Utilizing Grammarly in an Academic Writing Process: Higher-Education Students' Perceived Views

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Abstract

This small-scale study looks into the English-Language-Education-Program (ELE) students' perceived views on using Grammarly as an automatic grammar checker in an academic writing process. It adopted a questionnaire instrument Novianti (2020) employed in her study. The interval scale average of 73.3% indicated that most students positively perceived using Grammarly in the academic writing process. They deemed that this application could help them revise their errors in the academic writing process, improve their academic writing, and boost their confidence in academic writing. On the other hand, some students negatively perceived using Grammarly in their academic writing process due to the nature of feedback this application offers. Furthermore, this study considered that factors that might have affected both views were associated with Grammarly's handy and practical use and non-contextual and irrelevant feedback. This study is a small-scale one, primarily investigating students' perceptions of the use of Grammarly application in an academic writing process. Future research can expand such dimensions as students' attitudes in using this application or the impacts of Grammarly on students' writing anxiety. Moreover, it can investigate students' perceptions of the use of the application in an academic writing process by employing different instruments and indicators of perception.

Keywords: *academic writing process, Grammarly, perception*

1. Introduction

To help Indonesian university graduates to take part in international communication, the Government of the Republic of Indonesia (GoI) regulates that English as a foreign language (EFL) has become a compulsory subject at higher education levels (GoI, 2003). At these levels, in this case, the university level, the objectives of learning EFL are to equip students with sufficient language-related dimensions: knowledge and listening, speaking, reading, and writing skills (e.g., Irwansyah, 2018; Senjahari et al., 2021; Zein et al., 2020). Indonesian scholars, including Iswati and Triastuti (2021),

Nuraziz (2018) and Susanto et al. (2020), argued that higher-education students are required to master these dimensions to become critical readers, fluent English speakers, and accurate writers. They will eventually be able to convey their spoken and written ideas and respond to others fluently, acceptably, and appropriately in actual communication acts relevant not only to their disciplines but also to any contexts (e.g., Emaliana et al., 2019; Weda et al., 2021; Zein et al., 2020).

Of the four language skills, writing in English has appropriately been considered the most complex and challenging skill for university lecturers and students (e.g., Mukorobin & Widyantoro; Nova, 2018; Srikandi, 2019). For lecturers, they should be able to provide instructional writing activities that allow their students to engage in actual communication settings rather than learning grammar in an isolation manner; therefore, the students are able to exchange their ideas fluently and appropriately, Faisal et al. (2021) and Srikandi (2019) claimed. They should scaffold their instruction that incorporates the simplest-to-the-most-complex writing practices (Iskandar, 2020; Nation & Macalister, 2020). Such practices should bring valuable opportunities for students to experience familiarization-to-free-writing practices (Hyland, 2021; Zhan et al., 2021) collaboratively and individually. Furthermore, they need to dedicate much time to offer their feedback attending both content, idea development, style, and coherence (Tian & Zhou, 2020; Zhang & Zhang, 2022) and grammatical and lexical (Eckstein et al., 2020; Zhang et al., 2021) issues constructively and comprehensively.

As the current literature has indicated, university students encounter vast writing difficulties ranging from micro to macro dimensions. The former concerns, but is not limited to, linguistic features, including grammar, vocabulary, and sentence constructions (Yan, 2016; Yu & Hu, 2017). In their study, Zein et al. (2019) found that some of their students kept using verb base forms, as in "He liked fishing, and he always does it..." (p. 204) in their narrative texts. Another issue they found was that the students utilized an inappropriate word to denote a particular meaning. Instead of utilizing 'propose', their students wrote 'apply for' in this sentence "The prince fell in love and want to apply for the princess" (p. 204). Another researcher, Karyutary (2018), identified that some students in his study encountered problems constructing passive voices. They either missed the verb to be or used verb base forms rather than past participles.

Macro dimensions involve content, idea generation and development, organization, and coherence (Yan, 2016; Yu & Hu, 2017). One of the most common issues university students encounter when they write any text is generating ideas, Bulqiyah et al. (2021) and Nugraheni and Basya (2018) claimed. Their investigations concluded that such an issue derived from their students' insufficient repertoire of English linguistic and topic-related knowledge. Setyowati (2016) found that the students were able to construct pertinent thesis statements for their essays. Unfortunately, in most of their written work, the ideas were underdeveloped, as evidenced by lacking relevant examples given to support their arguments. Ariyanti and Fitriana (2017) and Toba and Noor (2019) share one observation in common that some students participating in their studies had problems applying suitable transitional devices to link ideas in one to other sentences, thus making their paragraphs less organized coherently.

In the Indonesian education context, lecturers and students have employed a number of ways to cope with the encounters described above. The lecturers have utilized both conventional and information-and-communication-technology-based (ICT) strategies. The former refers to the utilization of non-ICT strategies and includes, for example, collaborative writing activities which helped their students write grammatically correct sentences and use linking devices suitably, and eventually, their texts' cohesiveness and coherence improved (Anggraini et al., 2020; Winarti & Cahyono, 2020). Mnemonic devices (Erniwati et al., 2022; Faisal & Wulandari, 2013) and particular writing models like Toulmin and flash fiction (Setyowati, 2016; Sundari & Febriyanti, 2021) have been helpful in assisting students to organize and develop ideas. In addition, provisions for writing task manipulations were said to have enhanced students' grammar and idea organization and development, claimed Hamka (2021) and Suwartono and Oktavia (2019).

