective and pedagogical process for teaching writing of collaborative writing technique. Collaborative teaching writing helps solve issues with regard to creative writing and help students with writing ability. Students learn in the company of other fellow students and explore every possible areas and it is always a good learning network as it resolves student's doubts.

Bambang Yudi Cahyono, Winarti Winarti (2020) in their research examine the collaborative writing combined with writing process to discover the effect of task on students ability in writing explanation essay and learners perception about the task. This experimental and quasi-experimental research was done with 60 students learning in the fourth semester from mathematic department in public universities of malang, Indonesia. The study revealed that means of students working collaboratively was higher than the mean of students working individually, hence Collaborative writing combined with process writing improved students writing ability.

Tahir, M., Hassan, F. D., and Shagoo, M. R. (2024) noted that the increasing accessibility of Artificial Intelligence (AI) and related technologies had facilitated its application across various sectors, including education. Despite the growing adoption of AI in education, they observed that its full potential and associated challenges had not yet been comprehensively understood. The researchers provided an analysis of AI's role in the educational sector, examining the obstacles and opportunities it presented, and drawing upon prior empirical and theoretical studies. They pointed to global initiatives, such as those led by UNESCO, as evidence of AI's widespread adoption in education. AI applications in this field, they found, supported content creation, assignment preparation, automated grading, and student assistance. The researchers identified benefits of AI in educational contexts, including increased flexibility regarding time and location and a shift in the role of instructors towards facilitation. However, they also highlighted significant challenges, such as ethical concerns related to data privacy, issues with inclusivity and equity for students from diverse backgrounds, and a reduction in human interaction. Based on these insights, they concluded that AI's role in education would likely expand in the future, though addressing these challenges would be crucial to fully unlocking AI's potential benefits in the educational domain.

4.1 Methodology in Existing Research

A. Examination of Methodologies in Existing Research

As per the objective of the paper, have reviewed three main aspects of study related to technology and use of its various tools in academic writing such as (i) Technological tools for writing and editing (ii) Impact of technology on writing skills development (iii) Collaborative writing platforms and technologies. The literature review done was around the technology and its related tools to understand the effectiveness in improving academic writing skills of the students and faculties. The nine literature review papers which have been reviewed basis the above aspects here was to know the use of different technologies has being helpful to students and also such use of technological tools has made an impact on the performance of the students.

B. Evaluation of Research Design and Limitations

On the basis of the literature review research paper as a researcher I have been able to evaluate that technology significantly influences the development of collaboration and the quality of written work. Tools such as grammarly and Hemingway have proven effective in enhancing creativity and writing mechanics. In adding to this the use of technological tools in writing instruction offers advantages for both students and teachers, collaboration, facilitating better communication, and feedback in both online and traditional learning settings. The Limitations of this research were only up to the objective in regards to use of technology tools in enhancement of academic writing in students. However no further exploration or correlation have been conducted on the use of technology in student's educational performance.

5.1 Synthesis and Trends

During the literature review of nine papers as a researcher I found that technology presents challenges like need for digital literacy and information overload. Continuous teacher training is essential to effectively utilize technology in writing instruction, such aspects will bring confidence in teachers and students in using tools enabling academic writing skills. Also as a researcher I noted in some reviews that further studies in area of language development in relevance to adoption of new technologies. The reviews identifies areas for further

research, including teacher training, technology access, the impact of technology on student safety and language development. As well as, further exploration in these areas will advance effective strategies in technology integrated academic writing.

5.2 Theoretical Reflection

This paper emphasizes the importance of theoretical reflection in a literature review, specifically focusing on Bandura's social cognitive theory, Vygotsky's socio-cultural theory, and the concepts of multiliteracies and multimodality. Bandura's theory, developed in 1986, is highlighted for its relevance in understanding people's acceptance of new technology. Central to this theory is the concept of self-efficacy, where individual beliefs play a crucial role in shaping their activities, effort, and persistence. The factors influencing self-efficacy include observation, past experiences, social persuasion, success/failures, and physiological states.

Vygotsky's socio-cultural theory, (1978), underscores learning as a communal process influenced by human interaction and culturally driven activities. In the context of writing, a dialogic approach serves not only as a means of communication but also as a mode of social action. Collaborative writing practices, aided by technology, facilitate mediated learning and meaning negotiation. The researcher also introduces the concept of multiliteracies, involving various forms of communication and linguistic diversity, along with multimodality, which shapes experiences in constructing meaning through diverse modes. Digital technologies further enhance multimodal communication, impacting learning, communication, and social interactions. In summary, the theoretical reflection explores the interconnectedness of these theories, emphasizing their contributions to understanding complex educational dynamics, technology acceptance, collaborative learning, and the evolving landscape of communication in education.

6.1 Conclusion

Technological tools can extend students' originality in writing. Additionally, the use of technological tools does better the student's inspiration and writing skill. Collaborative writing supply a social context of learning, stimulate interdependence as well as a sense of freedom for students. Students gain knowledge of how to write from their peers, share knowledge and make decisions in group, contract with different of opinions and conflicts, application of strategies, and make the collaboration. A advantageous experience for every person throughout teamwork and combine collaborative writing system can be applied in pair or group discussion. The findings open that the utilize of technological tools had a positive role in improving students' imagination, lexical abilities and writing. Technology enhances students writing because it expands their imagination, organize their ideas and rectify their grammatical and spelling error. So, for the language and grammatical portion including writing skill technology tools are very practical.

