A Corpus-Based Study of the Experiential Meaning in Business Students' Hand-Written and ChatGPT-Generated Argumentative Essays

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Abstract: This corpus-based study investigated hand-written argumentative essays versus ChatGPT-generated essays written by two groups of EFL Saudi undergraduate business students. The aim was to compare the use of circumstances and processes and their associated participants, employing Halliday's (2014) Systemic Functional Linguistics framework. Since students rely on ChatGPT in writing, examining how the integration of ChatGPT influences their linguistic choices is pertinent. Identifying the most common transitivity process used in students' writing would contribute to pedagogical interventions that improve students' writing abilities and foster successful communication. Thirty-eight Saudi EFL undergraduate business students were randomly selected from the English Language Skills Department, Common First Year, King Saud University. The study used an experimental design with a control group and an experimental group. The participants were required to write an argumentative essay about whether or not money is a true indicator of the success of a business. Nineteen of the participants used ChatGPT as a tool in writing, and the other half did not. To calculate the number of clauses, the UAM Corpus Tool was used and the transitivity analysis was done manually. Results showed that the relational process was the most frequently used transitivity process in the control group essays. The participants identified and described the concepts they mentioned while writing. However, the material process was the experimental group's most frequently used transitivity process. The participants referred to their experiences while getting information from ChatGPT, leading them to use the material process. The current study focused on providing valuable insights into undergraduate business students' writing. Further studies can investigate different levels of students and other types of essays using ChatGPT.

Keywords: Systemic Functional Linguistics (SFL), transitivity analysis, argumentative essay, ChatGPT, Business Discourse.

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1. INTRODUCTION

Mastering writing skills is crucial for undergraduate students. According to Nunan (2003), writing is a mental act that generates ideas and conveys them to be arranged into written paragraphs. Lee and Deakin (2016) state that argumentative texts are one of the writing genres that undergraduate students should learn. Undergraduate students need to be taught how to organize their arguments, provide evidence, and recognize and respond to counterarguments (Gulnaz, 2020). Thus, students would become skilled at expressing their ideas, beliefs, and thoughts in a way that is convincing, logical, and clear (Klein & Rose, 2010; Yoon, 2011). However, there are some challenges the students face in writing (Lim & Phua, 2019). One of these challenges is time restrictions that frequently hinder the motivation of English language students, making it difficult for them to devote enough time and energy to developing their writing skills (Lee, 2017). Essay writing, especially argumentative essays, is one of the most challenging tasks for students in higher education. As a result, students tend to rely on Chat

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Generative Pre-trained Transformer (ChatGPT) and use it as a tool for writing (Agomuoh, 2022).

With the ever-evolving advancement of artificial intelligence (AI), recent research studies indicated that ChatGPT can be used to help students with language learning (Agomuoh, 2022). Since it is designed to extract important ideas, offer citations, and provide comments on style, coherence, and grammar (Aljanabi *et al.*, 2023), it can enhance writing abilities (Aydın & Karaarslan, 2022; Dergaa *et al.*, 2023). Research has indicated that ChatGPT is capable of helping students produce high-quality essays on many subjects as well as abstracts, research papers, and dissertations (Agomuoh, 2022). This would help them strengthen their capacity for argumentation and boost their self-assurance in their knowledge, equipping them for both the classroom and real-world settings (Valero Haro *et al.*, 2022). However, there is a need to examine how the integration of ChatGPT influences the linguistic choices and patterns in the argumentative essays of Common First Year (CFY) business students.