Lecturers and students have used such ICT-based strategies as computer- and mobile-assisted-language-learning applications in their writing activities. Nurhayati (2022) asserted that utilizing online proofreading tools was considered helpful in guiding her students to write their texts coherently and maintain writing integrity. Other lecturers made use of social media in mobile apps like Instagram (e.g., Anggita et al., 2021; Saleh & Muhayyang, 2021) and Facebook (Fithriani et al., 2019; Sakkir & Dollah, 2019) to enhance their students' idea development. Web-based-language-learning pages, including Purdue Online Writing Labs, are thought to be valuable sources for using pertinent phrases and clauses in academic contexts, argued Meysarah (2018) and Walisundara (2020).

To date, language educators and learners have witnessed various cutting-edge and innovative ICT-based tools offering evaluative correction and diagnostic feedback during writing (e.g., Hockly, 2019; Lorena & Ximena, 2019). Furthermore, they have benefited from such applications providing both scoring and evaluation of their writing (Palermo & Wilson, 2020; Yao, 2021), referred to as automated writing evaluation (AWE, henceforth). In this regard, AWE is a computerized-based checking system that could detect mistakes like subject-verb agreements and punctuations and suggest alternative and relevant corrections (Lailika, 2019; Nova, 2018; Nunes et al., 2022; Zhang, 2020); therefore, students' writing accuracy increased (McCarthy et al., 2022; Saricaoglu & Bilki, 2021). With its real-time holistic and corrective feedback provisions, it has been deemed to have helped students to organize and develop their ideas and, eventually, they improved their fluency in writing any texts (Fahmi & Cahyono, 2021; Saricaoglu & Bilki, 2021; Wang & Li, 2019; Wilson et al., 2021).

Since 1960, some AWEs have been designed and developed for educational purposes, primarily grading, and generating feedback for students' written work in the context of English as a second and foreign language. 'Grammark', for example, is a recommended AWE that Ecuadorian higher-education lecturers and students have applied in their writing instructional activities (Lorena & Ximena, 2019). In China, 'Pigai' was an AWE considered to help Chinese EFL university students boost their writing accuracy and fluency (Li, 2021; Yao, 2021). Other popular tools in the English-language-teaching (ELT) field include English Testing Service's 'Criterion', Cambridge English's 'Write&Improve', and Pearson's 'WriteToLearn' (Hockly, 2019). English language users and learners have been fascinated by Grammarly, from Grammarly.Inc. for its enormous merits.

Maz Lytvyn and Alex Shevchenk designed and developed Grammarly in 2009 to help writing processes. Grammarly (2022) claimed that this application could give a real-time interface for the users. The users can download the Grammarly application for Windows and Mac. Grammarly offers browser extensions for users to easily access Grammarly from any website, including Google, Docs, Medium, and Twitter. Everyone can use the Grammarly application to help their writing process. Cavaleri and Dianati (2016) asserted that Grammarly has two primary types. First, Grammarly's free version offers grammar, punctuation, spelling checkers, and sentence structure and style support. Second, Grammarly's premium version, for which its users should pay USD 139.95 a year, offers checks of an additional 150 grammar points, plagiarism detection, selects paper types to improve the accuracy of the feedback, vocabulary enhancement suggestions, and provides contextual spelling feature, and gives users a score about their writing.

Lailika (2019) argues that Grammarly's users can benefit from using it based on the explanation above. First, Grammarly offers direct and indirect feedback. Second, it could revise grammatically incorrect phrase and sentence constructions and provide necessary suggestions. Third, the users can increase their confidence in writing by checking their writing mistakes. However, Grammarly has also potential disadvantages despite its beneficial aspects, Lailika (2019) suggests. First, the feedback Grammarly offers is not always relevant to a particular context. Second, any names, titles, and articles on the reference list are not editable. Third, Grammarly requires an internet connection which is often sufficiently costly for students (Hakiki, 2021).

Due to its virtues and shortcomings briefly elaborated in the preceding paragraphs, higher-education students may distinctly perceive the usefulness of Grammarly. This study aims to investigate

the perceptions of the fourth-semester English-language Education Program regarding the use of Grammarly in their academic writing. To approach the aim, this study formulates its research question: "What are the perceptions of the fourth-semester students of the English Language Education Study Program at a private, faith-based university in Central Java on using Grammarly as an automatic grammar checker in an academic writing process?"

2. Literature Review

This section provides theoretical underpinnings relevant to the study. It comprises theories of perceptions, Grammarly as an automatic grammar checker, and the concepts of academic writing.

2.1 Perception

Perception has been of interest to countless scholars from such fields as social psychology and language learning. Roeckelein (2006), for example, defined perception from a psychological perspective as a process pertaining to the ways behaviors underpin humans' views and understanding of others' personalities and characters. Solomon (2019) explained that perception refers to how individuals make meaning through comprehending and interpreting stimuli. Perception is an excitatory stimulation provided to the human brain, consciously or unconsciously, by a sensor of the senses, Nurohman (2018) asserted. In Otara's (2011) view, perception represents the human sensory experience of the world around itself, including the awareness of environmental stimuli and one's decisions in response to them. On the whole, from the view of psychology, perception primarily concerns a particular process affecting persons to perceive and respond to stimuli.

Particular to language learning dimensions, perception is defined as what humans feel and view on the basis of their surroundings and knowledge; hence, an individual may differently interpret and respond to a stimulus from others (Jerald & Shah, 2019). Jerald and Shah (2019) further stated that perception refers to a natural process of gaining understanding or acquiring knowledge regarding an objective world. Perception is a sensitive process that begins with a desire to see and understand the world around people (Latif & Sahla, 2018). Furthermore, perception involves selecting, receiving, organizing, and interpreting information from the outside environment to make it meaningful to humans (Talis et al., 2018). The perception of the same senses can differ from one human to another because each human's brain interprets stimuli differently depending on their learning, memory, emotions, and expectations (Lailika, 2019).

