Potential Success in English Writing Skills Using Artificial Intelligence "Grammarly"

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Abstract: *"Grammarly" is a cloud-based typing assistant or artificial intelligence that checks for spelling, grammar, punctuation, coherence, interactivity, and other errors and replaces them with the appropriate responses. The purpose of the study is to investigate Bangladeshi students' perception of using Grammarly in their writing to explore AI's potential creditability in effective English writing learning. The participants of the study are 55 students enrolled in different undergraduate programs at Daffodil International University, Ashulia, Dhaka, Bangladesh. A random sampling technique was used to collect the sample from non-English department students. A questionnaire was developed to gather the information for this research. The study has been conducted through a mixed-method convergent design methodology. The study finds that the participants who use Grammarly or used Grammarly at some point in their lives have developed their writing skills after using Grammarly. The finding of the research strongly discloses the potential success of learning English Writing by using the Artificial Intelligence "Grammarly".*

Keywords: *Artificial intelligence, Grammarly, Learning, English writing*

Introduction

English is being taught as a compulsory subject in the national curriculum from Classes 1 to 12 in Bangladesh. Hence, Bangladesh has one of the world's largest primary second language (L2) English populations, with over 17 million students learning English (Hamid & Honan, 2012).

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Nevertheless, a number of experts have remarked that English has firmly established itself as a necessary component of the nation's sociocultural and economic life due to its extensive use for specialized purposes in education and research, trade, and international communication (ROSHID, 2014; Chowdhury, & Farooqui, 2011).

Moreover, the private and public universities in Bangladesh require a lot of English language proficiency from their students in order to comprehend class lectures, respond to class questions, "write examination answers" and communicate with professors (Sultana, 2014). Rumnaz Imam (2005) also adds that passing "written exams" is a requirement for graduating from Bangladeshi universities. Additionally, students must write in English that is grammatically correct and acceptable in order to get good grades. Hence, knowing English is really necessary for students in Bangladesh. But even though English is taught in schools from the primary to secondary levels, students' performance is still typically found to be relatively poor (Chowdhury & Kamal, 2014).

In that sense, technology can be an excellent tool to develop students' writing skills. Sivin et al. (2000) support the claim and say that technology develops students' self-concept and affects

their achievement positively. Watkins (2007) asserts that modern technology assists in enhancing students' classroom learning opportunities. There are numerous digital tools available to aid with grammar and other writing problems. But Grammarly Software is one of the best digital platforms as it is free, powerful and widely famous. Grammarly is an American-based Ukrainian technology that offers digital writing support. The web and application versions of this software are accessible via a laptop or smartphone. Grammar, wordiness, punctuation, spelling, use, style, and plagiarism can all be checked for in writing with Grammarly. In order to improve pupils' writing, Grammarly not only highlights writing errors but also corrects them (. Fitriana & Nurazni 2022). Fitriana and Nurazni (2022) claim that Grammarly is one of the tools available to students for checking their papers for grammar and other errors.

In this research article, the researcher attempts to analyze students' perceptions of their English writing success after using Grammarly. Some researchers have already conducted similar studies. The first study was carried out by Fitriana and Nurazni (2022) which demonstrates that Grammarly has both advantages and disadvantages. It was a qualitative study that focused solely on English department students. Ghufron and Rosyida (2018) conducted a study which found that using Grammarly software in EFL writing helps students reduce errors in terms of vocabulary usage (diction), language use (grammar), and mechanics (spelling and punctuation). This research used a quantitative approach with a quasi-experimental design. Lailika (2019) conducted yet another study by using a mix-method design and sought to ascertain students' perceptions of Grammarly usage. According to the findings of this study, participants believe Grammarly is extremely useful for students. All mentioned studies have common features, such as all studies collected data from only English department students. As well as, all of these studies have taken place in Indonesia's tertiary-level institutions.

Interestingly, in the Bangladeshi context, no related study is found from a general search on Google and Google scholar. Hence, this research article tries to discover the potential success of learning English writing through the artificial intelligence Grammarly. It focuses on non-English department students of Bangladesh as the majority of the previous studies were conducted on the English department students of Indonesia, ignoring students from other departments and other parts of the world. Therefore, this study will investigate the following questions:

1. What is Bangladeshi non-English Department students' perception of *Grammarly?*
2. How successful is Grammarly in developing students' writing skills?

