The Usage of Predictive Text Technology and Its Effects on Written Language Accuracy

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Abstract

With predictive text technology increasingly prevalent in digital communications, its impact on users' language accuracy warrants investigation. This study examined how different aspects of predictive typing usage affect the written linguistic precision of tertiary-level students in Bangladesh. A mixed-methods approach was employed, in that the study dealt with both quantitative and qualitative sets of data. 51 students from five universities in Dhaka participated in the study. The researchers asked participants to answer a 12-question survey with scaled and open-ended questions regarding their predictive text use and perceived writing quality. The findings revealed that while 90% of participants use predictive text technology, most report reduced attention to spelling and grammar when writing without access to such tools. However, the participants showed awareness of the cognitive cost of overusing the technology, and some reported regular proofreading habits. The authors conclude that predictive text is neither entirely harmful nor purely beneficial; rather, it is used as a means to an end. Suggestions include incorporating AI literacy strategies into EFL writing teaching, supervised tasks with AI support, and adjustable predictive text features. These findings provide insights for educators, linguists, and language tool developers in Bangladesh and similar multilingual contexts.

Keywords: predictive text algorithms, linguistic precision, quality education, writing skills, bilingualism, language acquisition

1. Introduction

The advancement of digital communication technology has ensured that predictive text systems are used in all mobile and computing devices. The purpose of predictive text technology is to offer suggestions and corrections based on context while the user is typing a text. They have become quite popular while typing on smartphones and computers, with an emphasis on smartphones. With predictive text technology advancing rapidly to the forefront in many platforms of communication, there is a clear need to investigate its effect on conventional written linguistic precision, meaning accuracy in spelling and syntax. To further elaborate, 'spelling accuracy' refers to orthographic errors, including misspellings, homophone confusions, and incorrect word forms. "Grammar accuracy" refers to morphological and syntactic errors, such as tense inconsistency, incorrect article usage, and subject-verb concord errors. The rise of predictive text systems warrants the question of whether and to what extent these various now-commonplace tools impact users' linguistic skills, that is, the ability to write grammatically correct and accurately spelled texts when they do not have access to such technology. In a multilingual culture, such as Bangladesh, and its people's increasing proficiency in using the internet, it is crucial to study what role this technological transformation has in their practice of writing with regard to academic and other formal settings.

The accessibility of predictive text input, in particular for smart devices, has led to concerns that it may harm language learning and writing skills, especially for people trying to gain proficiency in a new language. While the facilitative nature of such technology makes the act of communication much more convenient for everyone using it, it may also inadvertently reduce the cognitive workload associated with accurate spelling and grammatical use. As a result, communicators may experience a noticeable reduction in their spelling and grammatical precision—one of the known drawbacks of predictive text. Ismael et al. (2022) stated, "While technology has undoubtedly improved and has become an essential component of modern life, technological advances' consequences have both beneficial and detrimental impacts on students' writing skills in the classroom. Technology has accelerated and simplified work for students, but it has

also instilled the belief that there is no need to put significant effort into the texts they write" (p.231). Simply put, the automation of language production tools would reduce the process of active learning and practical use of language rules. This is crucial in bilingual settings, like Bangladesh, where students are comfortable with consistently switching between languages (code-switching), disrupting their literacy activities and language processing.

Automatic spelling correction tools and predictive texting technology are considered particularly useful, even indispensable, in Bangladesh—a land of rich linguistic diversity where increasingly more people from various social classes are becoming internet literate. A large number of university students are proficient in both Bangla and English, the former being the mother tongue for the majority of the populace, and the latter being used as the medium of instruction for many subjects in most educational institutions, not to mention the requirement of proficiency in English for better job prospects. With smartphones being accessible to the general population regardless of socioeconomic status and serving as a major source of communication, the consequences of predictive text usage on students' writing skills are still largely overlooked. Recent research states that the frequent use of mobile phones and internet-enabled platforms in Bangladesh has resulted in major changes in language usage. For example, Saadi and Abdullah (2024) stated, "The rapid integration of online platforms into learners' academic lives has impacted their skills and competence, to which writing is highly connected. Spelling is among the most affected aspects . . . The results showed the shockingly negative effect of using keyboard prediction tools on EFL learners' spelling performance" (p. 112). Their research demonstrates that students are used to relying on predictive text and autocorrect while typing, which influences how they perceive spelling and grammar. The research suggests that such technology can lead to learners paying less attention to the formal characteristics of their second language due to being overly reliant on these tools. According to the researchers, "However, despite being aware of these potential drawbacks, most users still choose to utilise it" (Saadi & Abdullah, 2024, p. 113).

Predictive text technology has transformed not just the way human beings exchange information through typing, but also how communication takes place in general. The complex relationship between language behavior and technology is now acknowledged as a significant domain of research in applied linguistics. As mobile technology continues to grow in popularity, writing has also become less time-consuming, with people being less reliant on the conventional act of writing. This became particularly apparent during the coronavirus pandemic when most communication was carried out through social media. Students and teachers used apps, namely Google Classroom, Google Meet, and Zoom to communicate. Classwork, exams, and assignments were all typed and submitted through platforms, for instance, Google Classroom and Canvas. While this transition has been and still is crucial, it has led to concerns about the maintenance of lexical fidelity. With mobile technology being progressively more significant in the writing context, knowledge regarding the effect of such tools on academic language proficiency has become an important issue that may concern teachers and language academics. Waldron et al. (2016) investigated the effects of predictive text tech on primary, secondary, and university students. The researchers concluded,

> … secondary school children who used predictive text made more genuine spelling errors than nonusers. Predictive text was related to use of some specific grammatical violations in school-age children's text messages but was not related overall to the tendency to make grammatical errors when texting. University students, however, made significantly fewer grammatical errors in their text messages when they used predictive text. Over the course of a year, predictive text use was variable for all age groups. Consistency of predictive text use was unrelated to grammatical understanding, spelling or orthographic processing for primary and secondary school cohorts. Predictive text use was negatively related to morphological awareness for adult participants. (Waldron et al., 2016, p. 384)

On the other hand, Mezei and Heller (2022) discussed the necessity of such tools for people who do not have a better alternative. The scholars explained,

