



Evaluating Human and AI-Crafted Texts: A Comparative Analysis Using the 6+1 Trait Writing Model and Discourse Analysis

Arfa Iram

PhD scholar at University of Education, Lahore
arfairam06@gmail.com, ORCID: 0009-0003-3300-4841

Minahel Sada Hussain

PHD Scholar at University of Education, Lahore
minahelsada@gmail.com, ORCID: 0009-0007-7986-4029

Momina Shahbaz

MPhil Scholar
momina1.shahbaz@gmail.com, ORCID:0009-0000-4757-7702

Abstract

This research investigates the comparison in human written and AI generated texts using a multidimensional analytic approach using 6+1 Trait writing model, contrastive analysis and discourse analysis. Artificial intelligence has increased the interest of students, teachers and educators in academic writing with its immense advancement day by day. This research studies the difference between humans and AI writing style and examines that how both of them differ from each other. The research uses one essay from Chat GPT as a writing sample from AI and examines 50 essays written by MPhil students. The students were monitored and were not allowed to use any electrical gadgets. AI was given the same topic and all these essays have been analyzed by using 6+1 trait writing model including the study of weaknesses and strengths of all the essays based on the key traits like ideas, organization, word choice, sentence fluency, convention, and presentation. Deeper insights are provided by using the complementary tools such as discourse analysis and contrastive analysis. This investigation reveals that AI and humans both have their own qualities. Though humans are more creative in

nature and share their personal experiences in their writings but AI outperforms in organization, convention, and presentation. The findings highlight the strengths and limitations of AI suggesting areas for further enhancement in AI-assisted writing skills.

Keywords: human written essays, AI-generated writing, 6+1 trait writing model, discourse analysis, contrastive analysis

Introduction

Background Information

Artificial intelligence is rising day by day and impacting a variety of industries including health, education and particularly the field of writing. There are many AI tools that are helping the students, teachers and the educators in their daily lives. AI tools like ChatGpt and Grammarly help in grammar correction as well as doing big tasks like essay writing and content creation. AI has the ability to produce massive amounts of data and summarize all the given information. The data produced by AI shows seamless grammatical correction, and clarity. It also excels in organization and resembles human-authored text. AI helps in evolving the writing skills that are taught and practiced (Marzuki et al., 2023).

AI writing tools assist the students by providing them real-life feedback on their written material by checking their grammar, structure, cohesion and coherence, content organization and overall writing ability (2022). It also helps the students for self-assessment and self-evaluation. It also helps in exploring complex subjects and refining ideas. AI is also beneficial for the educators as it provides assistance in academic setting. Students and educators enhance their writing potential by fostering true comprehension, creativity and critical thinking in writing tasks. (Youn et al., 2024)

As AI is growing and becoming prevalent in writing tasks, it is very crucial to distinct between AI-generated and human-written texts. They have many similarities but still humans and AI operate under different mechanisms. AI tends to prioritize coherence and it is very proficient in grammar and composition. It presents very formulaic approach to language that provides with efficient results but it may lack the depth and complexity that can be seen in human written texts. Humans tend to add real life experiences and personal insights in their writings that makes the writing more original. (Alharbi, 2023)

Statement of the Problem

Comparing human written essays with AI generated essay is quite challenging especially at MPhil level, the students experience high level of cognitive processes. Human written texts

include rhetorical strategies, thematic development and structured argumentation while AI relies on more predefined linguistic patterns that leads to superficial responses. Using 6+1 trait writing model for the analysis is challenging as it is difficult to measure the quality of both human and AI written text based on ideas, organization, voice, word choice, sentence fluency, convention, and presentation. Ethical concern regarding AI usage is also another challenge. This study focuses on the strengths and weaknesses of both Human and AI generated essays to help the educators in developing a balanced approach to AI integration in academic settings.

Research Objectives

This study aims;

- To compare and analyze human-written and AI-generated essays using 6+1 Trait Writing Model.
- To uncover the discourse patterns and structures emerging in human-written and AI-generated essays using Discourse Analysis.
- To study the difference of linguistic features and rhetorical devices between human-written and AI-generated essays through Contrastive Analysis.

Research Questions

The study aims to explain the following questions;

- How do the writing traits of essays written by MPhil students compare to those of an AI-generated essay on the usefulness of AI, as analyzed through the 6+1 Trait Writing Model?
- What discourse patterns and structures emerge in student-written essays versus the AI-generated essay, and how do these affect the clarity and coherence of the arguments?
- In what ways do the linguistic features and rhetorical strategies differ between human-written and AI-generated essays, as revealed through contrastive analysis?

Significance of the Study

This study sheds light on the role of AI in evolving the academic writing. It explores the unique contributions and limitations of AI in academic contexts. This study contributes to academic discourse on AI within the educational framework. It analyses the human written and AI generated essays by using the models the 6+1 trait writing model, discourse analysis and comparative analysis to study the difference in different aspects like originality, fluency, and structure of the essays. By identifying the weak areas of the students using these models, the students can work on themselves to improve their writing quality. The educators can also consider how to teach the students effectively.

Literature Review

In education, the corporation of AI has seen transformative changes over the past few years which impact the way student learn and educator teach them. Initially, the application of AI in education emphasizes on automating administrative tasks with early technologies like grading system or simple tutoring programs that evolved in the late 20th century. However, with that development in machine learning and the Natural Language Processing, AI tools have developed to support the personalized learning, essay generation, adaptive assessments and content creations. In today's world, AI tools like ChatGPT and similar language models can develop coherent and structured texts to help the students in different tasks from brainstorming ideas to drafting essays. These advancements allow having discussion on both the potential and the limitations of AI in improving academic skills. Different studies highlight that while AI offers a valuable resource for instant feedback and grammatical improvement, there are still growing concerns about over reliance on technology that may affect the development of student's independent critical thinking and creativity. Understanding the role of AI in education is critical to provide opportunities and challenges that must be addressed to develop effective learning environment (Gasaymeh et al., 2024).