Literature   Review

Importance of Writing

According to Nunan (2003), writing is an intellectual activity that involves discovering ideas and deciding how to convey and organize it into a statement and paragraph that is easy for people to understand. As well as, writing

enhances language acquisition and development because of the problem-solving aspect of writing and the attention paid by learners to writing acts (Manchón & Byrnes, 2014).

Moreover, according to Williams (2012), writing supports L2/FL language learning and growth at various stages of the language acquisition process due to many unique qualities of writing: First, the speed and durability of its record not only encourage authors to pay attention to linguistic forms and utilize newly acquired syntactic structures, but also place higher demands on writers for more precise linguistic forms to be used both during and after the production of their texts (Ravid & Tolchinsky, 2002).

Artificial Intelligence for Language Learning and *Grammarly*

Harris (2022) says artificial intelligence enables machines to mimic the capabilities of the human mind. As a result, AI is becoming more prevalent in daily life, from the development of self-driving cars to the proliferation of smart assistants such as Siri and Alexa. Consequently, many tech companies across multiple industries are investing in artificial intelligence.

Stevenson (2016) demonstrated that AWE (Automated Writing Evaluation), which works on artificial intelligence, can be a useful instructional tool in the writing classroom. O'Neil and Russell (2019) discovered that AWE helped low-performing writers by providing constructive feedback on their work. Similarly, Grammarly is powered by an integrated system that incorporates artificial intelligence rules, developments, and techniques such as machine learning, deep learning, and natural language processing (Fitria, 2021).

Moreover, Fitria (2021) adds that Grammarly is a complex artificial intelligence (AI), designed to interpret phrases written in English. Grammarly's team of computer linguists and deep learning engineers create cutting-edge algorithms that study the rules and latent habits of good writing by studying millions of phrases from academic organizations. It runs in the cloud rather than on the user's computer. All learners need an internet connection to use Grammarly to check their writing.

Grammarly has two pricing plans: premium and free. Grammarly Premium can detect mistakes in over 250 grammar rules. The premium service from Grammarly costs $30 per month (Grammarly Inc., 2022). The free Grammarly edition, on the other hand, has fewer features than the premium version. To utilize this application, users must first log in to this website using their email accounts. Following that, users upload their projects and obtain two scores. The first score is based on a percentage of correctness, while the second is based on the total number of errors found by the software. Grammarly categorizes errors into six groups: contextual spelling, grammar, punctuation, sentence structure, style, and vocabulary enrichment (O'Neill & Russell, 2019).

Error Analysis through Grammarly

In the 1960s, Corder developed the concept of Error Analysis, which has since been recognized by many linguists and researchers. Error Analysis involves studying and analyzing errors made by second language and foreign language learners. According to Corder (1981), Error Analysis is a method of researching and reviewing errors in language learning. Karim et al. (2018) explain that Error Analysis is used to identify incorrect forms produced by foreign language learners and to systematically analyze and define them.

Vidhiasi and Haryani (2021) state that the process of Error Analysis is still perceived as a demanding task, particularly when there is a large volume of written work to review. One possible solution to help educators with this task is the use of a computer-assisted Error Analysis (CEA) program. Grammarly is one of the CEA programs that is commonly utilized for this purpose. Grammarly is proven to be helpful to the teachers and students in conducting "Error Analysis".

Learning from Mistakes and Potential Success through *Grammarly*

According to Cyr and Anderson (2018), making a mistake during learning helps a person remember the correct information, but only if the error is close to the appropriate response. They assert *"Our research found evidence that mistakes that are a 'near miss' can help a person learn the information better than if no errors were made at all,"*

These findings might aid in enhancing education for both late-life learners and younger individuals. Numerous scientific investigations have revealed that when we make a mistake, we react more slowly the next time. This could be a sign that the brain is attempting to give itself extra time to avoid repeating the error. After an error, the ERN (error-related negativity) tends to be stronger, and the reaction in the subsequent round is more likely to be delayed (Overbye et al. 2019). Additionally, it has been discovered by researchers that if we make mistakes, we will learn from them and be less likely to repeat them in the future.