> Many students with physical disabilities have difficulty with writing fluency due to motor limitations. One type of assistive technology that has been developed to improve writing speed and accuracy is word prediction software, although there is a paucity of research supporting its use for individuals with physical disabilities. This study used an alternating treatment design between word prediction versus word processing to examine fluency, accuracy, and passage length on writing draft papers by individuals who have physical disabilities. Results indicated that word prediction had little to no effectiveness in increasing writing speed for all of the students in this study, but it shows promise in decreasing spelling and typographical errors. (Mezei & Heller, 2022, p. 3)

According to the studies cited above, predictive text technology should not be banned altogether, given its evident utility and advantage for a substantial proportion of people. Therefore, both the advantages and the disadvantages of using these tools require further research. While research on this particular area has been conducted in many countries including the US and Japan, it has not yet been conducted in Bangladesh. Thus, this study shall examine the effects of predictive text aids on the written linguistic accuracy of Bangladesh university students. More specifically, the objective is to consider whether the excessive dependence on predictive text technology is a cause of the decreased attention given to spelling and grammar in academic and formal writing. Through the collection and analysis of an online survey, it is hoped that this investigation will add to the current discussion regarding the pedagogical and cognitive effects of automatized language systems.

While predictive text technology has been studied in various international contexts, including the United States, Japan, China, and Nigeria, no empirical research to date has investigated its effects on written language accuracy among university students in Bangladesh. This gap

in the local literature motivated the present study.

Given the ubiquity of predictive text technology, it is vital to study the potential consequences of its use on people's language skills, especially in an academic or any formal environment where they will not have access to smartphones or computers. The results of this research will have practical implications for language instructors, applied linguists, as well as developers of multilingual writing support systems. It will attempt to offer insights into the role these digital tools are playing, and will play long-term, in shaping language development in Bangladesh, with possible solutions to avoid any negative impact on people's language acquisition. Furthermore, it will contribute significantly to the discourse on the potential cognitive and pedagogical change brought about by such tools.

The rationale for the present research relies on the fact that the use of predictive text technology by students at a specific educational level can be studied. As resources are limited and the number of university students in Bangladesh is very high, it will not be feasible to evaluate every student. Nevertheless, a brief review of students enrolled in different fields of knowledge across several universities can help situate the usefulness of such research.

2. Literature Review

2.1 Predictive Text Tech and L2 Proficiency: Background

In most cases, research conducted on the usage of predictive text technology, whether for communication in the native language or the second language, and the consequences on the users' proficiency in either language, has demonstrated that it is more harmful than useful. One such study demonstrated precisely such a result (Roa & Halim, 2024). Roa and Halim's (2024) research was on the changing role of AI models and tools in L2 writing over the past decade. The paper organized different types of AI tools, for example, grammar checkers, automated writing evaluation (AWE) systems, and plagiarism detectors. It then evaluated their effects on L2 writing performance. It also examined L2 writers' attitudes towards these tools and did so by focusing on the limitations of these tools. The authors noted a scarcity of research on the topic and offered suggestions for future research, calling for caution in integrating AI tools into L2 writing pedagogy. The importance of ethical boundaries and academic integrity as determining values and principles for the implementation of AI in the educational context was stressed. This specific scarcity is also present in Bangladesh.

2.2 Handwritten vs. Typed Texts with Auto-Correction

Another study conducted by Ismael et al. (2022) observed the performance of students from three different universities and compared the results. The comparison was between the students' handwritten paragraphs and auto-corrected paragraphs. It included 10 students in each of three colleges. Overall, students made more spelling errors in handwritten texts and more grammar, vocabulary, and punctuation errors in auto-corrected or typed texts across the three universities, implying a dual effect of predictive text on written proficiency. This proved that while text prediction technology helps with spelling, it fails to engage people with the nuances of grammar and punctuation. While making errors creates opportunities for corrective feedback, the higher number of overall mistakes found in the typed texts—especially in grammar—suggests that students do grow to rely on these tools, which could negatively affect their own writing skills. Currently, auto-correction can be very useful for spelling, less so for many other crucial aspects of writing.

2.3 AI Ethics in Preventing Over-Reliance

Regarding the responsible use of such technology Wang and Wang (2025) proposed that critical AI literacy (CAIL) be fostered for L2 writing. They were not, however, ignorant of its dangers, as they clearly stated, "While we recognize the potential of technologies to empower L2 writers, we remain concerned about a general perception of students' uncritical reliance on them, as discussed in the existing scholarship (e.g., Barrot, 2023; Cardon et al., 2023; Stojanov et al., 2024)" (p. 3). Arnold et al. (2020) conducted a study to examine how predictive text technology affects users' ability to describe images. According to this study, over-reliance on such tools can cause great harm in the long term, even to users' mother tongues (Arnold et al., 2020). While these systems have been developed in order to make communication more efficient, being excessively dependent upon them will result in the loss of lexical variety, originality, as well as critical evaluation skills, something that has been proved by the responses of the participants of the current study as well.

Likewise, Brown and Allmond (2021) researched children labelled as 'emergent bilinguals' regarding how the use of predictive text tools can help them develop their skills in the English language. Four of them were heavily focused on, with samples of their writing provided for analysis. The comparison was between the quality of their writing before and after they began using such technology. The point that Brown and Allmond (2021) made through their research was that such tools were useful for helping younger students gain greater proficiency in grammar and spelling. They must, however, be monitored by teachers to ensure that they use it responsibly. On a similar note, Ya'u and Mohammed's (2025) quantitative investigation with 350 undergraduate students at five public universities in Nigeria offered crucial information on how AI tools may be affecting students' writing capability while raising questions around academic integrity. This study emphasized the potential of AI-assisted writing tools in terms of improving grammar and syntax but raised important concerns regarding their potential to limit critical thinking, creativity, and autonomous literacy acquisition. Therefore, an attempt at systematically integrating AI into appropriate writing instruction in educational institutions everywhere can enable and protect cognitive work with technology.