We use language to share people's experiences and inner ideas with the external world (Halliday, 2014). We explain through language how and why it conveys the intended meaning. Halliday's (2014) systemic functional linguistics (SFL) approach to language maintains that language serves two main purposes (or metafunctions): experiential and interpersonal. The experiential metafunction conveys information about events, entities, phenomena, and their circumstances. A speaker's opinions and attitudes are expressed through interpersonal metafunction. The two metafunctions are weaved into a textual whole (textual metafunction), whether spoken or written, thereby explaining the relationship between language and its surroundings. Due to spatial constraints, the present paper focused on the experiential metafunction which is expressed through the Transitivity system in terms of processes, their associated participants (such as 'Actor,' 'Goal,' 'Senser,' and 'Phenomenon'), and attendant circumstances (such as 'location,' 'manner,' and 'cause'). Identifying the transitivity patterns employed by the students in their writing can provide valuable insights into their language proficiency and conceptual development in academic writing.

The Transitivity system in Halliday's (2014) SFL framework was first used by Halliday in 1971 when examining William Golding's, The Inheritor. It was analyzed through six processes that symbolize the world of experience; material, mental, verbal, relational, behavioral, and existential processes (Halliday, 2014). This method was useful for examining texts in many areas, mainly language teaching and learning, where students can benefit from the transitivity analysis. Students' performances are influenced by their

knowledge of using specific utterances to express what they mean (Isti'anah, 2017). Moreover, transitivity analysis leads students to a deeper comprehension of texts, identifying different perspectives and intentions behind writers' language choices (Hadiyati *et al.*, 2018).

This study investigated hand-written argumentative essays versus ChatGPT-generated essays written by two groups of EFL Saudi undergraduate business students. The aim was to compare the use of processes, their associated participants, and attendant circumstances. This research seeks to contribute to pedagogical interventions that can enhance students' writing skills and promote effective communication in business discourse by identifying the most prevalent transitivity process.

This study attempted to determine students' abilities to write an argumentative essay using ChatGPT. It is looked at from a transitivity perspective while pointing out the most frequently used processes. Students would write cohesive and coherent texts with the help of transitivity analysis (Apendi & Mulyani, 2020). They would check the ideas of their work to see whether they were connected and made sense or not by dissecting the participants and the processes (Apendi & Mulyani, 2020).

This study tended to answer the following research question: How do EFL Saudi undergraduate business students' hand-written compare with ChatGPT-generated argumentative essays in terms of the usage of processes, their associated participants, and attendant circumstances?

2. LITERATURE REVIEW
This section reviews the effects of using hand-written and ChatGPT-generated argumentative essays on the frequently used transitivity process in writing. The theoretical framework and the review of related studies are presented next.

2.1 Theoretical Framework
Transitivity is a grammatical system that translates the world of experience into many processes that reflect the real world as described in the written text (Halliday, 2014). Transitivity is defined by Martin *et al.*, (1997) as a tool for understanding human experiences in terms of the circumstances, participants, and structure of a process. According to Thompson (2014), transitivity describes a framework covering the entire phrase, not simply the verb and its object.

According to Halliday (2014), there are six categories of transitivity processes: material, mental, relational, behavioral, verbal, and existential. First, the material process involves action verbs such as 'run,' 'walk,' 'write,' and 'read.' It deals with the idea that