Scholars have proposed their conceptions concerning perception indicators. Wozniak (2011), a psychologist, suggests two potential indicators of perceptions – bottom-up and top-down processes. The former refers to identifying stimuli through information processing from external stimuli. The receptor level initiates the process, progressing to the relevant brain parts. The latter relates to a process incorporating the identification of a stimulus pertinent to relevant one's background knowledge. In other words, what one has already understood or experienced. In general management, Robbins (2018) argues that perception indicators include acceptance, understanding and evaluation. The term 'acceptance' concerns a person accepting any information through her visual, auditory, touch, taste, or sense. 'Understanding' pertains to how she perceives information based on her background knowledge; hence, her views about the information could differ. In this respect, 'evaluation' is how one underpins her evaluation and assessment of a stimulus by her existing knowledge and experience. As such, this leads to diverse views that may impact her evaluation and assessment towards a stimulus.

In the Indonesian education context, Walgito (2004) pointed out that three factors can influence one's perception. The first is the perceived object. Objects can produce stimuli related to the sense organs and receptors. Although the stimulation can come from within each individual, most of the stimulation comes from outside. The perceived object serves as a stimulus. This study related perceived objects as stimuli indicators to Grammarly in this research. This factor helped the study to design and

construct the questionnaire's items regarding Grammarly as students' stimulation perception of an automatic grammar checker. For example, to know students' perceptions of whether Grammarly is useful for writing.

The second indicator is the sense organs, nerves, and central nervous system (Walgito, 2004). In addition to the senses or receptors to receive stimuli, sensory nerves are also needed. Sensory nerves function to transmit the received stimulus to the brain. This study used this indicator to design and develop the questionnaire's items regarding students' frequency of Grammarly usage in their academic writing activities. In this respect, to investigate whether students use Grammarly as a grammar checker tool in their writing process.

Thirdly, attention to assessment concentrates all individual activities on something or a collection of objects (Walgito, 2004). This study linked attention to assessment to the student's perception of the effectiveness of Grammarly in improving students' academic writing. Furthermore, the study utilized this indicator to map out the questionnaire's items. For example, to know whether using Grammarly is helpful for students' writing process.

This study, in particular, underpinned its theoretical basis to design its questionnaire by the indicators of perception Walgito (2004) coined for the following reasons. First, the three indicators encompass a complete process of perception incorporating absorbing a perceived object, interpreting through sense organs, and assessing meaning (Abidin & Suryani, 2020; Lindawati et al., 2022); hence, such a process helps to guide the questionnaire design and development. Secondly, the indicators enable the researchers to elaborate on how individuals arrive at their perspectives and how a similar stimulus may affect each individual's perceived views differently (Faisal & Putri, 2023; Sentika & Arissaputra, 2021).

2.2 Academic Writing and its Process

Oshima and Hogue (2007) explained that academic writing differs from such writing forms as creative writing and personal writing. In this respect, academic writing has some prominent features. First, a writer has to write any texts formally, requiring her not to use, for example, slang expressions and ill-constructed sentences. Second, when writing academic texts, she must construct succinct topic sentences with their germane supporting details cohesively. Finally, she is required to organize each paragraph coherently.

Irvin (2010) explained that academic writing is a writing activity for educational purposes that require a writer to possess sufficient and pertinent writing knowledge and competence to demonstrate mastery of specific academic thinking, interpretation, and presentation skills. She should also have appropriate skills, including research, reading complex texts, understanding key disciplinary concepts, and strategies to analyze and respond to new information. Based on the definitions of academic writing above, academic writing is a process of expressing thoughts in a written format for educational purposes.

Not only does academic writing have only a one-step action; it also requires multiple-and-graded step actions. Oshima and Hogue (2007) divided the writing process into four steps – prewriting, organizing, writing, and polishing. Firstly, prewriting is the step in which a writer should choose a topic and collect ideas to explain the issue to be elaborated on. In this step, she could think of topics, ideas, or issues and then lists words or phrases from her ideas on paper or any word processor. The second step is organizing, which refers to managing ideas from the first step into a simple outline. A writer is suggested to create an outline that contains relevant contextual words or phrases that she gets from the first step.

Writing is the third step, where she starts writing drafts based on her outlines as a guide. In this step, she should put the ideas down on paper and develop the previous steps with contextual words or phrases. The fourth step is polishing and has two stages: revising and editing. Revising is a process in

which a writer should change significant issues regarding content and organization. Editing is concerned with fixing such minor issues as grammar and mechanics.

In particular, this study based its theoretical framework on designing the questionnaire on the principal features of the polishing steps with its revising and editing stages. In this step, English-as-a-foreign-language (EFL) students can use automatic grammar checkers like Grammarly to check their writing. The following section will elaborate on Grammarly, its merits and drawbacks, and previous studies regarding the use of Grammarly in various research settings.

2.3 Grammarly as an automatic grammar checker

Grammarly is one of the AWE programs available online that Lytvyn and Alex Shevchenk created in 2009 (Pratama, 2021). Grammarly specifically utilizes artificial intelligence and advanced algorithm to assist its users in upgrading their writing proficiencies and producing high-quality written texts in various contexts (Fahmi & Cahyono, 2021; Khoshnevisan, 2019). Currently, it has been accessible as desktop and mobile apps and as a browser extension, offering many conveniences for its users to access and utilize whenever and wherever they write (Barrot, 2022; Winans, 2021). Its users can use it as both a free version with its limited features and a premium version offering such advanced facilities as evaluative and constructive feedback (e.g., Hakiki, 2021; Khoshnevisan, 2019; O'Neill & Russell, 2019).