2.4 AWE Systems in Academia

On the other hand, Zhai and Ma (2022) provided a synthesis of the effectiveness of AWE systems on student writing quality based on 26 empirical studies in the period of 2010 to 2022 and covering 2,468 participants. The research resolves longstanding discrepancies in

earlier studies, in which specific findings about the influence of AWE were highly diverse. In a meta-analysis, the authors identified a very large positive effect of AWE on writing performance ($g = 0.861$, $p < 0.001$), indicating strong statistical evidence of the efficacy of AWE. Additionally, AWE was also more influential on argumentative writing than on academic and mixed-genre writing, which the researchers attributed to the nature of argumentative tasks, as they lend themselves well to the feedback features existing in AWE systems. Moreover, some other interesting findings that emerged from this study were that EFL/ESL students benefited significantly more from AWE systems than native speakers. By the same token, Stanford (2025), through his qualitative study conducted on six graduate level students, indicated that AI tools facilitate efficiency and help non-native speakers, especially in the reinforcement of lower-order skills such as grammar and fluency. It also drew attention to a number of major challenges, including ethical issues (e.g., plagiarizing and authorship), trust in AI-generated content, as well as digital literacy gaps that prevent students from fully benefiting from the AI tools. This research uses the Unified Theory of Acceptance and Use of Technology (UTAUT) framework which denotes a comprehensive way to analyze interactions between students and AI-based tools. Regarding the use of automated correction and prediction technology among graduate students, Stanford (2025) investigated AI tools such as Grammarly, Google Scholar, and ChatGPT, and their bearing on academic writing among graduate-level students, examining how these tools are simultaneously enablers and disruptors. However, the sampling of only six students does put the generalizability of this study in question.

2.5 Assistive Technology and Physical Disabilities

Mirenda et al. (2006) conducted research examining the results of Co:Writer word prediction software use by 24 students with physical disabilities related to handwriting, which offered encouraging but nuanced evidence regarding the potential benefits of assistive technology for writing. The results indicated that Co:Writer demonstrated clear value in improving the quality and access to writing for students with disabilities, particularly with physical impairments, although this study's weakness lay in potential bias of self-report data and the lack of generalizable results which may apply to students with learning other disabilities. Correspondingly, Koester and Levine (2009) conducted an investigation that demonstrated how people with physical disabilities who are accustomed to traditional typing methods experienced reduced work rates when using predictive text technology. This paper took a critical look at the ability of word prediction to enhance the performance of text entry and argued that its assumed advantages are counter-balanced by cognitive and motor demands, particularly for users who have spinal cord injuries (SCI). The word prediction not only decreased the keystrokes but also the total text generation time for SCI users and elicited small gains for able-bodied (AB) participants using mouth stick typing. The problem was that users had to stop and scan, interpret, and select from prediction lists, adding significantly to the cognitive as well as perceptual load, and thus slowing overall text entry rates. Both types of participants list-searched much more slowly with word prediction than with standard letter-by-letter typing, but SCI participants in particular exhibited extremely slow list-search speeds. It is fascinating that it was the participants with SCI—already experienced with traditional typing—that seemed to be more negatively affected by this difference, since their familiarity with exclusively letter input might have made predictive systems seem more cumbersome.

These results revealed an important bottleneck of predictive text: while the theoretical keystroke savings may be there, the extra cognitive effort (users having to stop and scan, interpret, and select from prediction lists) may more than offset, and even undo, the efficiency advantage. The work questioned the universality of predictive features as beneficial, highlighting user familiarity, interface design, and cognitive workload as important factors. Predictive tools, at least in assistance and writing instruction, might not increase writing performance, but rather could potentially hinder those who depend on speed, succinctness, and familiarity with established practices. Therefore, predictive text systems should not be regarded as universally suitable without considering long-term adaptation, user-friendliness, and personal needs—factors that should be taken into account during further research in this field in Bangladesh, not only for students but also for the general population.

2.6 Use of Grammarly as an AWE Tool

Turning to further exploration of the effects of such tools on EFL students, Wei et al. (2023) conducted a study involving 190 students who used Grammarly, testing their writing skills, specifically grammatical accuracy, lexical precision and variety, coherence, and cohesion. The researchers believed that AWE has the potential to improve the self-efficacy of learners, which, in turn, should bring a change in their writing proficiency overall by providing feedback that is more immediate and individualized. In the same manner, another study, focusing on Grammarly as an AWE tool, was conducted by Ngo et al. (2022, as cited in Wei et al., 2023) and supported by the Ministry of Science and Technology in Taiwan. As Ngo et al.'s (2022) findings had pointed out, AWE is useful for lexical variety, but not necessarily for improving grammatical precision. Furthermore, nothing was said regarding graduate-level students and whether they can make proper use of such tools. On the other hand, both of these studies had a substantial number of participants compared to others. There has also been a significant improvement in Grammarly's usefulness from 2022 to 2023, not to mention that Wei et al. (2023) confirmed what Ngo et al. theorized: using such tools with peers can indeed produce better results.

3. Research Question

To what extent does the regular use of predictive text technology on mobile devices affect the number and types of spelling and grammatical errors in formal academic writing among Bangladesh university students?

4. Methodology

4.1 Research Design

The present study was conducted using a mixed-methods approach, utilizing both qualitative and quantitative sets of data. A brief self-assessment online questionnaire was used to investigate how much the tertiary-level students of Bangladesh universities in Dhaka relied on predictive text technology and other AI tools in both formal and informal settings.

4.2 Participants

Purposive sampling was implemented while electing the research subjects, considering that the student participants, who took part in the study, belonged to the tertiary level, instead of a random participant group belonging to different levels of study. A total of 51 students, both from graduate and undergraduate levels, of different fields from five different universities in Dhaka, participated in the survey. They voluntarily took part in the process, and their identities have been kept strictly anonymous. No demographic data were deemed necessary.