whatever one entity "does" something it may potentially be done to some other entity. Material expression may refer to anything abstract and happening including discussing the body, physics, and material. Moreover, an actor and a goal appear in a material process. An 'Actor' is the one who does the action, and a goal is what you want to happen due to your actions. Second, mental processes refer to acts of feeling, thinking, and perceiving. According to Halliday (2014), there are three categories of mental processes: perception, which includes seeing and hearing; love, which includes liking and fearing; and cognition, which includes thinking, knowing, and understanding. A mental process has two participants: a 'Phenomenon' (which is felt) and a 'Senser,' who might be a human, an animal, a plant, etc. Verbs like 'think,' 'feel,' 'hear,' 'understand,' and 'see' are examples of mental processes. Third, relational processes are 'being' processes (Halliday, 2014). A relational process associates a participant with its identification or description. It essentially asserts what something is, was, or will be, which is why relational processes are frequently called 'being' processes. However, additional verbs may connect a participant to a description, such as 'seem,' 'become,' 'look,' and 'appear' (Marantz, 2013). According to Halliday (2014), relational processes exist in two modes: relational identifying and relational attributive. In the 'Identifying' mode, one entity is used to identify another. Relational attributive processes are those which assign a quality. Whereas relational identifying processes may be reversed (e.g., "my name is John"/"John is my name"), attributes may not (e.g., "I am 29"/*"29 am I"). Fourth, a behavioral process includes human physiological and psychological behaviors including 'breathing,' 'dreaming,' 'coughing,' 'smiling,' and 'gazing' (Halliday, 2014). This process contains the individual who behaves, called the 'Behaver,' and the range and circumstances that include location, extent, manner, and cause. Behavioral processes lie between the mental and material types. Fifth, a verbal process involves speaking (Halliday, 2014). Apendi and Mulyani (2020) identified four participants in the verbal process: the 'Sayer' (the one expressing something), the 'Receiver' (the person to whom the saying is addressed), 'Verbiage' (the term used to refer to the verbalization process), and the 'Target' (the entity that the talking process is aimed at). Examples of verbal processes are 'speak,' 'ask,' and 'propose.' etc. Finally, the last process type is the existential. The purpose is to elucidate the presence of someone or something (Halliday, 2014). For example, phrases like "there is," "there are," and "so forth".

2.2 Argumentative Essays
Transitivity processes can be used to analyze clauses and the intended meaning of argumentative essays. When writing an argumentative essay, one would organize it by writing an introduction, body, and conclusion. The crucial component of the argumentative essay is explaining the problem in the introduction. An argumentative essay can also start with a hook that grabs readers' attention, like memorable quotes, shocking data, or a dramatic tale. A thesis statement is provided next to reaffirm the author's perspective on an issue. The body paragraph of the argumentative essay provides evidence in favor of a claim, describes how the evidence was obtained, and illustrates how the evidence strengthens the conclusion. The conclusion summarizes and assesses the facts, drawing conclusions based on the author's beliefs, and restating the viewpoint or suggesting the author's implications (Lancaster, 2011). There are five points to consider when writing an argumentative essay: explanation of the problem, clarity of the thesis statement, reassessing opposing arguments, rebutting opposing arguments, and presenting the writer's arguments (Nadia et al., 2023).

2.3 Review of Related Literature
Nowadays, the most controversial subject in academia is the adoption of ChatGPT because of its outstanding features for academic writing, including essays, short tales, and poetry (Dergaa et al., 2023). After it was created in November 2022, ChatGPT witnessed tremendous success in January 2023, emerging as one of open-AI's most rapid and well-received AI technical products, with over 100 million users using it regularly (Williams, 2023).

According to Albadarin et al., (2024), they analyzed 14 studies on ChatGPT usage in education up until April 2023 by following PRISMA 2020 and Okoli's systematic review guidelines. Results show how students benefit from using ChatGPT, where they get instant feedback and explanations and improved writing and language skills. However, overusing it may reduce innovation and collaboration skills. Thus, there should be structured training and guidelines needed (Albadarin et al., 2024).

The impact of ChatGPT on English writing and critical thinking among freshmen at Ho Chi Minh City University of Industry and Trade is the subject of another study by Minh (2024). The researcher used interviews, classroom observations, and writing sample analysis. Results show notable improvements in grammar, vocabulary, coherence, and argumentation; enhanced critical thinking. However, there is a risk of over-reliance on AI tools. The researcher recommends a balanced integration of AI in language education and promotion of critical engagement (Minh, 2024).

Transitivity analysis is not frequently used in genre-based writings, particularly argumentative essays. Few studies, however, conducted transitivity analysis of literary works (Afrianto & Seomantri, 2014; Darani, 2014; Khadim, 2024) and students' argumentative hand-written essays (Nurkholidah et al., 2019; Sihite, 2019).