It has been known that Grammarly offers useful features for its users. It can analyze a range of potential grammatical errors and correct them automatically (Lailika, 2019; Nova, 2018; Ummah, 2022), and this is beneficial for students struggling with complex English grammar rules and spelling. Furthermore, it offers personalized writing suggestions on the basis of the students' writing styles, voices, and contexts (Hakiki, 2021; Nova, 2018). In addition, its artificial intelligence-powered features are able to provide both evaluative and constructive feedback for students and academics to improve their writing accuracy and fluency (Ambarwati, 2021; Hakiki, 2021). Not only do such features further help students learn from their mistakes, but they also offer valuable assistance to boost confidence and motivation in the writing process, Pratama (2021) argued.

Notwithstanding Grammarly's confidence in its strengths to offer evaluative and constructive corrections and suggestions, its users may have considered potential disadvantages, especially for higher-education students. First, Grammarly is indeed able to identify and detect grammatical errors in English writing; however, it may not always catch those stemming from differences in their first language – Bahasa Indonesia (Ambarwati, 2021; Hakiki, 2021). Accordingly, they, having an insufficient grasp of grammatical rules in English, may encounter challenges. Another issue is that it tends to offer feedback without considering specific contexts, which may alter the meanings or tone the students intend to convey in their written work (Barrot, 2022; Winans, 2021). Finally, subscribing to Grammarly's premium version for its most advanced features could be costly, particularly for those on a tight budget (Nguyen & Ngo, 2021; Yousofi, 2022).

For its users, both advantages and disadvantages may result in different perceptions about using Grammarly in their academic writing process. In this respect, Walgito (2004) stated that perception is a sensing process, which is the process of a human receiving a stimulus through their senses, also known as the sensory process. It is important to know perception as a result of the ability of the human brain to perceive input differently. Lailika (2019) pointed out that every human has a different interpretation of stimuli that causes various perceptions.

In light of the concerns above, scholars have investigated English students' perceived views regarding the utilization of Grammarly in wide-ranging writing-related activities, including assignments, any stages of writing processes, and thesis writing at the university level. Looking into the utilization of Grammarly in essay writing assignments, Hakiki (2021) used a questionnaire and an interview as the research instruments to find out the perceptions of her fifth-semester-English-Language-Education students at a state university in Central Java. Based on the results of the analyzed instruments, she

concluded that her students perceived Grammarly positively for its relevant feedback, practicality, and grammatical accuracy. Furthermore, she claimed that her students felt confident in their writing when using Grammarly. In their study exploring students' views on utilizing Grammarly to check grammatical issues in their written articles, Armanda et al. (2022) sent a close-ended questionnaire to and had a semi-structure interview with their participants – the third-year students of an English Language Education of a state university. With reference to the analysis results, their participating students favored Grammarly as a grammar checker and an adviser for stylistic concerns; hence, it helps to enhance their writing competence.

A considerable body of studies has examined the usefulness of Grammarly in any writing stage viewed from students' perceptions. Focusing on the editing writing stage, Dewi (2022) invited 75 students attending an English writing course at a university to respond to a questionnaire and an interview session. The students' responses concluded from the questionnaire and interviews showed that they deemed to have gained such advantages from Grammarly as detecting errors, suggesting potential corrections, and advising them alternative dictions. However, some participants perceived that Grammarly, particularly the premium one, was not fairly affordable for their budget and accessible offline. Likewise, Miranty and Widiati (2021) researched the perceptions of their students majoring in English Language Education from a state university in Banten Province regarding how Grammarly assisted them in the drafting and revising stages. One of the primary data derived from their students' responses to a questionnaire embracing three primary domains of students' perceptions – writing process, the usefulness of Grammarly in writing, and drawbacks of Grammarly in writing – adapted from the studies of Cavalery and Dianawati (2016, as cited in Miranty & Widiati, 2021). The findings suggest that most students thought Grammarly a beneficial tool for its immediate corrections and feedback, error identifications, and alternative suggestions for grammatical and sentence-construction issues. However, a few students were aware that the feedback was not always relevant, useful, understandable, and contextual in accordance with their expectations and writing assignment contexts.

In relation to university students' perception of using Grammarly in their thesis writing, Lailika (2019), for example, involved English Teacher Education students at a state, faith-based university in East Java. Her study aimed to explore their perception of the use of this application in their bachelor's thesis writing. The primary data source was a questionnaire underpinning its framework by benefit theories (ONeill & Russell, 2019, as cited in Lailika, 2019). The findings indicated that the participants responded in two ways: positive and negative perceptions. In this respect, a positive response meant they concurred with using Grammarly as a grammar checker because it could help them check their grammar. In contrast, a negative response meant they seemed not to believe that Grammarly could help them check the grammar correctly. In a similar vein, Fitria (2021) studied how students of a state, faith-based university in Borneo perceived Grammarly's strengths and weaknesses to help them write their thesis. To do so, she distributed a questionnaire to and interviewed the students as the data to be further analyzed. The analyses showed that most students considered Grammarly a highly useful and powerful tool, for it offers appropriate feedback, time efficiency, and accuracy in grammar. Nevertheless, a few of them thought that Grammarly was considerably costly and not always able to detect correct uses of tenses.