Tacca Huamán et al., (2023), focuses on the incorporation of AI in writing as it increasingly explores a topic mainly about its influence on student learning and skill development. Different studies show that while AI tools can help in time management and improve text structure, they can also hinder students' critical thinking and writing provisions when overused. This research highlights the pedagogical, sociological and psychological factors that drive the students to depend on AI, with motivation often linked to the academic pressure and appeal of efficiency. Moreover, educational experts take cautions that over dependence on AI can influence the students' holistic development which can affect their personal and professional growth (Tacca Huamán et al., 2023).

Amirjalili et al., (2024), highlight the role of AI in academic writing which has promoted the examination into its ability to mimic human qualities like authorial voice and obligation to academic standards. The authors analyzed the performance of ChatGPT in comparison to human written academic essays by identifying the limitations in the AI ability to meet key academic requirements like factual accuracy, source specificity and nuanced self-evaluation. Previous studies have shown similar results by highlighting the limitations of AI in replicating the depth and authentic authorial presence in writing. The research highlights the need for advancement in AI to better align with human writing in academia (Amirjalili et al., 2024).

Landa-Blanco et al., (2023), explores whether the notion of creativity and originality differ when texts are attributed to human or AI authorship. The authors conducted a pilot study where participants were selected to evaluate the AI-generated creative works including the poems and a short story under different authorship attributions. During this experience, it was

observed that control group believed that the works were human authored, while experimental group was informed that they were AI generated. The results of this study shows that there is no difference statistically but there are significant differences in ratings of originality, creativity, enjoyment or chances of recommending the text, irrespective of perceived authorship. It suggests that readers may not evaluate creative works differently based on human or AI attribution that challenges the assumptions about AI role in creative expressions (Landa-Blanco et al., 2023).

Ariyaratne et al., (2023), discusses the spark of AI tools like ChatGpt and claims that AI tools are emerging and showing potential in academic research. They can write scientific papers just like humans. ChatGpt that is developed by artificial intelligence is applicable in various sectors including research. Many studies have shown that though AI presents grammatically correct and coherent data but still the concept about its reliability remains questionable especially in the scientific fields like radiology. The study also highlights AI's limitations in factual accuracy that underscores its critical assessment (Ariyaratne et al., 2023).

Casal & Kessler, (2023) investigates the substantial interest of ChatGpt in academic and educational fields considering its applications and limitations. This study focuses on the difference of AI-generated texts and human written texts questioning its accuracy, ethics and human discernment. It is quite difficult to find out the difference between human-written and AI-generated texts. For instance, a study revealed a very low rate i.e. only 38.9% to examine reviewers' ability to identify human-written and AI-generated texts. AI tools are not only used for writing but they can also be used as ethical aids in research. The study presents a nuanced role of AI in publishing research and also explores the AI's ethical applications within academic context (Casal & Kessler, 2023).

This study centers on analyzing the direct comparison of human-written and AI-generated texts within an academic context. It specifically analyses the essays written by both humans and AI by finding out their detailed linguistic features with the help of different qualitative frameworks like 6+1 Trait Writing Model, Discourse Analysis and Comparative Analysis. It examines the difference of human essays and AI essay based on its ideas, organization, voice, word choices, sentence fluency, convention and presentation. It also finds out the structure, rhetorical strategies and coherence within the essays. This study investigates the perspective of MPhil students on the usefulness of AI as expressed in their essays. These qualitative frameworks and comparative study provides an insight to the educators and paves the way for future researchers to explore the influence of AI on human writing as well as the writing skills of AI in broader educational landscapes.

Research Methodology

Research Design

This study uses a qualitative research design that aims at exploring the comparative writing qualities of essays written by MPhil English students and an AI-generated essay on the topic of "Usefulness of AI." The research provides with a detailed examination of the writing traits, discourse patterns, and linguistic features of both human and AI-generated essays by adopting a qualitative methodology. It focuses on two different data sets i.e. 50 essays written by MPhil students of the English department, University of Education (Lower Mall Campus), Lahore, Pakistan and the other data set contains an essay generated by the AI tool i.e. ChatGPT.

The research utilizes the 6+1 Trait Writing Model to analyze both sets of essays, focusing on its key elements such as ideas, organization, voice, word choice, sentence fluency, conventions, and presentation. This model facilitates a structured way to assess the writing quality of each essay in a detailed manner using all the seven key elements. In addition, discourse analysis has been employed to evaluate the structure and organization of the essays, including the keen observation and examination of the coherence and cohesion, the effectiveness of argumentation, and the writing strategies used by the students and AI in the essays. Moreover, Contrastive analysis has been used to identify and contrast linguistic features, and stylistic elements present in the human and AI-generated essays. This analysis offers an insight into how these differences in human and AI writing style influence the overall clarity and persuasiveness of the essays. Through this structured research design, the study aims to highlight the differences of the human and artificial intelligence's writing style by exploring their relevant linguistic and structural elements (Maxwell, 2013).

Data Collection

A very comprehensive data collection process has been implemented for this research project. The essays have been gathered from two distinct sources:

- MPhil English students from the University of Education (Lower Mall Campus), Lahore, Pakistan
- Artificial intelligence (AI) writing tool, ChatGPT.