For example, Sihite (2019) investigated the transitivity system in 15 students' argumentative hand-written essays at HKBP Nommensen University, Medan, Indonesia. The study aimed to detect the dominant types of processes, their associated participants, and attendant circumstances. The results revealed that the material process was the most dominant because the students focused on the verbs that are mostly used to represent the physical experience of individuals. Sihite (2019) states that by using transitivity analysis in writing instruction, teachers may enable their students to produce argumentative essays that are more complex, logical, and meaningful. It helps students create more effective and convincing written communication and gives them a greater knowledge of how language choices impact meaning.

Transitivity analysis has been extensively employed in students' hand-written recount texts (Elsie *et al*., 2020; Fajriah, 2021; Novianto *et al*., 2022; Rahayu & Efransyah, 2020; Rahmawati, 2019; Rosmayanti *et al*., 2021; Utami *et al*., 2022) which indicated that when recounting an event that the students experienced in the past, the most dominant process they used was the material process. Ultimately, the transitivity analysis aims to draw one's awareness into reality, which is made up of events, entities, phenomena, and circumstances that include place and manner (Halliday, 2014).

However, there is a lack of studies investigating the construal of experience in hand-written versus ChatGPT-generated undergraduate students' essays. Studies conducting transitivity analysis of tertiary business discourse were confined to hand-written texts (Alyousef, 2013, 2018; Alyousef & Alsharif, 2017; Alyousef & Mickan, 2016). Moreover, as most students worldwide are enrolled in business discourse (Alyousef & Picard, 2011), it is pertinent to investigate and explore the representation of the experiential meaning in hand-written versus ChatGPT-generated undergraduate business students' essays and the potential application of this AI tool in writing courses. More specifically, the present study aimed to investigate and compare EFL Saudi undergraduate business students' hand-written argumentative essays with ChatGPT-generated essays concerning the use of processes, their associated participants, and attendant circumstances.

Next, the research methodology is presented.

3. METHODOLOGY

This section presents the research design and approach, population and sample, data collection, instruments, data analysis procedures, and validity and reliability.

3.1 Research Design and Approach

This study employed a qualitative research design. However, Quasi-statistics in the form of frequencies and percentages were used to facilitate the comparability of the two data groups (Maxwell, 2010). Qualitative data were collected and analyzed to gain an in-depth understanding of the research topic. The study adopted an interpretive approach that aimed to understand the experiences, perspectives, and linguistic choices of CFY business students when using ChatGPT in their argumentative essays.

3.2 Population and Sample

The data for this study were collected from the population of EFL Saudi female undergraduate business students in Riyadh, Saudi Arabia. The age range of the selected Level B participants is from 19 to 21 years old, with Arabic as their first language. The participants are all female only because of the gender segregation in Saudi Arabia. The sample included 38 students from the English Language Skills Department, CFY. The department has three tracks: medical, business, and humanities. The chosen track was business because the students were required to write many argumentative essays while taking an English Skills Course for Academic Purposes (EAP). They had a placement test before taking the course and were categorized as level B students, corresponding to Level 3 of the 6-level Foreign Language Competency Framework (Nga *et al*., 2023). The study took place in the second academic semester of 2024. The experiment lasted for three weeks.

3.3 Data and Research Instruments

The materials used are argumentative essays and were collected from 38 undergraduate students: 19 of them used ChatGPT as a tool in writing (4,778 words), and the other half did not (4,323 words). The total word count of the essays was 9,101. The essays were obtained through online submissions and shared document files. Since they were business students, the chosen essay topic was "Is money a true indicator of the success of a business?" We made sure that each essay contained at least 250 words.

Several instruments were used in the study. First, the corpus of argumentative essays was written by CFY business students. The corpus served as the primary data source for the analysis. Second, the UAM Corpus Tool was used to calculate the number of clauses written in each argumentative essay. It was also used to annotate the transitivity elements in the texts. Third, the process types were annotated manually.