2.4 Research Gaps

This study aims to fill at least three gaps identified in the reviewed studies in the preceding paragraphs. Firstly, this study's participants were the fourth-semester students of English Language Education from a private, faith-based university, while the previous studies mostly involved English Language Education from state and faith-based universities. Secondly, this study aimed to investigate its participants' perception of the use of Grammarly in the polishing writing stage of the academic writing process; however, writing assignments, composing, and revising stages, and thesis writing have been the foci of the earlier research. Finally, the reviewed studies utilized particular frameworks of perception,

whereas this study would specifically underpin its theoretical basis to design its questionnaire on perception indicators Walgito (2004) coined.

3. Research Methods

3.1 Research Design

In this study, a quantitative approach was applied to yield a quantitative or numerical description of trends, attitudes, or opinions inside that population, Creswell (2014) asserted. Muhson (2006) stated that quantifiable data could be analyzed quantitatively. Bernard and Bernard (2013) explained that quantifiable data results from processing people's thoughts, emotions, behavior, and experience into numbers. This study examined students' perceptions of using Grammarly in their academic writing. The quantifiable data in this regard was the students' perceptions of using Grammarly reflected on and acquired from the questionnaire.

This study surveyed the perception of higher-education students of using Grammarly in an academic writing process. Unaradjan (2019) stated that a survey is a research method usually used to make observations that are not in-depth; however, the results are more accurate when a representative sample is used. This research design was a survey to investigate higher-education students' perceptions of using a Grammarly application in their academic writing process.

3.2 Participants

This study involved 23 fourth-semester English Language Education Study Program students at a private, faith-based university in Central Java. It applied a purposive random sampling technique to select the participants. Such a technique was utilized as this study had particular criteria for its participants (Creswell, 2014). In this regard, the selected ones were deemed to have learned a compulsory academic essay course and been familiar with and fluent in using the Grammarly application in their academic writing process.

3.3 Instruments

A questionnaire was the primary instrument in this study. Suwartono (2014) pointed out that information obtained from questionnaires can measure such phenomena as attitudes, perceptions, motivations, and reactions. The questionnaire was utilized to investigate the students' perceptions of using *Grammarly* in the academic writing processes and was distributed via *Google Forms*.

Adopted from the one Novianti (2020) used in her study, the questionnaire comprised two primary sections: personal information and closed-ended statements. The former focused on personal information, including the respondents' names and student numbers. The latter related to statements regarding the perception of using *Grammarly* in an academic writing process. More specifically, this study underpinned its questionnaire statements on the three indicators of perception Walgito (2004) coined. Linking these indicators to the utilizations of *Grammarly* in an academic writing process followed. Table 1 concerns the distribution of the statements.

Table 1. Questionnaire Blueprint

Indicators of Perception	Descriptions	Items Number	Total Number
Perceived object	*Grammarly* as students' stimulation perception of an automatic grammar checker	1, 2, 3, 4, 5	5
Sensory organs	Students' frequency of *Grammarly* usage	6, 7	2
Attention	The effectiveness of *Grammarly* for improving students' academic writing	8, 9, 10, 11, 12, 13, 14	7

To help measure the variables which will be later translated into indicator variables, this study applied the Likert-scale assessment with five alternative answers: Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree.

Table 2. Scoring Scale of Questionnaire

Alternative answers	Score Item questions
Strongly Agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	1

3.4 Data Analysis

This study utilized descriptive statistics to analyze the collected quantitative data. Fisher and Marshall (2009) stated that descriptive statistics concerns numerical and graphic methods applied to organize, analyze, and present data, in this case, students' perception of using *Grammarly* in their academic writing process.

The first step of the data analysis was tabulating students' responses to present obtained data in a table. Secondly, the frequencies and percentages of each statement were analyzed using descriptive statistics in Statistical Package for Social Science or SPSS. The third step was utilizing an interval-scale measurement to categorize students' perceptions. In this respect, this measurement refers to a scale where the distance from one level to another is the same, and it aims to summarize the data processing results, Suharsaputra (2012, as cited in Dana, 2021) explains. For instance, should the percentage of the frequency distribution of the results be 81%, it is classified into the 'Strongly Agree' category.

Table 3. Interval Scale

Percentage Range	Category
80% - 100%	Strongly Agree
60% - 79.99%	Agree
40% - 59.99%	Neutral
20% - 39.9%	Disagree
0% - 19.99%	Strongly Disagree

Source: Fitria (2021)

4. Results

As previously elaborated, the indicators of perception concerned perceived objects, sensory organs, and attention (Walgito, 2004). The first perception indicator was *Grammarly* as students' stimulation perception as an automatic grammar checker. The indicator was used to investigate students' perceptions of the usefulness of *Grammarly* in the academic writing process. The second indicator was to know students' frequency of *Grammarly* usage as sensory organs of perception. A frequency indicator was used to recognize the students' frequency of use of *Grammarly* as an automatic grammar checker in academic writing. The last indicator concerning the effectiveness of *Grammarly* is

attention, which is linked to the student's perception of the efficacy of using *Grammarly*. The analysis results for each indicator can be seen in the following tables.