The students of MPhil English were instructed to write on the topic "Usefulness of AI." The class contained 50 students hence there were 50 essays in total that were collected as in the data set 1. All the students were closely monitored by the PhD students during the essay writing sessions to ensure the integrity of their writing process. The usage of their mobile phones or any other electronic gadgets i.e. laptops, tablets etc was strictly prohibited to get their original essays without any assistance that reflect their independent thoughts and writing skills. The time given

to all the students for writing a 300 words essay was one and a half hour. Using the ample time, the students wrote the essays that varied in length and style. It contributed to a rich dataset for the analysis. On the other hand, an essay on the same topic was generated using ChatGPT, that served as a baseline for comparison to evaluate the writing quality and major features of human-authored and AI generated essays. All collected essays were organized in an Excel sheet for the systematic analysis. The Excel sheet contained 50 essays by the students in the start and AI generated essay in the last. All the essays were followed by 6+1 Trait Writing Model that highlighted their strengths and weaknesses in different columns. This methodical approach to data collection ensured the integrity of the results and also provided with a robust comparison between human and AI writing capabilities (Hennink et al., 2020).

Analytical Framework

The analytical framework for this research project is grounded in three primary models: the **6+1 Trait Writing Model** and methods of **Discourse Analysis** and **Contrastive Analysis**. Each of them are explained below.

6+1 Trait Writing Model

The **6+1 Trait Writing Model** was developed in the late 1980s as part of a broader initiative to improve writing skills of the students in schools. It was introduced by educators and researchers, including Ruth Culham. The researchers and educators felt the need of some model that could help the students to improve their writing skills by some effective and structured feedback and that could evaluate their writing quality to guide them in their writing development. The model has gained widespread adoption in many educational settings to help both teachers and students so they can focus on specific characteristics that lead to effective writing (Serapio-García et al., 2023).

There are seven key traits of the model that serve as a guide for evaluating and improving writing skills of the students. These traits help the educators in providing the constructive feedback to the students that ultimately helps them improving their writing quality. The seven traits are:

- **Ideas:** This trait focuses on the content of the writing, the development of supporting details, and finds out how relevant the information is. It also checks for the clarity and the way idea is presented. Strong ideas are always well-defined and engaging and they capture the attention of the reader.
- **Organization:** This trait refers to the structure of the writing. It checks for the cohesion and coherence of the essay and how well ideas are sequenced and connected. A well-organized essay has a clear introduction, main body, and conclusion. The ideas always progress in an organized manner in a good piece of writing. (Fry & Griffin, 2010)
- **Voice:** Voice conveys the writing style of the author. It also shows the personality of the writer and a very unique perspective shine through the writing of every good writer. An

effective voice engages the reader and increases the impact of the writing and also makes it more relatable, compelling and valuable.

- **Word Choice:** word choice is the assessment of the vocabulary and language used in the writing. Effective word choice involves the use of precise and appropriate words that evoke emotion and convey proper meaning. (Sarmir, 1995).
- **Sentence Fluency:** This trait involves the rhythm and flow of sentences. The sentences that are well-crafted increase the readability and engage the reader while varied sentence structures can add depth to the writing.
- **Conventions:** Convention includes the rules of grammar, punctuation, spelling, and formatting. Professional writings encompass the mastery of convention and show clear communication.
- **Presentation:** Presentation is the additional trait of 6+1 trait writing model. It considers the overall appearance of the written work that includes the formatting, and legibility of the writing. It also evaluates if the written work id adhered to the guidelines. A polished presentation reflects attention to detail and grab the attention of the audience (Kalsum, 2020).



Smekens (2024)

The **6+1 Trait Writing Model** provides a comprehensive approach to writing assessment. It emphasizes on both the technical aspects of writing and the importance of creativity and personal expression in the written work. By applying this model, educators can offer a constructive feedback to students that can help them to identify the strengths and weaknesses and also the areas for improvement in their writing.

Discourse Analysis

Discourse Analysis (DA) emerged as a formal field of study in the social theory and linguistics, in the late 20th century. Scholars such as Mikhail Bakhtin and Norman Fairclough laid the groundwork of DA by highlighting the importance of context, social interaction, and power dynamics in understanding language use. Its initial focus was on spoken language only but then

DA evolved to evaluate various forms of communication, for instance written texts, digital media, and visual communication. Basically, discourse analysis encompasses how language works in different contexts. It also investigates the relationship between language and the social practices, and how it constructs the meaning. This approach shows that language is a tool for communication as well as a mean of constructing social identities, and relationships that tend to follow power structures. DA includes analyzing the structure of the language and how well the texts are organized. It also investigates the coherence and cohesion of the texts. Moreover, it studies the speech acts, and conversational strategies of the written pieces to understand how discourse reflects and shapes social realities. It also addresses the implications of language choices, i.e. the influence of ideology, society, and culture (Davies & Elder, 2004).

By applying discourse analysis to the essays collected in this research project, insights can be gained into how MPhil students and AI-generated texts convey their meaning, engage with audiences, and construct their arguments on the usefulness of AI. This research paper highlights the similarities and differences in discourse strategies employed by human writers compared to AI, and contributes to a deeper understanding of how language operates in the realm of artificial intelligence and human authorship (Klotz & Prakash, 2008).

Contrastive Analysis

Contrastive Analysis (CA) was primarily influenced by the behaviorist theory of language learning. It originated in the field of applied linguistics during the 1950s and 1960s. The stance of the pioneers of this model such as Robert Lado was that understanding the similarities and differences between languages could help in teaching language, particularly the second language.