4.3 Research Instruments

An online questionnaire was created through Google Forms. A total of 12 questions, with the twelfth question being an open-ended one, were asked. Eight of them asked for answers based on a range, while three were yes/no questions, though there were options for uncertainty. The questions asked whether the students used predictive text suggestions, whether they were confident in their traditional writing skills where they do not have access to such tools, if they use them when working on formal writing, to what extent they depend upon these tools, whether they still attempt to ensure grammatical and spelling accuracy even while using these tools, and lastly, to briefly explain how these tools have affected their traditional writing skills. The survey questionnaire, prior to distribution, was cross-checked by a research expert to ensure face and content validity of the research instrument. The results of the survey were presented to the research supervisor along with a group of peers to certify validity with regard to data analysis.

4.4 Data Collection

The survey questionnaire was shared using a Google Form link among the selected student populace through social media platforms, such as Messenger and WhatsApp. The process of distributing the online questionnaire went on for a little over a month, from mid-July 2025 to early August 2025. There was no time limit for filling out the form. Although no personal information was collected, it was explained clearly that all personal data would remain completely confidential and that students were invited to participate voluntarily only. The questionnaire was written in English and distributed among tertiary level students of five different universities located in Dhaka. As mentioned before, no participant was asked to provide their name, age, sex, email address, socio-economic status, or any other detail that falls under demographic information.

4.5 Data Analysis Procedure

4.5.1 Quantitative Data Analysis

All the collected quantitative data were automatically analyzed by Google Forms into pie charts, with individual options from each of the questions representing a separate segment in the charts.

4.5.2 Qualitative Data Analysis

The qualitative data from the final open-ended question were analyzed thematically. The responses were manually segregated into two distinct themes, i.e., cons outweighing pros of predictive text technology and over-reliance hindering students' innate mechanical skills. No thematic analysis tools have been used in this regard.

5. Results

5.1 Quantitative Data

The figures below are the pie charts displaying the visual results of the students' answers.

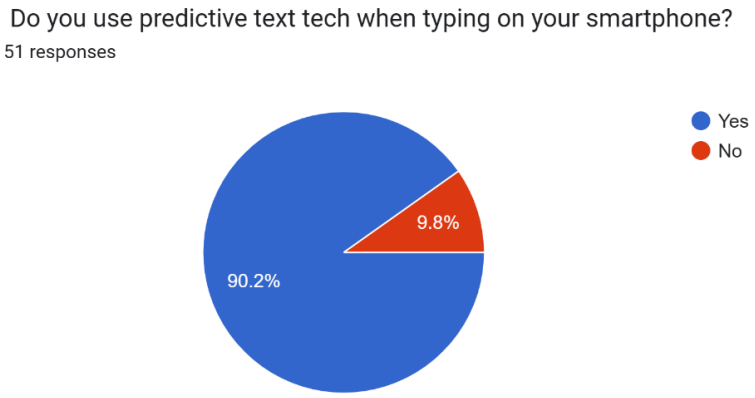

Figure 1. Participants' Familiarity with Predictive Text Technology

As Figure 1 demonstrates, an overwhelming 90.2% of the participants use predictive text technology while typing on their smartphones. The small 9.8%, who denied using this technology, was a surprising find since, at that point, it had been assumed that all university students

in Bangladesh had access to smartphones and were habituated to the use of these tools when communicating with others. Nevertheless, this validates the claim that most, if not all tertiary-level students are used to this technology. While the said technology was thoroughly explained in the survey, it is always possible that misunderstanding or dishonesty was involved.

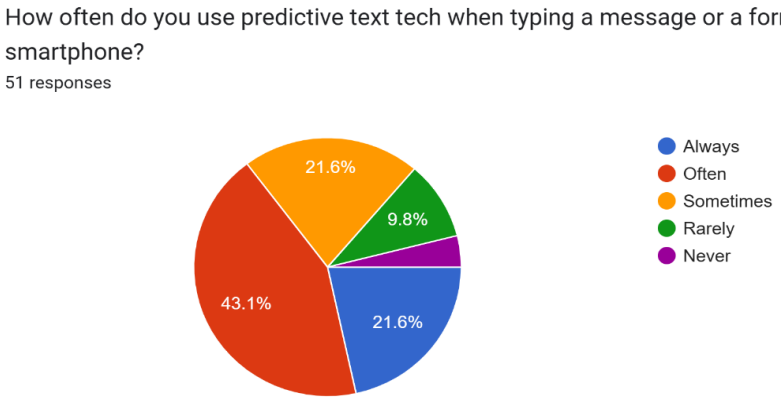

Figure 2. Frequency of Usage

As the chart shows, the majority, approximately 43%, use it quite often. Those who use it always are tied with those who use it sometimes at 21.6%, while a small 9.8% rarely use it. The remaining, as seen in the previous figure, are not familiar with this technology at all. Like Figure 1, this also demonstrates that 96%—an overwhelming majority of respondents—are at least familiar with this technology, which is expected of individuals in this particular group in Bangladesh.

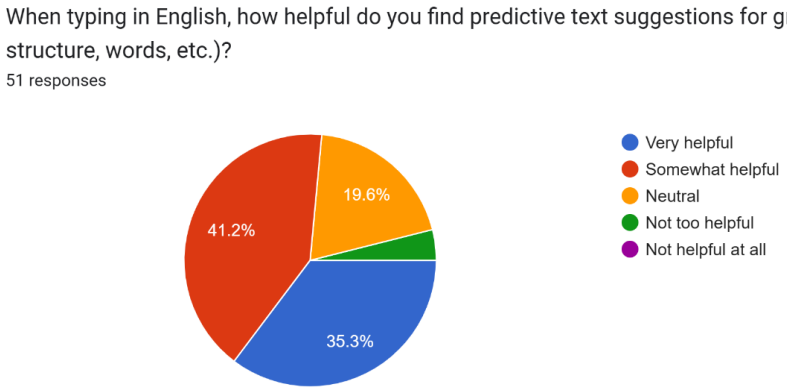

Figure 3. Usefulness

As can be seen in Figure 3, the majority (41.2%) find the suggestions somewhat helpful, while close behind, at 35.3%, are those who find them very helpful. 19.6% of the participants are neutral. So far, the answers have been well within expectation, save for Figure 1. Nevertheless, the fact remains that the majority of participants strongly prefer to use predictive text suggestions while texting, both for accuracy and for efficiency.