3.4 Data Analysis Procedures

Some procedures were taken to analyze the data. First, the researchers divided the students into two groups (19 Saudi female undergraduate students in each

one): an experimental group which includes those who used ChatGPT as a writing tool and a control group who wrote with no AI assistance. Second, both groups were familiar with argumentative essay components and the topic they were required to write about. The participants had to provide reasons for their answers and include relevant examples from their experience. They had two hours to complete the task. Third, all the participants in the experimental group were given instructions on how to use ChatGPT as a writing tool and all of them had prior knowledge of its operation. ChatGPT was used to get ideas and information. The researchers made sure the participants did not copy and paste a whole essay from ChatGPT. The variables were controlled by having a restricted time and by unifying one topic and one prompt for both groups. The submitted essays were different from one another.

Fourth, after collecting students' essays, the sentences were divided into clauses and organized into tables using the UAM corpus tool. Fifth, the transitivity analysis was conducted manually to identify the frequencies and percentages of the occurrence of processes, their associated participants, and attendant circumstances. Lastly, excerpts from the analyses were qualitatively examined and discussed concerning the usage of processes, participants, and circumstances.

3.5 Validity and Reliability
This paper adapted Leech and Rayson's (2014) method of employing normalized frequencies to a similar base per one hundred words, as various corpora have different sizes. The formula for finding normalization is "normalized frequency = [raw frequency ÷ number of words in corpus] x 100." To use this formula effectively, the raw frequency in each student's essay is calculated first. The number of words in the corpus refers to the total number of words in each student's essay. After that, the raw frequency was divided by the number of words in the essay and multiplied by 100. The normalized frequency per 100 words (NF/100 words) is the result of the calculation. This would help to enhance the frequency value for better interpretation of the data. For instance, one of the students' essays consisted of 256 words. The "material process" appeared five times in the corpus. Thus, the normalized frequency would be "(5 ÷ 256) x 100 = 1.95." Finally, the total normalized frequency per 100 words for each process type is

calculated for all the students and then divided by the number of students.

4. RESULTS AND DISCUSSION
This section presents the findings of the most dominant transitivity process, its associated participants, and the attendant circumstances used in EFL Saudi undergraduate CFY business students' argumentative essays using ChatGPT. This study's research question was: "What is the most dominant transitivity process used in EFL Saudi undergraduate CFY business students' argumentative essays using ChatGPT?" To address the research question, two hypotheses were proposed:

H0: There is no difference between the frequency of transitivity processes used in the control and experimental group essays.
H1: There is a difference between the frequency of transitivity processes used in the control and experimental group essays.

Based on the results, the null hypothesis (H0) was rejected and the alternative hypothesis (H1) was accepted. This means that the most frequently transitivity processes employed by the experimental group, who used ChatGPT as a writing tool, were not similar to those employed by the control group, as explained below.

The data was extracted from 38 Saudi undergraduate students' argumentative essays. The data was analyzed in terms of the six transitivity processes. 1,601 clauses from the experimental group and 2,390 from the control group were examined (
Table *1*).

Table 1: Number of clauses in the control group and the experimental group essays

Group	N	Clauses
Control	19	2390
Experimental	19	1601

The frequencies and percentages of the transitivity components (processes, participants, and circumstances) were analyzed in the control group and the experimental group's essays (Table 2). Unlike the experimental group, the control group did not use ChatGPT as a tool in writing.

Table 2: The distribution of transitivity components of the control group and the experimental group's writings

Transitivity component	Control group		Experimental Group	
	Frequency	Percentage	Frequency	Percentage
Processes	342	42%	362	40%
Participants	402	49%	518	57%
Circumstances	71	9%	29	3%
Total	815	100%	909	100%

(Table 2). Unlike the experimental group, the control group did not use ChatGPT as a tool in writing.