The basic and major purpose of CA is to systematically compare two or more languages or language varieties or written texts in the same language or different languages to identify structural similarities and differences, which can lead to a better language teaching, translation, and linguistic research. Initially, CA only focused on grammar and phonetics of the languages but it has evolved over time. Now, it includes a broader examination of discourse features, rhetorical structures, and stylistic elements across languages (Fisiak, 1981).

In this research project, contrastive analysis has been employed to compare the essays written by MPhil students with the one generated by the AI tool, Chat GPT. By identifying and analyzing linguistic features such as word choices, sentence structures, and rhetorical strategies, the research paper explores the difference in human and AI-generated essays to express ideas about the usefulness of AI. This comparative analysis highlights the distinctive features of each type of writing as well as shows the implications of these differences for clarity, persuasiveness, and overall effectiveness. Moreover, contrastive analysis encompasses the cultural and contextual backgrounds in the essays written by the students. It also considers the inherent limitations of the human writings and capabilities of AI in producing cohesive, coherent and contextually relevant discourse. By using this method, the research aims to increase the

understanding of language functions in both human and artificial contexts. It also contributes to the valuable insights in the fields of writing studies and linguistics (Whitman, 1970).

Data Analysis Procedure

The data analysis procedure for this research project involves a systematic approach to evaluate the essays written by MPhil students and the AI-generated essay using the 6+1 Trait Writing Model, along with Discourse Analysis and Contrastive Analysis. It uses a multi-faceted approach that involves different steps. The first step entailed the careful coding of the essays collected in the Excel sheet, where each essay was evaluated based on the seven traits of the 6+1 Trait Writing Model: ideas, organization, voice, word choice, sentence fluency, conventions, and presentation. All of the seven traits were rated on a predefined scale that allowed the excel sheet to enter the strengths and weaknesses of the essays in different columns. The essays were arranged in a systematic manner that involved the arrangements of student written essays in the start and the AI essay at the last. After completing the initial assessment with the help of 6+1 Trait Writing Model, the next step involves conducting a Discourse Analysis of the essays to investigate the structure, cohesion and coherence, and rhetorical strategies used in each essay. This analysis focuses on how effectively the essays communicated their central ideas and how well they engaged with the audience. DA involves taking note of all the patterns in language use and argumentation techniques utilized in the essays. Furthermore, Contrastive Analysis employs to compare and contrast linguistic features and stylistic elements between the two sets i.e. students' and AI's essays. This analysis involves identifying differences in word choices, sentence structure, and overall discourse strategies utilized by the MPhil students and the AI-generated essay. By following this structured data analysis procedure, the study aims to provide a nuanced understanding of the writing qualities of human authors versus artificial intelligence, facilitating a robust comparative evaluation.

Research Findings

This paper investigates the writing style of the students i.e. humans and artificial intelligent, describes the nature of the writings of both by using discourse analysis and compares the two of them by using contrastive analysis. The findings of all the three models are explained below.

6+1 Writing Trait Model

Ideas

Strengths

The analysis of the first feature i.e. ideas of the 6 + 1 trait writing model shows a very strong impact on the usefulness of artificial intelligence across many varieties of fields. All the essays written by the students highlight several key strengths. Many essays present very clear central idea regarding the usefulness of AI. They effectively communicate the significance of AI in contemporary contexts. The clarity of the essays assists in establishing very strong arguments in

the essays. The essays written by the students cover a variety of applications discussed, for example the role of artificial intelligence in research, daily tasks, medicine, grammar checking, digital analysis, virtual assistance, healthcare, education, agriculture, business and many more. All of these contemporary topics that are relevant to artificial intelligence have been highlighted in most of the essays. Several essays identify the advantages of AI as well as acknowledge the disadvantages. This balanced approach of those essays allow a detailed understanding of the topic. Several essays address the continuous evolution of AI on daily basis and study its growing importance in the contemporary world. Some essays also have added the historical background of AI. Many essays effectively highlight the importance of AI in our daily life for the students, teachers, educators, and professionals. Overall, all the essays written by the students engage the audience by presenting a clear focus on the benefits of AI as well as showcasing it's important in various domains While, the essay written by AI clearly presents the main idea of AI's usefulness with relevant examples in healthcare, education, and business.

Weaknesses

The analysis of the ideas reveals several recurring weaknesses across the essays. The weaknesses suggest the areas of improvement and discuss the points where the arguments could be more strengthened. A common issue that has been analyzed across many essays is the lack of depth in the arguments presented. Many essays have been written without developing the central idea clearly. This leads to the surface level understanding of the topic and diminishes the overall effectiveness of the argument. Many essays even fail to provide specific examples to support their claims. Even the essays that do include examples are not sufficient and very minimally elaborated. The absence of concrete evidence leads to the vague and unconvincing arguments in the essays. Many essays tend to neglect the potential drawbacks or disadvantages of the AI. They only highlight the benefits of AI. So, the one-sided approach undermines the credibility of the arguments. The essays exhibit the repetition of ideas without expanding on them. Many essays do not address critical issues such as the impact on critical thinking, job displacement, cyberbullying, privacy concerns, digital harassment, and lack of engagement with ethical considerations related to AI. Some points mentioned in the essays are overly generalized and they lack the specificity to engage the reader effectively. Some messages are underdeveloped and they lack the details that provide a sense of incompleteness. A number of essays suffer from unclear arguments. In summary, the ideas section relates to the content of the essays and many weaknesses, for example lack of depth, lack of specificity, underdeveloped arguments, clarity issues, repetitive points, insufficient examples, and minimal discussion of ethical considerations have been highlighted in this area of the essays. On the other hand, the essay by AI has very detailed ideas but still it could explore more diverse examples.