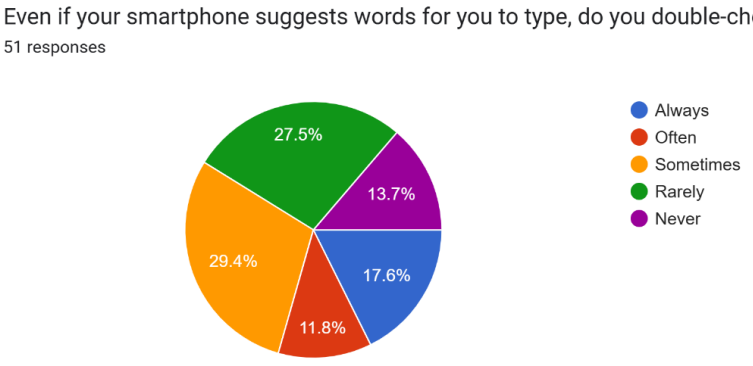

Figure 4. Ensuring Linguistic Precision

As Figure 4 shows, the majority (29.4%) sometimes proofread their texts. After that, 27.5% do so rarely, and a small 17.6% do it all the time. The smallest group is those who do so often, ranked at 11.8% of all participants. This suggests that very few are truly conscious of spelling

accuracy while texting. Most people do so either sometimes or rarely, demonstrating just how reliant users are on their phones' predictive and corrective text functions. It also shows how people favor speed over correctness while texting.

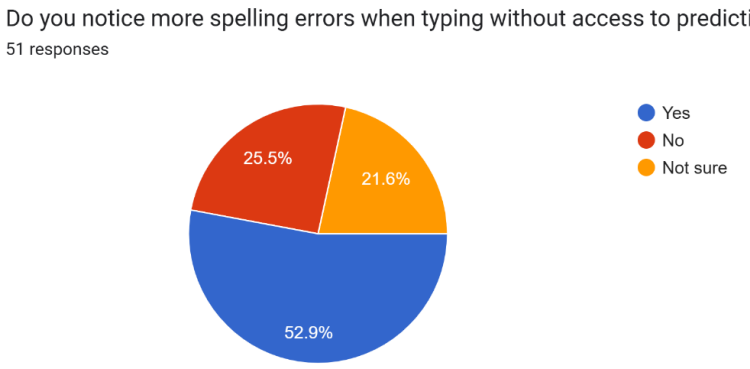

Figure 5. Students' Ability to Notice Errors When Not Using the AI Tool

As the chart in Figure 5 shows, 52.9% of the participants can notice that they are committing more spelling mistakes when writing without access to the predictive text suggestions, while 25.5% do not notice any errors. Finally, 21.6% of them are not certain. This directly supports the hypothesis of the present study. Even those who claim to be uncertain demonstrate a lack of awareness of this issue. Overall, it demonstrates the severe consequences of excessive reliance on predictive text technology.

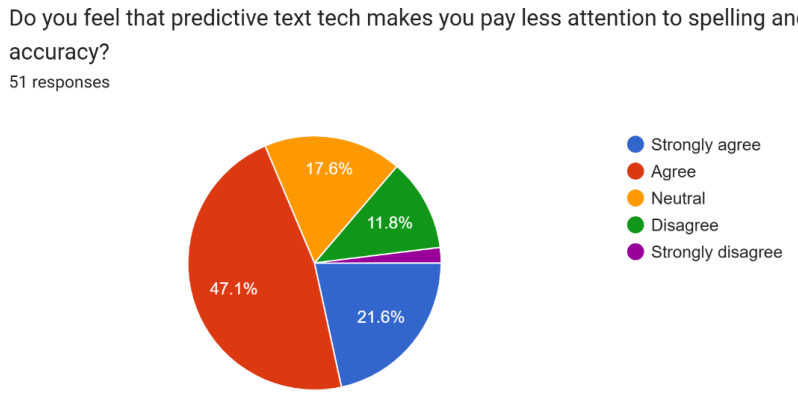

Figure 6. Negligence Towards Grammatical Accuracy While Using Predictive Text Tech

As seen in Figure 6, 47.1% agree with the fact that these tools make them quite careless when it comes to linguistic precision. 21.6%, on the other hand, agree strongly. 17.6% remain neutral while 11.8%, a minority, actually disagree. Only 1 participant strongly disagrees. The majority of the participants here reinforce the notion that overreliance on this technology makes people less conscious of spelling and syntactic accuracy. They simply prefer the digital form of text where such issues can be corrected by the device itself, sparing them the extra load of ensuring spelling accuracy and coherent sentence structures.

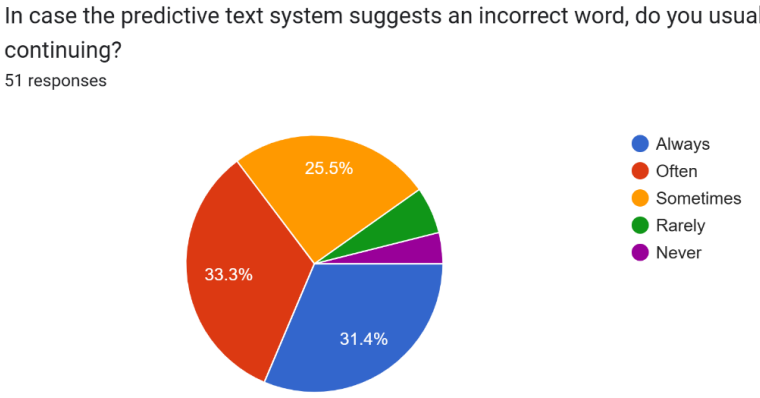

Figure 7. Students' Ability to Notice and Correct Errors Made By the System

As demonstrated by Figure 7, 33.3% often correct the errors made by the system. 31.4% do so always, while 25.5% only do so sometimes. This particular figure demonstrates, at the very least, that people are somewhat conscious of spelling accuracy in their texts, though

the overwhelming majority prefer a balance between correct spelling and texting speed. The number of people who favor accurate spelling over efficiency is, nevertheless, significant.