Table 2 shows that the total number of processes was almost equal in the experimental and the control groups' essays, respectively, 40% and 42%. However, the experimental group had a significantly higher percentage of participants (57%) than the control group (49%), suggesting a greater emphasis on the entities involved in the processes. Conversely, the experimental group had a much lower percentage of circumstances (3%) than the control group (9%), indicating that ChatGPT employs less contextual information about the conditions, reasons, or other details surrounding the processes and participants. These differences in the distribution of the transitivity components between the two groups likely reflect that the experimental group appears to have placed greater emphasis on the participants involved, while the control group seemed to provide more contextual information about the processes. Temporal and spatial circumstances were the most common circumstances in the argumentative essays. This finding is in line with the fact noted by many linguists (e.g., Matthiessen, 1999).

The frequencies and percentages of the transitivity processes were identified in the control and the experimental groups' essays (Table 3).

Table 3: The distribution of transitivity analysis of the control group and the experimental group's writings

Transitivity Processes	Control group			Experimental Group		
	Frequency	Percentage	Freq. per 100 words	Frequency	Percentage	Freq. per 100 words
Relational	123	36 %	2.85	144	40%	3.02
Material	107	31.3 %	2.47	155	43%	3.25
Mental	87	25.4 %	2.01	37	10%	0.77
Existential	12	3.50 %	0.28	10	3%	0.21
Verbal	9	2.63 %	0.21	12	3%	0.25
Behavioral	4	1.17 %	0.09	4	1%	0.08
Total	342	100 %	7.91	362	100 %	7.58

Table 3 indicates that the most frequently used transitivity process in the experimental group's essays was the material process (43%), whereas it was the relational process (36%) in the control group's essays. This indicates that students who did not use ChatGPT in writing had more relational processes in their argumentative essays, having a normalized frequency of 2.85 occurrences per 100 words. The two groups employed attributive and identifying processes in their essays to assert what something was, either to identify it or describe it. Below are some clauses with both attributive and identifying processes.

They	are	successful
Carrier	Process: Relational Attributive	Attribute
Determination	is	the main key to success
Token: Identified	Process: Relational	Value: Identifier

This shows that the control group kept identifying and describing certain concepts while writing. For example, from the clause "*they are successful,*" the student described who "*they*" were by adding the adjective "*successful.*" This clause was an attributive process because the second participant of an attributive clause explained the first participant (or the 'carrier'). The student identified in the second example the term "*determination.*" The student identified it as "*the main key to success,*" which is considered the 'identifier.'

The data suggests the students explained terms to engage their readers or to exhibit their knowledge. Several studies of hand-written business discourse (Alyousef, 2013, 2018; Alyousef & Alsharif, 2017; Alyousef & Mickan, 2016) revealed the extensive use of relational identifying processes.

The experimental group's most frequently used transitivity process was the material process. This finding is in line with several studies (Elsie *et al.*, 2020; Fajriah, 2021; Novianto *et al.*, 2022; Rahayu & Efransyah, 2020; Rahmawati, 2019; Rosmayanti *et al.*, 2021; Utami *et al.*, 2022) that argue that students use the material process when recounting an event that they experienced in the past. ChatGPT provides students with ideas related to past experiences that they could choose from since it does not automatically detect their past experiences. In writing their argumentative essays, the students probably relate the topic to their past experiences, which led them to use the material process the most. This finding contrasts with several studies of hand-written business discourse (Alyousef, 2013, 2018; Alyousef & Alsharif, 2017; Alyousef & Mickan, 2016) which revealed the extensive use of relational identifying

processes. However, the material process was the most frequently used type in these studies if we were to exclude from the analysis accounting and finance tables and figures.

This also agrees with Sihite's (2019) study, conducted at HKBP Nommensen University, Medan, Indonesia. The results show that the material process was the most used because they used verbs to represent the physical experience of things. Moreover, the data contributes to a clearer understanding of how students use their argumentative skills in writing. While previous research has focused on investigating the transitivity processes in hand-written essays, the result in the present study demonstrates that using ChatGPT by students as a writing tool would motivate students to focus mostly on the material process.