Organization

Strengths

The next feature of 6 + 1 reading model is organization. The strengths of this feature include the balanced focus in many essays within the individual paragraphs where each paragraph addresses a specific aspect or application of AI. Many essays exhibit a proper logical progression where they move from the general benefits of AI to the more specific applications. A significant number of essays effectively introduce the topic of AI along with providing the context and relevance. Many essays provide a coherent argument and follow the full fledged structure of essay writing i.e. introducing the topic, writing the main body with clear examples and reinforcing the main idea. In the conclusion, many essays discuss various applications of AI in a very structured manner where they list all the fields where AI is useful. Some essays mention the advantages as well as the disadvantages of the AI. In this way, they enable a balanced exploration of the topic. Some essays incorporate relative examples to illustrate their points and also highlight their relevance in our daily life, for example education, medicine, health, industrial areas and various fields. A few essays employee lists to clearly present the applications of AI that makes it easier for the readers to grasp the range of AI uses in a straightforward manner. In a conclusion, the strengths in organization of the essays show the use of examples, focused paragraphs, logical structure and flow, clear introductions and conclusions, categorization of ideas and effective use of lists While, the essay written by AI is well-structured with a clear introduction, body paragraphs, and conclusion where each paragraph focuses on a specific area.

Weaknesses

The organizational weaknesses in the human essays include the lack of transitions, repetition and redundancy. The paragraphs' presentation and structure seem very disjointed and there is a need for stronger conclusions. Many essays written by the students suffer from the lack of transitions which makes the flow between the ideas feel very disjointed. For example, in *essay 27*, the shift from advantages to disadvantages is quite abrupt that indicates that readers may struggle to follow the progression of ideas. Several essays exhibit the lack of cohesion that contains the disconnected paragraphs, for example, in *essay 3* and *essay 12*, the paragraphs feel disconnected and the sentences field is jointed. There is a lot of presence of repetition of phrases and ideas in multiple essays, for example, *essay 9* repeats the concept of laziness and *essay 11* repeats the phrases, for example, "AI tools". The topic sentences in many essays are very unclear which provides a very haphazard road map for the readers. The structure of the paragraphs in many essays feel very disjointed and doesn't follow the writing guidelines. Many essays have very conclusion that undermines the effectiveness of the essays and many essays are open-ended. For example, *essay 39 and 46* reinforce the main points more emphatically but do not conclude the essay in a proper way. In a nutshell, to enhance the organization of the essays, stronger transitions, creative structure, and effective compliance should have been used. The organization

of the essays could also become better by giving clear topic sentences, minimizing redundancy, and strong conclusions.

Voice

Strengths

The next feature of 6 + 1 trait writing model is voice. Here is a detailed overview of the strengths related to the voice in the essays along with examples. Many essays emphasize an informal style that engages the readers very well, for example, *essay 5* uses very engaging and conversational tone. Many essays adopt a very conversational style and a relatable tone that makes the subject matter approachable. Many students have maintained a very clear and accessible voice throughout their essays and have written easy sentences instead of the complex ones, for instance, in *essay 1* and *essay 29*, the writing is very straightforward and easy to understand. Some essays effectively convey the enthusiasm for AI and some essays present a knowledgeable perspective on AI's significance. In *essay 20*, *essay 25* and *essay 36*, the accurate terminology related to AI and education, and a knowledgeable perspective on the significance of AI have been showcased effectively. Some essays employee personal updates to enhance relatability, for example, *essay 27* begins with a personal statement i.e. "I start with the name of Allah" that engages the readers who share the similar beliefs. Some essays use relatable examples to illustrate their concepts, for example, *essay 39* states "It's like having a personal shopper who knows exactly what you want". Several essays maintain an exertive voice that shows the confidence of the writer and some essays successfully balance accessibility with professionalism while some of the essays convey an authoritative tone where they use proper expertise, for example, *essay 42* uses the words like "professional" and their engaging tone is a powerful tool. As a conclusion, the essays written by the students maintain a conversational tone, informative and enthusiastic language, and demonstrate a successful balance of engagement, relatability, and professionalism. On the other hand, the essay generated by AI is very well-structured with a clear introduction, body paragraphs, and conclusion where each paragraph focuses on a specific area.

Weaknesses

The detailed analysis of the weaknesses in voice along with the examples is drawn as follows. Many essays exhibit a noticeable shift between formal and informal tones while the informal voice in many essays does not align with the expectations of the readers and the academic audience that undermines the credibility of the essays. The informal language and the vague expressions detract the readers from the perceived authority of the writing. There are many unclear expressions used in many essays, for instance, "storm of several chat boats" then there

are many big phrases that use the informal tone for example “trendy tool” and there are also the overly casual phrases for example “you can simply do chat with AI” that have also been used in certain sections of many essays. The voice lacks the persuasive and strong tone, for example, an essay contains the phrase “AI can be a most useful technology”, this phrase is neither a confident remark nor an authoritative expression. Some essays add a personal touch or relatable anecdote and use overly casual and unprofessional phrases that lack clarity. Some phrases are redundant and the flow of ideas is awkwardly constructed, for example, “important, incredible and wonderful and mechanical intellectual of computers”. Some sentences are very vague and poorly phrased. Some sentences in the essays are unclear and inconsistent and there is informality throughout the essays. The examples of such phrases are “worth of its type”, “good feature” and “not good think”. In a summary, the weaknesses in voice contain the tone and the usage of informal language, lack of appropriateness, lack of sophistication, vague and awkward phrasing, and lack of professionalism, redundancy in phrasing and inconsistency in formality. While, on the other hand, the essay generated by AI is quite good but still some transitions could be smoother. Moreover, it lacks the personal experiences the way students have shared.