Ultimately, learning via mistakes is the most effective way to acquire new skills (Lyons, 2022). Holm (2022) claims that students often make errors in grammar, conventions of writing, punctuation, and sentence structure. In that sense, learning to recognize such errors can improve students' writing skills by avoiding common writing mistakes in the future. In this matter, the internet has been widely used as a "potential" tool for facilitating learning and processing information. It can encourage learners to change their minds to be the person in charge of their own learning (Kabilan & Rajab, 2010).

Grammarly is also an internet-based tool that can be very useful to students in order to identify their mistakes and eventually learn from their mistakes. According to Daniels and Leslie (2013), platforms and tools for grammatical checks like *Grammarly* and *Ginger are "such kind of tools can help us to be a better writer"* and are also a potential new source for research. According to their research, Grammarly is better in terms of minimizing errors in word usage (diction), language use (grammar), and writing style.

Fitriana and Nurazni (2022) claim that Grammarly has a beneficial effect on students because when they reread the works that Grammarly has edited, the students are unintentionally picking up new information. While using Grammarly to check their grammar, they can remember grammar concepts like punctuation, articles, and patterns and vice versa. Overall, Grammarly helps students more when it comes to correcting their grammar, especially those studying English education.

Research Methodology

This study used a convergent mixed methods design. A "Convergent Mixed Methods Design" is a one-phase design where both quantitative and qualitative data are collected and analyzed at the same time. Then, the analyzed quantitative and qualitative data are compared to determine whether the data confirm or contradict each other. (Creswell & Creswell, 2017).
In this particular research, the researcher asked closed-ended questions (quantitative data) and open-ended questions (qualitative data) at the same time to gather data. Then, the researcher compared both quantitative and qualitative data to determine if the data contradict or validate each other.

Sampling

The study tries to find out the effectiveness and the potential success of Grammarly in English writing. In this study, the participants are non-English department students enrolled in different undergraduate programs at Daffodil International University. The participants were 55 students who use/ used Grammarly. The purpose of selecting non-English department students is to find out the true potential effectiveness of Grammarly in developing English writing skills as the English language is not their major subject but they write their assignments, midterms, and final exams in the English language.

Method of Data Analysis

The quantitative data was collected through Likert scale questionnaires. And the questions were analyzed using Google sheets (online). For the qualitative data, every narrative answer was analyzed and interpreted by the researcher. In this study, the researcher analyzed qualitative data by using narrative analysis. Narrative analysis is a genre of analytic frames whereby researchers interpret stories that are told within the context of research and/or are shared in everyday life (Parcell & Baker, 2017).

Then the researcher analyzed both types of data and merged them together. After that, the researcher interpreted and discussed the merged data to support the research hypothesis.

Results and Discussion

The researcher distributed questionnaires to find out the answer to the research problems by identifying participants' perceptions regarding using Grammarly and their success in writing. It consisted of 12 close-ended questions and 1 open-ended questions. The quantitative data (12 close-ended questions) were collected through likert scale questionnaire. The participants gave their opinions on particular enquiry through five options that include, "Strongly Agree", "Agree", "Neutral", "Disagree", "Strongly Disagree".

The results of 12 close-ended questions in percentages are depicted in the following table 1 & 2. Table 1 shows participants perception regarding "Grammarly's Effectiveness as an Assistant" in percentages.

Items Grammarly's Effectiveness as a Writing Assistant	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. Grammarly is easy-to-use.	21.82%	49.09%	9.09%	18.18%	1.82%
2. The free version of Grammarly provides satisfactory service.	18.18%	43.64%	12.73%	23.64%	1.82%
3. Grammarly, helps/helped me find grammatical\ structural errors in your English writing.	18.18%	45.45%	10.91%	20%	5.45%
4. Grammarly suggests/ suggested me correct word spelling while writing something in English.	20%	43.64%	10.91%	20%	5.45%
5. Grammarly helps/ helped me to correct punctuation mistakes in my writing.	23.64%	43.64%	9.09%	21.82%	1.82%
6. Grammarly helps/helped me to use/write correct capitalization	21.82%	43.64%	7.27%	23.64%	3.64%

Table 1: Perceptions of students regarding Grammarly's effectiveness as an assistant

On the other hand, Table 2 shows participants perception regarding "Grammarly's effectiveness in learning English writing" in percentages.