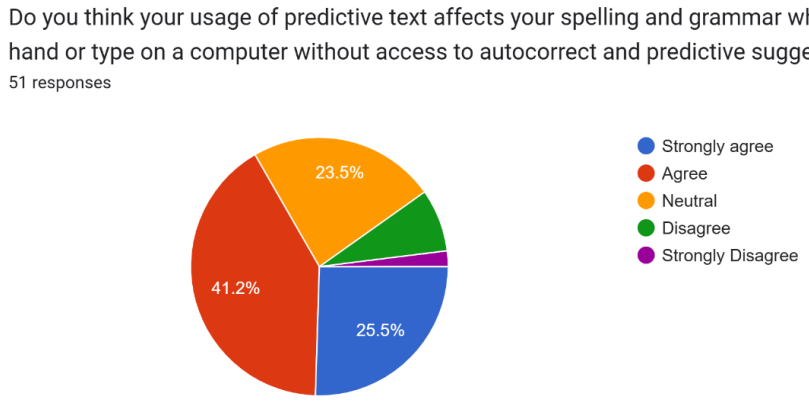

Figure 8. Students' Assessment of Their Writing Skills Without Access to the Suggestions

Figure 8 shows that 41.2% agree that their reliance on predictive text technology affects their ability to write or type when they do not have access to such technology. 25.5% strongly agree with this, while 23.5% remain neutral. This, too, reinforces the hypothesis of this study. The majority at least agree that their usage of this technology affects their writing skills, be it positive or negative, something that is clarified in the open-ended question.

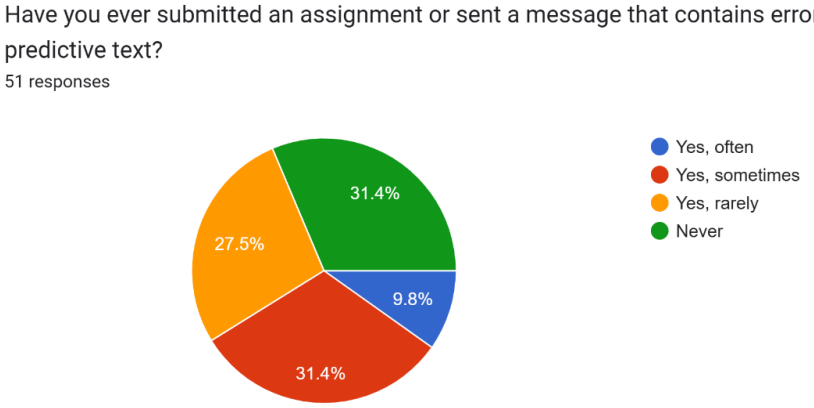

Figure 9. Submission of Formal Texts with Errors Made by Predictive Text

As Figure 9 demonstrates, the plurality (31.4%) only sometimes check if they have ignored any errors made by the system. They are tied with those who never check for such errors. Only a small 9.8% often check for such mistakes. This certainly reinforces the hypothesis. It suggests that more often than not, people ignore the issues of spelling errors caused by predictive text technology, preferring speed. This can, of course, be explained in situations where a student is pressed for time and must submit work as soon as possible. Nevertheless, there is also a not insignificant number of students who report having consistently prioritized correct spelling and grammar before submitting assignments.

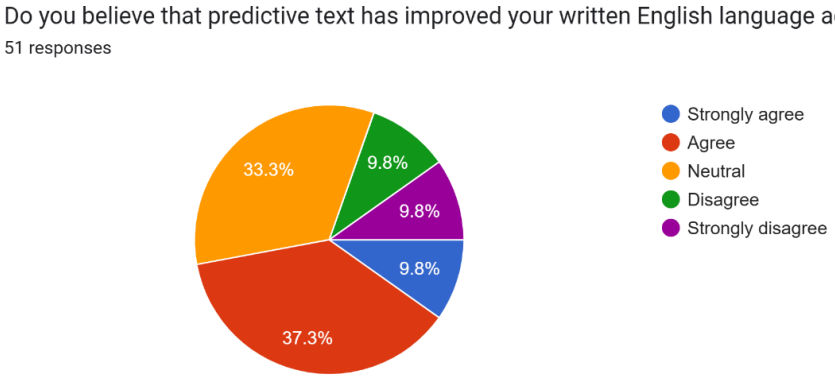

Figure 10. Students' Perception of Their Improvement in Second Language Acquisition

Figure 10 displays a small 9.8% who strongly agree that the predictive text system has improved their proficiency in English, while 37.3%

agree and 33.3% are neutral. Those who disagree and those who strongly disagree are surprisingly tied with those who strongly agree. Having said that, it must be noted that the overwhelming majority at least agree that this technology has been beneficial to them. This questions the validity of the hypothesis.

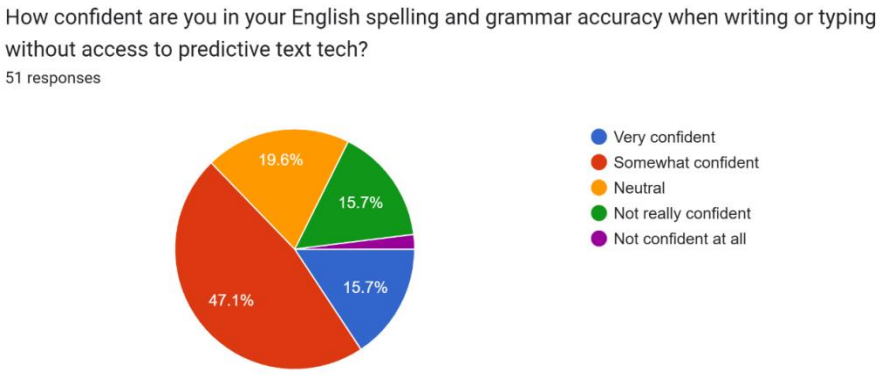

Figure 11. Students' Confidence in Writing Without Access to Predictive Text Technology

As depicted in Figure 11, 47.1% are somewhat confident in their actual spelling and grammatical accuracy, while 19.6% are neutral. Once again, those who are not particularly confident are tied with those who are very confident at 15.7% each. The confidence of the overwhelming majority is somewhat shaky, while very few have complete faith in their writing skills. Yet, an equal number of participants claim that they have very little confidence in their writing skills, an issue that must be addressed.