Word Choice

Strengths

Next feature of 6+1 trait writing model is the analysis of word choice and its strengths in the essays written by the students are highlighted as follows. In the essays, students have used the terminology and accessible language across the essays. Many students demonstrated effective vocabulary choices that aligned with the topic of AI. Some students have used very specific and precise terms that enhance the clarity and relevance of the topic. The use of effective terminology has been seen across many essays, for example, *essay 2* uses the word “meta AI” and *essay 3* uses the word “AI tools”, *essay 14* uses the word “robotic systems” and *essay 5* uses the word “digital communication”. Likewise, some very relevant phrases also have been used by the students, for example, *essay 39* uses the phrase “to recommend product based on our browsing history”. Many essays attempt to introduce and explain complex ideas by using relevant terminology, for example, *essay 16* has mentioned the popular AI tools like “Alexa” and “LYNA”. In many essays, the students illustrate their points by incorporating examples alongside the appropriate terminology, for instance, *essay 30* effectively mentions AI software to facilitate students’ knowledge. Furthermore, *essay 35* uses the phrases like “facilitates in the formation of blueprints”. Several essays demonstrate very skillful balance between accessible language and technical terminology, for example, *essay 21* uses the term “like a teacher”. *Essay 22* uses relatable phrases like “quick responses” and “help customers”. Overall, the strengths in word choice in the essays written by the students leave a commendable balance of specific ending, effective examples, accessible and clear language, introduction to specific concepts and

use of relevant terminology. The essay generated by AI uses very clear and precise language, using relevant terminology that conveys significance of AI without being overly technical.

Weaknesses

Though the essays have used clear and relevant vocabulary, a lot of weaknesses have been seen across the essays in word choice. A significant weakness across all the essays is the frequent use of awkward or unclear phrases, for example, *essay 1* contains the phrase “wrap your cowardness”. *Essay 9* uses the phrase “face away” and similarly *essay 10* includes the phrase “set you in place”. All these phrases lack precision and clarity and make the essays less coherent and detract from the intended meaning. The second major weakness that has been seen across the essays is spelling and grammatical mistakes. *Essay 3* misspells the words like “difficult”, “creat”, and “frewdlent”. In *essay 4*, the words such as “cannt”, and “aboutue” stand out as spelling mistakes. *Essay 26* also has many spelling errors like “rebots”, and “bussines”. Some phrases and key terms are also very redundant and have been repeated many times, for example, *essay 22* overuses the terms like “helpful” and “useful”. In *essay 23*, the key terms like “benefits” and “advantages” have been repeated several times. In *essay 40*, the term “AI” has been repeated frequently without rephrasing. In *essay 20* the phrase like “AI helps a lot” has been restated in a similar unvaried manner. Some essays overuse the technical jargons for example, *essay 42* includes the phrase like “AI algorithm”. *Essay 42* uses predictive analysis many times. Such heavily rely on technical jargons without sufficient explanation might be too complex for a general audience. Another issue in the word choice of the essays is inconsistency in vocabulary and clarity, for example, *essay 25* uses the sentence like “I have to think in different ways regarding any topic” then *essay 46* contains vague phrases like “making a big difference”. All these weaknesses, the combination of awkward phrasing, spelling mistakes, grammatical errors, overuse of jargons, repetition of the phrases, and inconsistent vocabulary reduce the overall effectiveness of the essays. On the other hand, the essay generated by AI is quite precise and uses clear language but also it repeats the phrases occasionally. Moreover, it uses the specific jargons that are difficult to understand.

Sentence Fluency

Strengths

The next future of 6+1 Trait Writing Model is sentence fluency. The strengths in sentence fluency are described as follows. Many essays demonstrate an effort to use varied sentence structures, for example, *essay 1* effectively combines the sentence length to engage the reader. *Essay 7* provides the variety in the sentence structure to increase the rhythm and *essay 8* achieves the rhythm through different sentences. Some messages successfully create a natural rhythm by mixing short and long sentences, for example *essay 14*, *essay 15* and *essay 24* maintain a good rhythm with its combination of sentence length by incorporating simple and complex sentences

together. It improves the readability of the sentences. Several essays use very direct and clear sentences, for example, *essay 10*, *12*, *13*, and *essay 16* use a very straight forward language and variety of sentences to make the content more accessible and readable. It also improves the flow of the text. Clear sentence structure has also been used in *essay 21*, *essay 22* and *essay 24*. *Essay 22* demonstrates the sentences like “It provides quick response that are generated automatically” and *essay 25* uses the sentence like “You can chat with AI easily”. *Essay 24* contains the sentence like “The most useful feature of AI is that it is reallsolves out the language barriers”. Some essays use very simple sentences that help in clarifying complex ideas, for example, *essay 26* uses the sentence, “The entire world uses AI”. This kind of straight forward, concise and simple language and effective rhythm with varieties and simple structures increase the readability and flow of the text and convey clear ideas. While, AI also uses the mix of simple and complex sentences with proper sentence structure.