Table 4. The Quantitative Results of the Indicator 'Perceived Object'

Indicators of Perception	Statements	Perception	%	Distribution Percentage	Criterion
Perceived object (*Grammarly* as students' stimulation perception of an automatic grammar checker)	1	SA[a]	21.7	75.6%	Agree
		A[b]	34.8		
		N[c]	10		
		D[d]	0		
		SD[e]	0		
	2	SA	8.7	67.8%	Agree
		A	30.4		
		N	52.2		
		D	8.7		
		SD	0		
	3	SA	30.4	77.4%	Agree
		A	26.1		
		N	43.5		
		D	0		
		SD	0		
	4	SA	13	73%	Agree
		A	43.5		
		N	39.1		
		D	4.3		
		SD	0		
	5	SA	21.7	73%	Agree
		A	26.1		
		N	47.8		
		D	4.3		
		SD	0		
Average				73.36	Agree

Note: [a] Strongly Agree; [b] Agree; [c] Neutral; [d] Disagree; [e] Strongly Disagree

With reference to the table above, the average percentage of the first indicator was 73.36%. Based on the interval scale Fitria (2021) suggested, this result can be categorized as the 'Agree' category, indicating a positive perception as evidenced by the percentage of each statement. The overall percentage of the first statement, "*The grammar checker tool that I usually use for checking my grammar is Grammarly in my academic writing process*", was 75.6%; hence, most students considered using this application in their academic writing process helpful. Pertaining to the second statement of the first indicator, "*Before utilizing Grammarly, I used another grammar checker tool, but it is not really helpful for my academic writing process*", the students deemed that using another grammar checker tool was not helpful for their academic writing process, as shown by the interval scale, 67.8%. Most students thought that *Grammarly* was straightforward to use for their academic writing process, as indicated by the percentage (77.4%) of the third indicator, "*I think Grammarly is easy to use for my academic writing process*". The fourth statement focused on the swiftness of the use of *Grammarly* compared to other grammar checkers to correct students' mistakes. The 73% percentage demonstrated that more than two-thirds of the students thought that *Grammarly* could detect their mistakes almost instantly. The fifth statement was, "*Grammarly is very useful in developing my writing skills, especially for my academic writing process*". The interval scale for this statement was 73%; therefore, most students perceived that the use of *Grammarly* could develop their writing skills, especially for the academic writing process.

The whole percentage of the first indicator (73.36%) indicated that most of the students agreed with the statements above. *Grammarly* served as students' stimulation as an automatic grammar checker. This study related students' stimulation to perceived objects as the first indicator of perception that Walgito (2004) argued it could influence their perception. In this regard, *Grammarly* was deemed a stimulus indicator influencing students' perception of using *Grammarly* in academic writing processes. They favored using this application because they felt *Grammarly* was more beneficial than other grammar checker tools. Furthermore, most students perceived that using *Grammarly* could help identify mistakes fairly quickly, and eventually develop their writing skills, especially for the academic writing process.

What is striking, however, is that some students were neutral in their perceptions of a particular statement of the first indicator. As seen in the table, nearly half of the students chose the 'Neutral' option for statement 1, indicating that they seemed unsure about the helpfulness of this application. Table 4 shows that 43.5% and 4.3% of students gave the 'Neutral' and 'Disagree' options to statement 4, respectively; therefore, they appeared unconvinced with *Grammarly*'s practicality in their writing process. Statement 5 found that 47.8% of students were neutral, and 4.3% disagreed with this dimension; hence, they might be doubtful whether *Grammarly* enhanced their writing skills.

The second indicator was to know students' frequency of *Grammarly* usage as sensory organs of perception Walgito (2004) coined. A frequency indicator was used to recognize the students' frequency of the use of *Grammarly* as an automatic grammar checker in academic writing. See Table 5.

Table 5. The Quantitative Results of the Indicator 'Sensory Organs'

Indicators of Perception	Statements	Perception	%	Distribution Percentage	Criterion
Sensory Organs (Students' frequency of *Grammarly* usage)	6	SA	17.4	74.8%	Agree
		A	43.5		
		N	34.8		
		D	4.3		
		SD	0		
	7	SA	21.7	77.4%	Agree
		A	43.5		
		N	34.8		
		D	0		
		SD	0		

In relation to the second indicator, the average calculation above showed 76.1%, which, based on the interval scale (Fitria, 2021), is classified as the 'Agree' category. It can be interpreted that the students mostly agreed with the indicators' two statements. Students perceived *Grammarly* as the most used automatic grammar checker in the academic writing process. They usually used *Grammarly* because it offers pertinent features that could help them in their academic writing, such as checking their punctuation, grammar errors, and spelling.

A surprising result to emerge from the data is that just above one third of the students in this study did not fully feel convinced with *Grammarly's* assistance to check grammar and mechanics issues. As Table 4 shows, 34.8% of the students selected the 'Neutral' options for statements 6 – "*I like to use Grammarly because it has many good features, like grammar, punctuation, and spelling checkers*" and 7 – "*Grammarly is highly recommended to check grammar errors in academic writing process*".

The last indicator was the effectiveness of *Grammarly* is attention (Walgito, 2004). The researcher related attention to the student's perception of the efficacy of using *Grammarly*. This indicator was used to know the usefulness of *Grammarly* for improving students' academic writing. The following table explains the interpretation for concluding the average distribution percentage.