| Items Grammarly's effectiveness in learning English writing	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. I learn from my mistake in English writing.	18.18%	49.09%	5.45%	20%	7.27%
2. I can use correct spelling of English words by myself after using Grammarly.	14.55%	49.09%	9.09%	12.73%	14.55%
3. I can use correct punctuation while writing by myself after using Grammarly.	14.55%	52.73%	7.27%	20%	5.45%
4. I can use correct capitalization in English writing using Grammarly.	12.73%	52.73%	7.27%	18.18%	9.09%
5. I can successfully write correct grammatical structure in the sentence after using Grammarly.	14.55%	49.09%	9.09%	21.82%	5.45%
6. Grammarly increases student's motivation and confidence to learn writing	16.36%	43.64%	25.45%	10.91%	3.64%

Table 2: Perception of students regarding Grammarly's effectiveness in learning English writing

The data (Items 1-12) are presented in clustered column graphs for better understanding the data and the result. The graphs show the responses of 55 participants in percentages on each options of the questions regarding Grammarly.
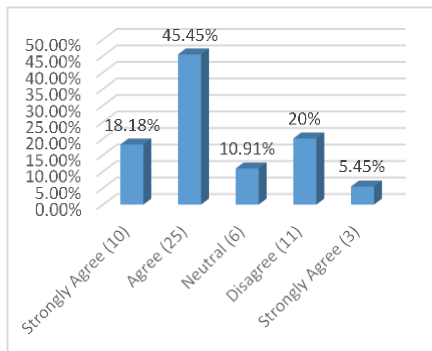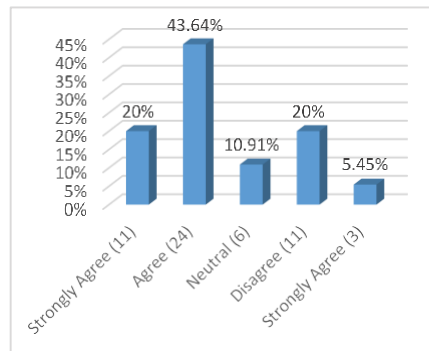
Graph 1: Grammarly is easy-to-use.
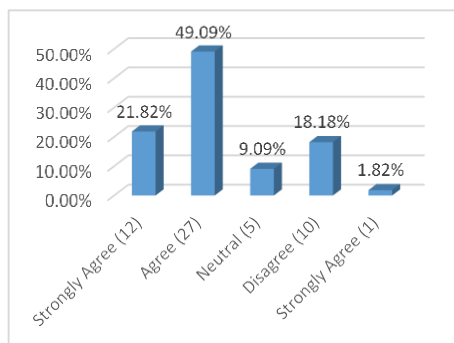
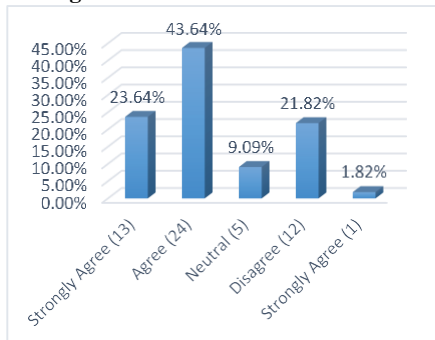**Graph 2: The free version of Grammarly provides satisfactory service.**
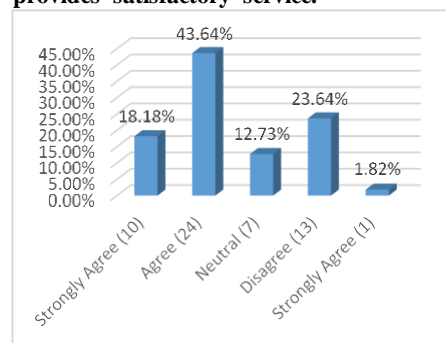
Graph 3: Grammarly, helps/helped me find grammatical\ structural errors in your English writing.
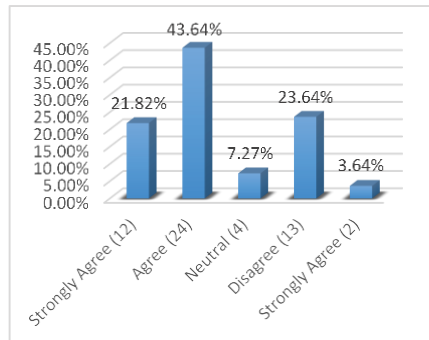
Strongly Agree (10): 18.18%
Agree (25): 45.45%
Neutral (6): 10.91%
Disagree (11): 20%
Strongly Agree (3): 5.45%

Graph 4: Grammarly suggests/ suggested me correct word spelling while writing something in English.