Weaknesses

The weaknesses in sentence fluency across all the essays are organized as follows. Many essays exhibit very unclear phrases, for example, *essay 1* contains a phrase “wrap your cowardness”. Many essays contain very awkward phrases for example, *essay 18* contains a phrase “efficient and efficient” and another phrase in *essay 25* is “AI helps to think in different ways regarding any topic”. Repetitive expressions also have been used in many essays, for example, in *essay 20*, the phrase that “GPT can also” has been used several times. Then grammatical errors, and frequent grammatical mistakes lead to the weak sentence fluency, for example, *essay 19* contains a phrase “It is very helpful in all fields such as educational fields”. *Essay 11* includes a phrase i.e. “We lose interest in reading books and hardworking”. *Essay 12* contains a phrase “AI became very useful” and contains a phrase “AI do work speedy”. Many spelling mistakes such as “difficult” in *essay 3*, “medical” in *essay 8*, “plagiarism” in *essay 34*, “artificial” in *essay 17*, and “intelligence” in *essay 33* detract from the overall quality and lead through weak sentence flow. Repetition of the phrases and very limited vocabulary lead to the lack of variety in the expression, for example, the words “helpful”, “useful” and “AI tool” have been used frequently in *essay 21*, *22*, *24* and *40*. In *essay 21*, the phrase like “AI helps us a lot” has been used in a repetitive manner. Some sentences are very redundant, for example, “AI is changing how we live, work and communicate”. *Essay 25* contains a phrase “AI helps to think in different ways regarding any topic”. Some technical jargons, for example, “predictive analytics” in *essay 43* and “AI algorithms” in *essay 42* make the sentence structure complicated and uneasy for the audience to understand. Vague phrases like “making a big difference” in *essay 46* need the specific language to enhance clarity. Overall, the weaknesses in sentence flow across the essays highlight a consistent pattern of awkward and poor phrasing, grammatical and spelling errors, repetition of the words and lack of vocabulary variety. The essay generated by AI is full of varied sentence structure, mixing simple and complex sentences for smooth readability and logical flow.

Convention

Strengths

The next trait of 6+1 Trait Writing Model is convention. The overview of strengths in convention is as follows. Many essays follow the basic writing conventions, for instance, *essay 1* and *essay 4* indicate that the students are making efforts to maintain higher grammatical rules and the standard structure and formatting of the essay. Several essays such as *essay 15*, *essay 21*, *22* and *essay 25* show the use punctuation effectively. The punctuation marks have been used in these essays to separate the ideas and appropriate capitalization of the terms like “AI” and “English”. The ideas have been organized in many essays properly. For example, *essay 26* and *essay 29* distinct the ideas to facilitate a smoother writing experience. Most of the essays convey clear messages and the main theme of the essays are generally understandable. Though some messages have made mistakes but a notable effort to follow grammatical rules can be seen across the essays. It also involves appropriate terminology related to AI. The overall quality of many essays is commendable. Some messages also show the use of lists and structured presentation that indicates an effort on the behalf of the students to make the essays more accessible and organized. Several essays maintain a clear focus on the subject matter, particularly in terms of AI functions and applications, for instance, *essay 36* and *essay 38* are centered around the role of AI in various contexts. In summary, the strengths in convention across the essays reflect considerable efforts on the part of the writer’s writing practice by employing proper grammatical rules, punctuation, and organized their ideas effectively. As far as the essay written by AI is concerned, it follows standard grammar, punctuation, and spelling conventions with no noticeable errors.

Weaknesses

The weaknesses in conventions are described as follows. Frequent errors in spellings and grammar across many essays have been noted, for instance, *essay 1* contains the typos like “purson” and “simultanesuly”. *Essay 14* contains the errors like “aritifical” and “plagerism”. Words like “busince” and “easies” are misspelled in *essay 19*. The incorrect form like “phenomenons” has been noticed in *essay 18*. *Essay 35* contains the term “humanbeings”. Inconsistent capitalization and the errors in punctuation have also been significantly noted in several essays. For instance, *essay 31* contains a phrase “in pakistan everything is going digital”. *Essay 28* contains a phrase i.e. “help them creating”. Vague phrases and incorrect punctuation showcase poor sentence structure and grammar. Frequent run on and missing commas have also been noticed in *essay 3* and *essay 27*. Many informal phrases and redundant word choices that reduce professionalism have also been used, for instance, *essay 9* contains the phrases “like it's redundant use and humanly robotics”. *Essay 32* uses of phrase “and also has benefits for researchers”. The frequent repetition of terminology and inconsistent use have also been noticed, for example, *essay 8* contains the term “robot and robots” many times. In *essay 33*, the phrase “AI almost use in every field of life” have been used inconsistently. In *essay 39*, the phrase “AI

can tell lessons” is repeated without adding any new information. Most of the essays show very unprofessional attitude, for instance, *essay 11* contains the informal phrases like” no doubt” and “AI tools are very helpful for us”. *Essay 40* contains a phrase “AI is also making waves in the business world”. Repetition of the phrases, unprofessional attitude, inconsistent use of terminology, informal word choices, and grammatical and typographical errors are the major weaknesses in convention across most of the essays While, on the other hand, none mistakes in convention have been noted in the essay generated by AI.