Table 6. The Quantitative Results of the Indicator 'Attention'

Indicators of Perception	Statements	Perception	%	Distribution Percentage	Criterion
	8	SA	17.4	74%	Agree
		A	39.1		
		N	39.1		
		D	4.3		
		SD	0		
	9	SA	17.4	72.2%	Agree
		A	30.4		
		N	47.8		
		D	4.3		
		SD	0		
	10	SA	8.7	67.8%	Agree
		A	30.4		
		N	52.2		
		D	8.7		
		SD	0		
Attention (The effectiveness of *Grammarly* for improving students' academic writing)	11	SA	21.7	75.6%	Agree
		A	34.8		
		N	43.5		
		D	0		
		SD	0		
	12	SA	17.4	72.2%	Agree
		A	30.4		
		N	47.8		
		D	4.3		
		SD	0		
	13	SA	17.4	73%	Agree
		A	39.1		
		N	34.8		
		D	8.7		
		SD	0		
	14	SA	17.4	73%	Agree
		A	39.1		
		N	34.8		
		D	8.7		
		SD	0		
Average				72.5%	Agree

The average interval distribution of the third indicator was 72.5%, which could be interpreted as the 'Agree' category. It indicated that most students considered *Grammarly* as students' attention was able to help them improve their academic writing. Most students said that *Grammarly* offers helpful suggestions for checking their grammar errors in academic writing. Moreover, most participants perceived *Grammarly* as the most used automatic grammar checker in the academic writing process. They usually used *Grammarly* because it provides relevant features that could help them in their academic writing, such as checking their grammatical errors, punctuation, and spelling.

One unanticipated finding was that a number of students seemed unsure about some of *Grammarly's* ultimate features. As Table 6 illustrates, the students selected the 'Neutral' option for every statement belonging to the third indicator. For example, slightly more than half of the students (52.2%) chose this option for statement 10 – "*I like to use Grammarly because it has 100% of grammar*

accuracy for checking my grammar errors". Furthermore, regardless of their fairly small percentages, 4.3% of the students disagreed with statements 8 (*Grammarly offers helpful suggestions for improving my academic writing*) and 9 (*Grammarly gives relevant explanations for my errors in my academic writing*). It could be that they had less assistance from this application to check their mistakes and to provide pertinent and easy-to-understand constructive feedback than expected. Accordingly, they showed negative perceptions of *Grammarly* for the seemingly misleading feedback *Grammarly* provides.

On the whole, based on the questionnaire analyses, the students' perception of using *Grammarly* for their academic writing process was positive, as indicated by the average interval scale (73.3%) categorized into an 'Agree' criterion and interpreted as a positive perception. It indicates that most of the students agreed with the questionnaire statements. However, some students found negative perceptions of *Grammarly*. For example, they had misleading feedback from *Grammarly*.

5. Discussion

As the quantitative findings demonstrate, overall, students' perceptions of using *Grammarly* fell into positive and negative categories. Each discussion highlights potential factors affecting their perception. This study argues that *Grammarly*'s handy and practical use and non-contextual and irrelevant feedback seemed to have influenced their positive and negative perceptions of using *Grammarly* in an academic writing process.

5.1 Handy and practical use

The first factor that might have shaped students' positive perception is associated with *Grammarly*'s handy and practical use. The analyzed data showed that most students positively deemed that *Grammarly* is a useful and hands-on application to help them write in the academic processes because of the perceived advantages this application offers. The subsequent paragraphs will elaborate on such advantages that each perception indicator was deemed.

It has been acknowledged that a perceived object as stimulation, in this case, *Grammarly*, could influence students' perceptions. Walgito (2004) stated that the perception factor from the perceived object, especially *Grammarly*, was a stimulus. The study found that most students showed positive perceptions based on the average calculation in this indicator (73.36%). Most students felt that *Grammarly* serves as an automatic grammar checker that can be used in their academic writing process, particularly in the polishing step. This study considers one crucial factor that might have shaped students' positive perception towards *Grammarly's* practicality. Such hands-on use deals with but is not limited to this application's ability to detect grammatical issues. *Grammarly* is able to tackle any grammar-related issues ranging from spelling problems, phrases, and prepositions to run-on sentences almost immediately. Furthermore, that *Grammarly* offers suggestions for alternative word choices and concise, yet suitable sentence constructions and styles could be one key factor that might have affected students' views regarding its' handiness.

Another reason the students in this study utilized *Grammarly* to help them check their writing was its accessibility. *Grammarly* is an application that could be integrated into Windows and Mac (*Grammarly*, 2022). In addition, *Grammarly* offers browser extensions to make *Grammarly* linked to websites. Moreover, its users are able to access it through their mobile phones; therefore, students could access this application easily, anywhere and anytime (Barrot, 2022; Winans, 2021).

The study found that representing the indicator of perception – a perceived object, *Grammarly* was deemed to offer hands-on uses. The finding of this study that *Grammarly* is deemed to be handy for students to deal with wide-ranging grammatical issues in their academic writing is in line with those of Hakiki (2021) and Dewi (2022). The students in this study and those in the studies of Dewi (2022) and Miranty and Widiati (2021) agree with *Grammarly*'s reliable constructive feedback provisions. In terms

of the practical usefulness of *Grammarly* to help students develop their writing skills, this study confirms the findings of previous studies, for example, by Armanda et al. (2022) and Lailika (2019).

The second indicator – sense organs – was students' frequency of *Grammarly* usage as a perception stimulus. The average of this indicator interval was 76.1%. It indicated that most students favored using *Grammarly* because it has various practical checking features, such as grammar, punctuation, and spelling, compared to similar tools. In addition, *Grammarly* is able to identify inappropriate words or phrases and offer relevant suggestions and alternatives. Furthermore, *Grammarly* offers direct and indirect feedback to evaluate the students' grammar, punctuation, and spelling errors. Lailika (2019) explained that when students check their grammar, *Grammarly* provides direct and indirect feedback. Based on the indirect feedback, the students knew which answer was correct or incorrect. Likewise, direct feedback showed how *Grammarly* corrected the students' errors. The students could eventually increase their sensitivity to and awareness of errors they might have committed (Nova, 2018).