Strongly Agree (11): 20%
Agree (24): 43.64%
Neutral (6): 10.91%
Disagree (11): 20%
Strongly Agree (3): 5.45%

Graph 5: Grammarly helps/ helped me to correct punctuation mistakes in my writing.

Strongly Agree (13): 23.64%
Agree (24): 43.64%
Neutral (5): 9.09%
Disagree (12): 21.82%
Strongly Agree (1): 1.82%

Graph 6: Grammarly helps/helped me to use/write correct capitalization

Strongly Agree (12): 21.82%
Agree (24): 43.64%
Neutral (4): 7.27%
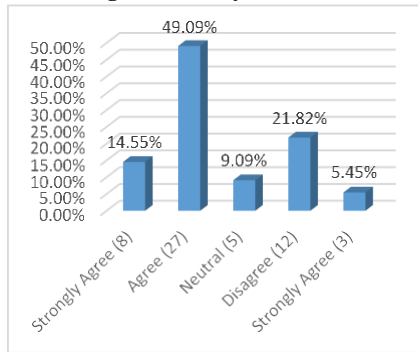Disagree (13): 23.64%
Strongly Agree (2): 3.64%

The graphs 1-6 present the opinions regarding "Grammarly's effectiveness as a writing assistant". Majority of the participants (Agree and Strongly Agree) find Grammarly easy to use (70.91%), and the free version of Grammarly provides satisfactory service (61.82%). Additionally, a majority of users found Grammarly helpful in finding grammatical errors (63.64%), suggesting correct spellings (63.64%), correcting punctuation mistakes (67.27%), and using/writing correct capitalization (65.45%).
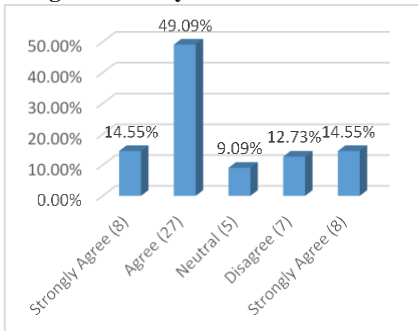
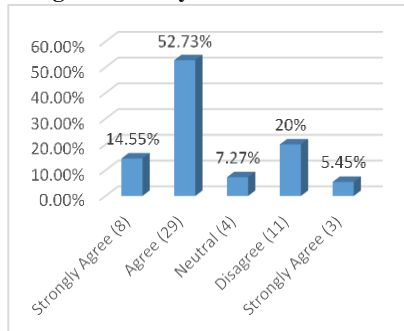**Graph 7: I learn from my mistake in English writing.**
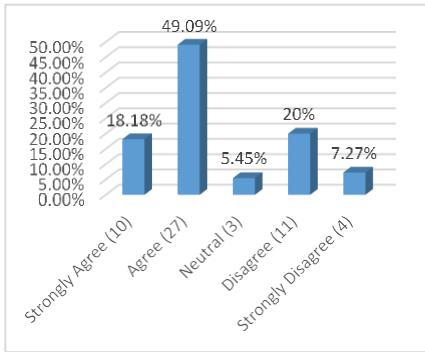
Graph 8: I can successfully write correct grammatical structure in the sentence after using Grammarly.
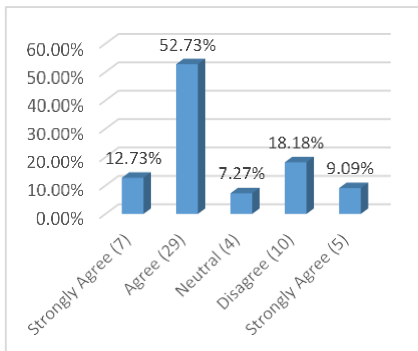

Graph 9: I can use correct spelling of English words by myself after using Grammarly.
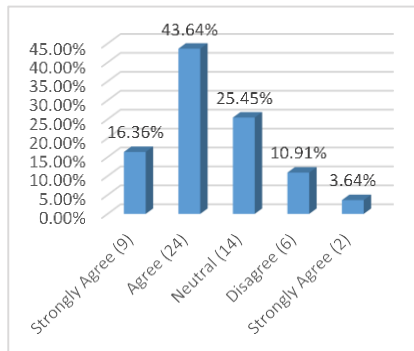

Graph 10: I can use correct punctuation while writing by myself after using Grammarly.