5.2 Qualitative Data

The open-ended question of the survey questionnaire enquired students regarding how this technology affected the users' writing skills. Based on the responses, two specific themes emerged, which have been depicted below in greater detail-

5.1.1 Cons Outweighing Pros of Predictive Text Technology

In this section of the survey, the student participants discussed both the positive and the negative outcomes of using predicted text technology; however, they focused more on the negative aftermath. The participants reported that, although predictive text technology has helped them greatly in terms of becoming efficient, they believe it would do more damage than profit in the long run. The following quotes are from those who claim that predictive text technology has been more harmful than beneficial.

1. "It has negatively affected as in some words that I could spell effortlessly now I have doubt whether I am using the right spelling or not. However predictive does help me type faster so there's that [.]"
2. "My usage of predicted text made me lazy about actually putting effort on my english typing skills [.]"
3. "It helps me but also without it I face some lackings [sic] while writing [.]"

5.1.2 Over-Reliance Hindering Students' Innate Mechanical Skills

The student participants highlighted over-reliance on predictive text technology as a major concern. According to the participants, students' inherent ability to maintain the mechanics of writing, such as following grammatical norms and accurate spelling, is gradually deteriorating. The following three quotes are from students who seem to be comparatively conscious of spelling and grammatical accuracy:

1. "Predictive text helps to improve my spelling yet I believe our practice should be more self-oriented i.e. we should reduce the dependency of using predictive text system."
2. Predictive text offers both benefits and drawbacks. On the positive side, it can improve spelling accuracy by suggesting correct forms and reduce typos/basic grammatical errors through autocorrect, leading to cleaner communication. However, a significant downside is the potential for over-reliance, which can weaken a user's internalized spelling and grammar knowledge and discourage thorough proofreading. While it aids efficiency, it might also propagate subtle errors if unchecked, ultimately impacting the user's independent mastery of written English.
3. Predictive text helps me type faster and saves time when I'm in a rush. It often fixes my spelling errors before I even notice them. Sometimes, it suggests better words that make my writing clearer. It also makes texting easier, especially when I'm tired or distracted. But I've started to rely on it so much that I forget basic grammar rules. There are times it changes my words to something I didn't mean. I notice I reread my messages less because I trust the suggestions. It struggles with informal speech or creative expressions. Sometimes, it makes me lazy about punctuation or full sentence structure. Overall, it's helpful, but I try not to let it do all the thinking for me.

As the findings above demonstrate, there is a diverse range of students with a variety of experiences with predictive text technology. There are those who say that they have gained greater speed in communication at the expense of their spelling accuracy. Some believe it

has actually improved their writing skills, and those who believe it has had no impact on their writing to any extent. Lastly, there are those with somewhat detailed and astute answers regarding the benefits and dangers of using predictive text technology based on the participants' own perspectives and individual experiences.

6. Discussion

The results of this research demonstrate that the hypothesis that predictive text technology is completely harmful is false. However, it is also true that it is not being utilized properly, much to the detriment of its users. The participants' responses demonstrated greater diversity of opinions than was expected when the questionnaire was distributed.

The findings display widespread use of predictive text technology among tertiary-level students of Bangladesh, even in academic settings. A minority of students prefer to rely on their own linguistic competence, whereas the majority have integrated this technology into their writing practices. This suggests that predictive text technology is not merely a convenient tool for students in their everyday communication.

Most of the respondents believe that predictive text technology is useful; however, the extent varies from completely unnecessary to utterly indispensable. Nevertheless, it shows that they have come to see this technology as something that enhances efficiency in communication.

Having said that, it should be considered that this may indicate increasing confidence in technological assistance over personal linguistic skills. Similarly, Roa and Halim (2024) cautioned against integrating AI tools in the context of L2 academic writing. Subsequently, the current study found that student participants believed predictive text technology to have a substantial detrimental influence on a student's innate writing skills.

The results, furthermore, show a paradox already seen in previous studies: the students are aware of the usefulness of this technology, as well as the cost of overreliance (Ismael et al., 2022). A group of participants claims to consistently correct errors made by the system, while another group claims to at least notice and try to correct these mistakes. A large number of people notice significantly more errors they make when writing by hand, and claim that this technology has reduced their attentiveness to spelling and grammar. One participant stated that the cost is justified by increased typing speed; however, this response may suggest resignation.

Moreover, the student participants expressed their concern with regard to becoming excessively reliant on predictive text technology. The participants reported this to be particularly harmful to their inherent sense of grammar and spelling, in that this sense is gradually weakening due to constant use of predictive text technology. This finding is mirrored in the study of Ismael et al. (2022), where the researchers found that over-reliance on predictive text technology does have a negative effect on a student's own writing skills, especially when it comes to spelling and grammar.

According to Yao and Fan (2025),

> The integration of AI tools fundamentally alters the cognitive load profile of L2 writing. According to Cognitive Load Theory (CLT) (Sweller, 1988), effective learning occurs when cognitive resources are optimally managed. While AI has the potential to reduce the intrinsic cognitive load associated with linguistic production, it may also introduce new forms of extraneous and germane cognitive load related to human–AI interaction. (p. 2)

This concern is particularly relevant for learners from Bangla-medium backgrounds. As evidenced in a present mixed-methods study of 146 students and 15 teachers at the higher secondary level in Bangladesh, students already struggle with limited English exposure, low confidence, rigid curricula, and resource constraints across speaking, writing, reading, and listening domains (*Islam et al.*, 2025). In such contexts, excessive reliance on AI-assisted writing may further reduce germane cognitive load and weaken schema development in spelling, composition, and grammar. Moreover, poorly designed predictive text interfaces may impose additional extraneous cognitive load by generating irrelevant or misleading suggestions, potentially exacerbating existing linguistic and cognitive challenges rather than alleviating them. A majority agree that predictive text technology has, at the very least, affected their conventional writing skills—an outcome that was expected given the time period and the country. Very few participants regularly check for AI-generated errors in their assignments and messages, and they are significantly outnumbered by those who do not check at all. Macnamara et al. (2024) studied this issue of blind dependence on AI:

> AI tools are unquestionably beneficial in many respects (e.g., improved diagnostic accuracy, fewer human errors). However, a concern is that there may be downsides for the people using them. In particular, if the AI routinely aids performance at a high level, even well-trained experts may gradually lose their task-based cognitive skills, instead relying on the AI to render decisions. Additionally, it may be that trainees do not build their own cognitive skills at the task effectively when the AI serves as a learning aid. Further, because AI tools are likely to enhance performance and make the task feel easier, learners may be less able to judge the true status of their skills and experts may be unaware of their deteriorating skills, resulting in performance degradation when relying on the AI is not optimal. (p. 5)

The quote above clearly demonstrates the inevitable problems of skill atrophy due to lack of use. A large number of people agree that their linguistic proficiency has been improved by the system, though the equality in the proportions who strongly agree and strongly disagree was quite surprising. This trend is observed among individuals who are either highly confident or not very confident in their traditional writing skills, while the majority report only moderate confidence. Their answers to the open-ended questions—the majority of them, that

is—demonstrated an unexpected level of awareness regarding the problem this paper discusses. It proves that in spite of widespread reliance, students are struggling with the dilemma of balancing personal responsibility for accuracy against technological assistance.

7. Conclusion

This research investigates how predictive text technology affects linguistic precision among university students in Bangladesh. The results—both survey data and the relevant literature review—do not support the hypothesis of an overall negative effect. Instead, they reveal a unique situation in which users of such technology are reliant on it while being fully aware of the cognitive cost. There are participants who insist on being diligent when it comes to ensuring correctness in typing while using this technology, especially when it makes errors. However, they are a minority. This is especially true for handwriting. These results suggest that this technology does not only weaken people's personal ability to communicate by writing in a coherent manner; it reshapes their very cognitive engagement in writing. Current Cognitive Load Theory (CLT) models focus on how technological tools lower unnecessary cognitive load. This study shows that such tools can shift one's cognitive load in ways that reduce their involvement in essential tasks, i.e., error checking. Additionally, it provides specific evidence for Skill Decay Theory. Previous literature mainly discussed motor or procedural skills, whereas this study applies the framework to language proficiency in an EFL context. It noted a decline in attention to accuracy when users rely too heavily on automated systems. Hence, this adds to our overall understanding of how digital tools affect long-term retention of cognitive skills. Finally, these findings reveal that theories developed in Western contexts do not always apply neatly. Instead, they interact with local language expectations, educational demands, and technology access. In summary, this research adds valuable insights to theoretical discussions by illustrating how predictive text technology alters cognitive load, skill retention, and trust dynamics in language learning. It highlights that automated writing support not only changes how students write but also alters the deeper processes that influence writing development itself, and therefore, its influence relies not on the tool but on how it is utilized.

8. Implications and Recommendations

Since most students admitted that their attention to spelling and syntactic errors has been reduced and very few diligently maintain accuracy, both during typing and writing, it is recommended that EFL teachers, IELTS mentors, and university professors teaching introductory English language courses, integrate AI literacy in their writing instruction. Teachers can break students' habit of automatically and uncritically accepting predictive text suggestions by designing assignments that require critical evaluation and revision of predictive text outputs. This could address the issue of inattention to errors. There may also be a significant increase in in-class writing assignments during which students are strictly prohibited from using their smartphones.

Given that students have embraced AI and are using it in formal settings as well, curricula should acknowledge and integrate it rather than ignore its presence. Independent writing tasks and AI-assisted tasks can be assigned in combination, while learning outcomes should include the ability to critically analyze the AI-generated suggestions. Policies may be introduced to regulate the usage of such technology in academic settings, and teachers can be trained to guide students in handling AI-assisted writing tasks in classrooms.

Most, if not all, participants claim to notice errors made by the system, but only some claim to attempt corrections. This can be interpreted as indicating the need for tools that promote user engagement rather than passive acceptance. Systems can be designed with adjustable assistance levels, as well as features that encourage users to review suggestions.

9. Limitations of the Study

While this study provides insight into tertiary-level students' use of predictive text technology in Dhaka, several limitations must be acknowledged. First, although the sample of 51 students includes diverse academic backgrounds from five universities, it is relatively small and geographically limited. Therefore, the findings cannot be generalized to all tertiary students in Bangladesh or to users from different linguistic or socioeconomic backgrounds. Secondly, the study relies only on self-reported data, which can introduce issues like recall bias, social desirability bias, and differences in how participants understand the questionnaire items. Self-reporting cannot capture the subtle thought processes involved in writing or the unconscious effects of automation on attention and accuracy. Third, without actual writing samples or observational data, the study cannot objectively assess how predictive text impacts linguistic performance. Without analyzing real texts—whether created with predictive assistance or written without it—it is impossible to directly measure changes in spelling accuracy, syntactic complexity, lexical variety, or attentional patterns. This limitation also hinders the study's ability to connect participants' perceptions with actual behavior. Furthermore, since none of the participants mentioned any known physical or cognitive disabilities, the study cannot consider how predictive text might serve as an assistive technology for users with motor impairments, dyslexia, or other conditions. This limits the inclusivity of the findings and their relevance to broader discussions of accessibility. Lastly, the cross-sectional design does not allow for claims about causality or long-term effects. Longitudinal studies would be better suited to evaluate whether predictive text contributes to measurable skill decline or changes in writing habits over time.

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Authors' contributions

Dr. Miew Luan Ng and Sultanul Arefin made the major contributions to the study, including conceptualization, methodology,

investigation, data curation, formal analysis, and drafting the manuscript. Dr. Sukanto Roy, as the corresponding author, supervised the study, coordinated the research process, contributed to the interpretation of findings, and critically revised the manuscript. Prof. Walton Wider contributed to the study design, academic review, and overall refinement of the manuscript. Kishore Dhar contributed to proofreading, and preparation of graphs and charts. Sadekul Islam, Hasan Md. Mostafizur Rahman, and the other co-authors contributed to data collection, literature review, manuscript review, and editing. All authors contributed substantially to the work, read and approved the final version of the manuscript.

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