This study found that students seemed to favor *Grammarly*'s practicality in revising incorrect grammatical issues and offering alternative suggestions. These results are in accord with recent studies indicating similar indications, including those of Miranty and Widiati (2021) and Lailika (2019). In a similar vein, Nova (2018) found that his study participants felt satisfied with *Grammarly* usage and believed that *Grammarly* is more beneficial than other grammar checker tools for its' grammar checker and feedback.

The last indicator was attention. This indicator was to know students' perceptions of the usefulness of *Grammarly* in improving their academic writing. Most students agreed that *Grammarly* could boost their confidence in academic writing because it helped them understand English grammar rules better. It is because they received assistance from this application that could help them write and offer some suggestions about their errors. O'Neill and Russell (2019) acknowledged that their students are more confident in their writing than non-*Grammarly* students.

The finding of this study was that *Grammarly*'s handy use was positively perceived in that it was deemed to help students write academic texts accords with previous studies, including that of Lailika (2019). Her participants considered that *Grammarly* could increase their confidence in writing because they could check their writing mistakes by themselves. Even though the students usually used the free version of *Grammarly*, it helped them improve their academic writing. This finding was also in line with a study conducted by Hakiki (2021), who found that the accessible version of *Grammarly* helped support the EFL students at a university in their writing.

In addition, this study's findings regarding the usefulness of *Grammarly* in checking various grammatical-related issues are in accord with recent studies of, for example, Miranty and Widiati (2021) and Hakiki (2021). This current study found that the students favored *Grammarly* for its constructive feedback pertaining to stylistic issues; hence, it is consistent with data obtained in earlier investigations Dewi (2022) and Lailika (2019). The students in this study and those in previous research (Hakiki, 2021; Pratama, 2021) felt that *Grammarly* boosted their confidence and motivation in writing academic work.

5.2. Non-contextual and irrelevant feedback

The following paragraphs will discuss the second factor – non-contextual and irrelevant feedback – seemingly affecting students' perceptions of using *Grammarly* in academic writing.

Every student has different perceptions because every human has another point of view. Therefore, some participants indicated a negative perception due to their perceived non-contextual and irrelevant feedback, including content and grammar *Grammarly* offers. First, some students perceived that *Grammarly* was not always helpful in academic writing. As the analyzed data indicate, some students in this study seemed unconvinced with *Grammarly's* ability to identify errors, offer alternative

suggestions for words, phrases, or sentence styles, and correct wide-ranging dimensions of grammar-related mistakes. This study and other former research, including that of Ambarwati (2021) and Miranty and Widiati (2021), are in agreement that some students were not fully confident with *Grammarly's* merits to help with grammatical issues. In addition, students in this study were indicated to have seemed unsure of *Grammarly's* assistance to enhance their writing skills, and this similar indication was observed in other earlier studies by, for example, Fitria (2021) and Lailika (2019).

Secondly, the students participating in this study deemed that content-related feedback that *Grammarly* provides sometimes was misleading due to, for example, uneasy-to-understand comments. Accordingly, they encountered difficulty and were confused about understanding its feedback. At times, *Grammarly* indeed offers seemingly constructive and evaluative feedback incorporating micro (i.e., linguistic features) and macro (i.e., content and its generation and development) dimensions; nonetheless, such feedback appears not always to consider relevant contexts potentially changing the meanings of the students are willing to deliver.

Such concerns in the previous paragraph match those observed in earlier studies. Lailika (2019), Barrot (2022), Winans (2021), Dewi (2022), Fitria (2021) and this current study had one view in common that *Grammarly* appeared unable to offer appropriate and understandable suggestions pertinent to particular contexts. Moreover, the students participating in this study deemed that *Grammarly* was not always correct in addressing and suggesting grammatical issues; therefore, this finding is consistent with the studies that, for instance, Ambarwati (2021), Fitria (2021) and Hakiki (2021) did. The students in this study thought that *Grammarly* appeared incapable of enhancing their writing competence. A similar indication was found in other studies by Ambarwati (2021) and Miranty and Widiati (2021).

The third issue this study argues is that *Grammarly's* free version does not offer appropriate quality corrections relevant grammatical aspects as students expected. As *Grammarly* (2022) (*Grammarly*, 2022)informs, without subscribing to its premium features, a user is able to access limited services embracing grammar, mechanics and sentence structures. However, the students in this study might have viewed that it would be costly to subscribe *Grammarly's* premium version. In accordance with the present results, previous studies (Lailika, 2019; Miranty & Widiati, 2021; Nguyen & Ngo, 2021; Nova, 2018; Yousofi, 2022) have demonstrated a similar indication.

6. Conclusion

The questionnaire analyses indicated that the participants perceived the use of Grammarly in their academic writing process both positively and negatively. Most students positively perceived using Grammarly in academic writing because of its handy and practical use. They felt Grammarly was easier to use than other grammar checker tools that could help them correct their errors. Grammarly provides various good features, for instance, a grammar checker, punctuation, and spelling. Such features make students feel confident and save time using Grammarly for academic writing, especially the polishing step. They perceived satisfaction when utilizing Grammarly even though they merely used the free version of Grammarly.

However, some students indicated a negative perception because Grammarly had limitations due to its non-contextual and irrelevant feedback. Some students agreed that Grammarly's feedback was not always 100% grammar accurate. Moreover, there were different features between the free version of Grammarly and the premium version of Grammarly. Because of the weaknesses of Grammarly, sometimes they felt confused when using this application.

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