Graph 11: I can use correct capitalization in English writing using Grammarly.

Graph 12: Grammarly increases student's motivation and confidence to learn writing

The graphs 7-12 presents the opinions of participants regarding "Grammarly's effectiveness in learning English writing". Majority of the participants (Agree and Strongly Agree) learn from their mistakes in English writing after using Grammarly (67.27%), and the participants can successfully write correct grammatical structures in sentences after using Grammarly (63.64%). Additionally, a majority of participants (67.27%) found that after using Grammarly, they can use correct punctuation while writing by themselves. 65.45% of participants can use correct capitalization in English writing after using Grammarly. 63.64% of participants agreed or strongly agreed, indicating that Grammarly has been helpful in correcting their spelling mistakes and improving their writing. Total 60% of participants agreed or strongly agreed, indicating that Grammarly has been useful in motivating them to learn and improve their writing skills.

The results of the survey are further depicted in table 3 and 4. The last two columns of the table show the average means for the perceptions of students regarding Grammarly's effectiveness as an assistant, as well as perceptions regarding Grammarly's effectiveness in learning English writing.

Items Grammarly's Effectiveness as a writing Assistant	Mean	Agreement
1. Grammarly is easy-to-use	3.71	Agree
2. The free version of Grammarly provides satisfactory service	3.53	Agree
3. Grammarly, helps/helped me find grammatical structure errors in your English writing	3.51	Agree
4. Grammarly suggests/ suggested me correct word spelling while writing something in English.	3.53	Agree
5. Grammarly helps/ helped me to correct punctuation mistakes in my writing.	3.65	Agree
6. Grammarly helps/helped me to use/write correct capitalization.	3.56	Agree
Mean of the items 1-6	3.58	Agree

Table 3: Perceptions of students regarding Grammarly's effectiveness as a writing assistant

Table 3 contains 6 items regarding Grammarly's effectiveness as a writing assistant. According to the perception of the students, they agree that Grammarly is easy to use (3.71= Agree) and provide satisfactory service in

free version (3.53=Agree), As well as, the participants agree that Grammarly is effective in finding grammatical structure error (3.51=Agree), spelling mistake(3.53=Agree), punctuation mistakes (3.65= Agree) and capitalization errors (3.56=Agree). The average of the components shows that the perceptions of students regarding Grammarly's effectiveness as a writing assistant are positive (3.58 = Agree). They agree that Grammarly is effective as a writing assistant while writing in English.

Items Grammarly's effectiveness in learning English writing	Mean	Agreement
1. I learn from my mistake in English writing.	3.51	Agree
2. I can use correct spelling of English words by myself after using Grammarly.	3.36	Neutral
3. I can use correct punctuation while writing by myself after using Grammarly.	3.51	Agree
4. I can use correct capitalization in English writing using Grammarly.	3.42	Agree
5. I can successfully write correct grammatical structure in the sentence after using Grammarly.	3.45	Agree
6. Grammarly increases student's motivation and confidence to learn writing.	3.58	Agree
Mean of the items 7-12	3.47	Agree

Table 4: Perception of students regarding Grammarly's effectiveness in learning English writing

Table 4 also contains 6 items regarding the perception of students regarding Grammarly's effectiveness in learning English writing. According to the perception of the students, they agree that they learn from their writing mistakes (3.51= Agree) which is a very important approach in learning a language, as well as they agree that after using Grammarly they can successfully write correct grammatical structures (3.45= Agree), correct punctuation (3.51= Agree), correct capitalization (3.42= Agree), as well as participants, agree (3.58= Agree) that Grammarly increases students' motivation while writing correct English. But in the case of developing learning correct English spelling, the participants' perception is neutral (3.36= Neutral). In the end, the average of the components (7-12) shows that the perceptions of students regarding Grammarly's effectiveness in learning English writing are positive (3.47 = Agree). That means they agree that Grammarly is effective in learning English writing.