Forty-three percent of the processes in the experimental group essays were material (Table 3). One example was stated as follows.

| He | develops | a distinctive and innovative business |
| Actor | Process: Material | goal |

Relational processes were the second most used process type in the experimental group's essays, accounting for forty percent of the total occurrences (Table 3). Like the control group students, the experimental group used attributive and identified relational processes. The examples are illustrated below.

| Financial success | is | undeniably important in business |
| Carrier | Process: Relational Attributive | Attribute |

| One measure of success | is | customer satisfaction and employee retention |
| Token: identified | Process: Relational Identifying | Value: identifier |

The material processes in the control group's essays accounted for over thirty percent of the total occurrences, with 107 occurrences out of 342, approximately one-third of the total processes. The second process found in the control group's essays was the material process. The process of doing was used 107 times by the students. It contained two main participants, 'Actor' and 'Goal.' The material process is illustrated in the example below.

| All people | buy | it |
| Actor | Process: Material | goal |

The word "*buy*" refers to an activity done by the subject "*all people*" (the 'Actor'). It is the entity that does the action of buying. 'Goal' is what gets affected by the 'Actor,' which in this clause was "*it.*" The control group students used many material clauses in writing their argumentative essays because of the chosen business topic. There were many activities that were done by the 'Actor' that the students had to mention in writing.

As for the mental process, it represented 25.4% of the total process types in the control group's essays and 10% in the experimental group's essays. Verbal and existential processes, however, were rarely employed in the two groups' essays. The least frequently used transitivity process in the two groups' essays was the behavioral.

The third process employed by the two groups was the mental process which refers to thinking or feeling. It was used 87 times by the students. 'Senser' and 'Phenomenon' are the two participants of the mental process.

| He | believed | in his abilities |
| Senser | Process: Mental | Phenomenon |

This clause contained a mental process because of the word "*believed*" that reflected feelings. "*he*" was considered the 'Senser,' the entity that tends to experience that particular feeling. The 'Phenomenon' in this clause would be "*in his abilities*." The students in the control group were able to acknowledge the important usage of the mental process, especially while addressing business areas where emotions were hardly looked at. The third process in the experimental groups' essays was the mental process that occured 37 times. The word "*recognize*" relates to a cognitive process with its associated participants 'Senser' and "Phenomenon.' Even with using ChatGPT as a tool in writing, it could give suggestions that highlight the mental process.

| Successful individuals | recognize | the value of connecting with others, seeking mentorship, and collaborating with like-minded individuals |
| Senser | Process: Mental | Phenomenon |

Existential (3.5%), verbal (2.63%), and behavioral (1.17%) are minor types in terms of frequency in the control group's essays. Similarly, the frequencies of existential (3%), verbal (3%), and behavioral (1%) were negligible in the experimental group's essays.

The existential process was the fourth type used by the control group. It occurred 12 times in their essays. The following example shows the existent, which was the only participant in the existential process.

There	are	a lot of ways to help someone succeed
	Process: Existential	Existent

Since the written business text was about being successful, students used existential clauses to inform the reader how we can succeed. From this example, the existential process was expressed by the verb "*are*." However, the word "*there*" has no experiential meaning in this clause. The existential was the fifth process type used by the students in the experimental group that was found 10 times in their essays. "*many companies, such as FedEx*" is an example used by one of the students in her writing. The students refer to real-life examples to justify their claims.

There	are	many companies, such as FedEx
	Process: Existential	Existent

The fifth process type used by the control group was verbal, which included what was being said. It occurred 9 times in the essays. The example below shows that the associated participants of the verbal process are the 'Sayer' "*we*" and the 'Verbiage' "*about whether people's beliefs are correct or not,*" i.e., what was being reported. The word "*talk*" indicated that saying. The students had to introduce the topic while writing and they used this particular process to deliver the information.

We	will talk	about whether people's beliefs are correct or not.
Sayer	Process: Verbal	Verbiage

The verbal process was the fourth process used by the experimental group. It occurred 12 times in their essays. "*shall discuss*" indicated the verbal process where "*I*" is the 'Sayer' and "*the other ways in which a successful business can be measured*" is the 'Verbiage.'