References:

- Alkhalidi, A. A. (2023). The Impact of Technology on Students' Creative Writing: A Case Study in Jordan. *Theory and Practice in Language Studies*, 13(3), 586-592.
- Al Mukhallafi, T. R. (2022). The impact of information technology on developing creative writing skills and academic self-efficacy for undergraduate students. *International journal of English linguistics*, 12(1).
- Alqahtani, A. (2019). The use of technology in English language teaching. *Frontiers in Education Technology*, 2(3), 168-180.
- Ayhan, B. (2016). Digital literacy. *Digitalization and society*, 29-48.
- Batanero, J. M. F., Rueda, M. M., Cerero, J. F., & Gravan, P. R. (2021). Impact of ICT on writing and reading skills: a systematic review (2010-2020). *Texto Livre*, 14(2), e34055.
- Berman, M. (2020). Effects of technology and academic writing. Retrieved from <https://programminginsider.com/effects-of-technology-on-academic-writing/>
- Brodahl, C., Hadjerrouit, S., & Hansen, N. K. (2011). Collaborative writing with Web 2.0 technologies: education students' perceptions. *Journal of Information Technology Education: Innovations in Practice*. Volume 10.
- Cahyono, B. Y. (2020). Collaborative writing and process writing approach: The effect and students perception. *JEES (Journal of English Educators Society)*, 5(2).
- Ebrahim, N. A. (2017). Online Reference Management Tools for Improving Research Visibility and Impact. University of Malaya.

- Ferdousi, B. (2022). Acceptance of technology and academic writing: analyze in perspective of theoretical models. *Journal of Systemics, Cybernetics and Informatics*, 20(5), 94-117.
- Fitria, T. N. (2021, December). Artificial intelligence (AI) in education: Using AI tools for teaching and learning process. In *Prosiding Seminar Nasional & Call for Paper STIE AAS* (Vol. 4, No. 1, pp. 134-147).
- Fung, Y. M. (2010). Collaborative writing features. *RELC journal*, 41(1), 18-30.
- Harris, J., & Al-Bataineh, A. (2015, April). One to one technology and its effect on student academic achievement and motivation. In *Global learn* (pp. 579-584). Association for the Advancement of Computing in Education (AACE).
- Iqbal, M. H., Rahaman, M. M., Debi, T., & Arefin, M. S. (2020, December). Online Technology: Effective Contributor to Academic Writing. In *International Conference on Intelligent Computing & Optimization* (pp. 1281-1294). Cham: Springer International Publishing.
- Kruse, O., & Rapp, C. (2023). Word Processing Software: The Rise of MS Word. In *Digital Writing Technologies in Higher Education: Theory, Research, and Practice* (pp. 15-32). Cham: Springer International Publishing.
- Kumar Manish (2019). Role of English Language in India. *Journal of Advances and Scholarly Researches in Allied Education*. 16(4).
- MacArthur, C. A. (2000). New tools for writing: Assistive technology for students with writing difficulties. *Topics in language disorders*, 20(4), 85-100.
- Omar, A., Miah, M. and Belmasrou, R. (2014). Effects of Technology on Writing. *International Journal of Science and Applied Information Technology*. 3 (2).
- Oshima, A. (2007). *Introduction to academic writing*. Pearson Publication. London.
- Pardo, A. C. R., & Minda, J. P. (2022). Reexamining the “brain drain” effect: A replication of Ward et al.(2017). *Acta Psychologica*, 230, 103717.
- Reinhold, F., Leuders, T., Loibl, K., Nückles, M., Beege, M., & Boelmann, J. M. (2024). Learning mechanisms explaining learning with digital tools in educational settings: A cognitive process framework. *Educational Psychology Review*, 36(1), 14.
- Sinclair, C. (2015). Students’ perspectives on academic writing in the digital age. *TechTrends*, 59, 44-49.
- Spires, H. A., Kerkhoff, S. N., & Paul, C. M. (2019). *Read, write, inquire: Disciplinary literacy in grades 6–12*. Teachers College Press.
- Strobl, C., Ailhaud, E., Benetos, K., Devitt, A., Kruse, O., Proske, A., & Rapp, C. (2019). Digital support for academic writing: A review of technologies and pedagogies. *Computers & education*, 131, 33-48.
- Supiani, S. (2017). Teaching writing skill through collaborative writing technique: from theory to practice. *JEELS (Journal of English Education and Linguistics Studies)*, 4(1), 37-52.
- Tahir, M., Hassan, F. D., & Shagoo, M. R. (2024). Role of artificial intelligence in education: A conceptual review. *World Journal of Advanced Research and Reviews*, 22(1), 1469-1475.
- Vicentini, C., & de Oliveira, L. C. (2018). Using technology tools in writing instruction. *NYS TESOL JOURNAL*, 44-51.
- Warschauer, M. (2007). Technology and writing. *International handbook of English language teaching*, 907-917.
- Zhu, Y., Au, W., & Yates, G. (2016). University students' self-control and self-regulated learning in a blended course. *The Internet and higher education*, 30, 54-62.