The result of close-ended questions is also supported by participants' narrative open-ended answers. Some of the answers to the students' perceptions in the narrative form are given below;

"Yes, Grammarly can develop students' writing skill. It can help students to learn English alone without any help. Moreover, it can show our mistakes while writing. We learn from our mistake, so it can unconsciously teach us better English writing."

"Good Software that everyone should use to correct their writing. It is easy to use and it helps students to learn from their mistakes."

"I usually use Grammarly when I write assignments and do chat with my friend online. I also use Grammarly when I write comments on social media. It helped to understand where I continuously make errors. After finding my habit of making grammatical errors, now I am well aware of my mistake, and now I can write better English than before. As well as I feel confident when I write with Grammarly."

"Grammarly shows my mistakes and I solve it, and therefore I learn from my mistake. My punctuation is better than before. Moreover, I use the right form of verbs correctly. It helps to write fast and smooth."

"It is fun to use because I learn a lot from this AI. My basic was good but not better. So, when I used to write I often used to make grammatical mistakes. But now as I write with the help of Grammarly, my overall English writing is developed. Best thing about this app is, it is free."

"I got help from Grammarly to improve my English writing. I can write complex and compound sentences now. Everyone with proper attention can develop their English writing."

The participants' perceptions regarding Grammarly are that Grammarly is easy and *"fun"* to use, and they also claim that their skills in language usage (grammatical structure, spelling, and punctuation) have developed and enhanced. Their remarks seem positive as they claim in both open-ended and close-ended answers that when their writing is corrected by the artificial

intelligence Grammarly, they *"learn"* from their "mistake" and it happens "unconsciously." They also agree that they use Grammarly to do social media chatting, academic assignments, and other things, and after using Grammarly they can identify their *"habit"* of common mistakes in English writing. That means the participants can do "error analysis" of their errors by using Grammarly. The participants claim that they have learned English writing from mistakes, as Grammarly repeatedly shows users' own mistakes while writing. According to their perceptions, they have developed their writing skills by understanding and identifying their common English writing mistakes, including grammatical structures, punctuation, capitalization, and spelling. As a result, they can train themselves to write correct English without the help of Grammarly in the future. The participants further claim that they successfully developed their writing skills by the help of Grammarly and feel confident enough to write in English language after using Grammarly. The participants also agree that they are now more confident in writing correct complex and compound sentences without the help of Grammarly.

Based on the open-ended and close-ended (qualitative and quantitative) results of this study above, all the research questions are answered. Both open-ended and close-ended answers have validated and conformed each other. The combined data have depicted that the positive perceptions of participants regarding Grammarly. They have claimed in open-ended and close-ended results that Grammarly is effective as a witting assistant and in learning English writing. Hence, the perceptions of Bangladeshi non-English Department students regarding Grammarly are positive in learning English writing.

Conclusion

Grammarly is an artificial intelligence that works as an English writing assistant. The hypothesis of this research tries to find out if Grammarly can be a successful tool for students to develop their English writing skills. After comparing both types of data and analyzing and discussing them, all the research questions are answered. The participants agree that Grammarly has successfully helped many of them improve their English writing skills. The result of this study also confirms Lailika's (2019) findings concerning students' positive perceptions toward Grammarly. The research identifies that

even though the students were not from the English department, they eventually developed their writing skills. The students claim that after using this artificial intelligence, Grammarly, they are capable and confident enough to write complex and compound English sentences. It proves that Grammarly has the potential to develop students' writing skills. As well as, all students, regardless of their departmental background, can successfully enhance their writing skills by using Grammarly.

The study was conducted for the first time in the Bangladeshi context. Hence, this research can lead other researchers to work on artificial intelligence and English language learning as this field is very potential and influential for Bangladeshi students of the modern age. This paper only identifies the perceptions of the students regarding Grammarly's potential success in English writing. In that case, other researchers can work on other aspects of language skills. Moreover, they can do experimental research to find out actual scientific data to identify artificial intelligence's influence and impact on English language teaching (ELT) and learning.

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