I	shall discuss	the other ways in which a successful business can be measured
Sayer	Process: Verbal	Verbiage

The process that had the lowest number of occurrences in the control group's essays was the behavioral process. It occurred only 4 times.

Your business	is doing	as well as you think it is
Behaver	Process: Behavioral	Range

The student used a psychological process of how the 'Behaver' "*your business*" would be going on like what he/she would think would go. The least frequently used process in the experimental group essays was the behavioral process, which was used 4 times. Using ChatGPT did not help in employing many clauses of this type of process mainly because it was an argumentative essay writing. Students were required to give solid arguments on the topic that do not require using psychological processes. This is expected since behavioral processes occur more frequently in non-academic texts. The behavioral process in "*is gaining*" lies between the process of doing and a mental process. "*Social and environmental responsibility*" was the behaver and "*significance as a success metric*" would be circumstance: manner, which is how the behaver would turn out to be.

Social and environmental responsibility	is gaining	significance as a success metric
Behaver	Process: Behavioral	Circumstances: Manner

To sum up, the results section showed that the most frequently used transitivity process in the control group's essays was the relational type, while it was the material process in the experimental group's essays.

5. CONCLUSION & IMPLICATIONS

This study aimed to investigate the most dominant transitivity process used by 38 EFL Saudi undergraduate business students from the English Language Skills Department, CFY. The participants were divided into two groups: an experimental group that used ChatGPT as a tool in writing their argumentative essays and a control group that did not use the tool. The results revealed that the control group kept on identifying certain concepts while writing through the use of relational processes. The most frequently used transitivity process in the experimental group's texts was the material process. In writing argumentative essays, the students relate the topic to their past experiences where ChatGPT prompted them to use material processes. An interesting finding indicated that hand-written essays employed more contextual information than those generated by ChatGPT, information related to conditions, reasons, or other details surrounding the processes and participants. This indicates that humans tend to provide more contextual information than ChatGPT to clarify the manner, time, place, reason, and conditions associated with the actions. The current corpus-based study focused on providing valuable insights into students' language proficiency and tends to improve their writing skills. Further studies can investigate other types of essays using ChatGPT.

First-year business students and English language teachers can benefit from the transitivity analysis when they examine and assess different viewpoints and arguments by looking at the participants and processes. They can pinpoint the agents in charge of certain acts, evaluate how those actions affect various participants, and use these assessments to build persuasive arguments (Sihite, 2019). Transitivity analysis develops the capacity to enrich arguments by supporting claims and providing evidence in a written work (Thompson & Hopper, 2001). Also, by learning participant roles, such as agents and recipients, and the process roles, such as actions, events, and states, students can adjust their sentence structures in writing to make them more complex (Subekti, 2018). When students express various relationships between each participant through the use of different types of clauses, such as active or passive, they may enhance their writing style (Subekti, 2018).

The pedagogical implications of the findings can give English language teachers a deeper understanding of their students' language choices. It is important to analyze the use of transitivity processes thoroughly. Training workshops can be conducted to familiarize teachers and students with the reasons behind using certain transitivity processes in writing their essays. Thus, by comprehending the responsibilities of the actors, students will be able to create more coherent connections between sentences and paragraphs, which leads to a more cohesive writing structure (Apendi & Mulyani, 2020).

The number of participants limits the generalizability of the research findings. The sample size was limited to only thirty-eight level B business students. More than one level of students and students from different tracks can be investigated in future studies. Also, all the participants were female due to gender segregation in Saudi universities. Both genders may be included to examine the differences in the usage of the transitivity process in hand-written vs. ChatGPT-generated essays. Furthermore, the methodological choices were constrained by only argumentative writing skills, while other essay types can be tested. However, the results provided insights into the effect of ChatGPT in writing despite these minor limitations.

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