Presentation

Strengths

The last feature of 6+1 trait writing model is presentation. It is an additional feature that shows the overall appearance of the essays. The essays show many strengths in presentation. Many essays exhibit a straight forward format that makes the ideas visible and easy to read. *Essay 1, 21, 22, 23, 24* and *essays 41-46* exhibit very clear format. In these essays, the clear structure also has been shown. The *essays 14-20, essay 39* and *essay 40* have very well organized paragraphs that aid in the understanding. Many essays show a broad range of AI applications. *Essays from 2 to 13* and *essays from 25 to 38* mention significant examples and highlight different domains where AI is helpful such as education, daily life, and ethical consideration. Many essays, for example, *essays from 14 to 20* and *essays from 25 to 38* include well defined structures that contain the introductions, main bodies and the conclusions. *Essay 17, 18, 25* and *essay 30* particularly showcase the clear statements and summarize the key points effectively in their conclusions. *Essay 25 to 38* maintain a clear focus on the usefulness of AI and they provide very focused argumentation across the essays. Many essays, for instance, *essay number 39 to 46* show the logical progression of ideas that create a coherent narrative and enhances the readability of the essays. Overall, almost all the essays are significant in presenting the structure in various ways like layout, organization, flow of ideas, coverage of AI applications, and clear structure of the essays. While, the essay generated by AI shows a very organized formatting in a typical setting that enhances the readability of the essay.

Weaknesses

The weaknesses in presentation include lack of paragraphing and clear structure. Many essays demonstrate a lack of proper paragraphing, for example, *essay 1, 21* and *essay 22* lack sufficient paragraphing that negatively impacts the readability and overall flow of ideas. This issue is wide spread across most of the essays including *essay 23, 24* and *essay 35*. In these essays, the paragraph division is absent and it is very hard to distinguish between the key points. Likewise, many essays lack the clear introduction and conclusion. In *essay 3, 4, 5, 6, 7* and *essay 10*, there are no clear opening statements and all the key points are abruptly summarized without delivering a cohesive message. Another issue that is inconsistent formatting and presentation

persist through the *essays 15, 16, 17, 18, 19 and 20*. These essays suffer from inconsistent bullet points, inconsistent punctuation and many formatting errors. The lack of attention to view the elements and organizational tools has also been noticed across almost all the essays. *Essays 25 to 28 and essays 31 to 36* lack the bullet points and use of section headings that make it difficult to navigate through the content. Several essays are open ended or the end is with a weak or rust conclusion that leaves the discussion feel incomplete. *Essays 9, 11, 12, 13, and 14* have rust endings and fail to summarize the key points effectively. These factors that make the presentation weak effect the overall quality of the essays and make them quite unprofessional and invaluable.

Traits	Human-written essays (strengths)	Human-written essays (weaknesses)	AI-generated essay (strengths)	AI-generated essay (weaknesses)
Ideas	clear central ideas	lack of depth and specificity, unclear argumentation	clear presentation of the main ideas with examples	could explore more diverse examples
Organization	proper logical progression, coherent arguments	lack of transitions, disconnected paragraphing	well-structured essay	-
Voice	engaging and conversational tone, straightforward words, easy to understand	informal language, vague and awkward phrasing	focus on the specific diverse domains	lack of the addition of personal experiences
Word Choice	effective vocabulary choice, specific and precise terms	unclear phrases, lack of clarity	very clear and precise language with relevant terminology	use of heavy jargons
Sentence Fluency	varied sentence structure, mix of simple and complex sentences	repetition, poor phrasing	mix of simple and complex sentences with proper structure	-
Convention	use of proper punctuation,	grammatical and	follows all the conventions including	-

	appropriate capitalization	spelling errors	grammar, punctuation and spellings	
Presentation	variety of layouts and proper flow of ideas	lack of proper paragraphing	organized formatting in a typical setting	-

Discourse Analysis

Ideas

The first trait of 6+1 trait writing model is ideas. Basically, ideas trait is based on how essays construct the meaning and convey the content. Some messages like *essay 32 and 36* present a very clear idea that create a coherent discourse. Their message is clearly articulated and supported with relevant examples, for example, in *essay 36*, the discussion of AI, role in education is supported with examples and also the benefits of AI have been mentioned for the students, for example “It can help students by providing personalized learning experience”. This sentence provides a very logical discourse and maintains a coherent message and focuses on the topic throughout these essays. It shows a stronger flow of logical reasoning while there were some essays where the discourse coherence was missing. Their arguments do not stand out and they integrate the statements that are very under developed in their ideas. They lack the depth and their discourse is fragmented, for example, *essay 7 and 13* provide blank statements and their ideas do not follow up with specific examples or explanations, for example, in *essay 7*, a sentence, “It is helpful in many ways” is written but no examples are provided to support the argument.

Organization

Most of the essays are well organized and they create a proper pathway by shaping the flow of ideas and structure the arguments logically, for example, *essay 25 and 37* demonstrate effective introduction and clear and well-structured body paragraphs and a comprehensive conclusion. For instance, *essay 25* provides the examples to support its arguments i.e. “AI is used in various domains such as education, healthcare, and business.” While on the other hand, there are some essays that are very weak in organization and they show fragmentation, for instance, *essay 11* shows the lack of clear transition between the paragraphs and *essay 6* contributes to an incoherent discourse. The purpose of organization is to serve as a skeleton but the essays with poor organization make the discourse very deteriorated and difficult for the readers to engage with the content meaningfully.

Voice

The voice reflects the authors' personal writing style and how the writer engages with the topic. There are many essays that show the discourse by the personal involvement of the writer, for example, *essay 38* uses varieties for example "Artificial intelligence is now used in every field of life". This sentence is followed by an explanation of how the fields of life use Artificial intelligence and how this effects various factors. On the other hand, there are many essays that lack a proper distinctive voice that create a very flat discourse. The lack of distinctive voice leads to a bland and less impactful discourse, for example, *essay 12* includes a phrase, "AI is important." Without any further elaboration or exemplification, this kind of general and mechanical voice create a very detached and impersonal discourse. A strong voice adds to the dimensions of the discourse but if a strong voice is missing, it cannot create an engaging and relatable discourse.

Word Choice

The fourth trait is word choice. It effects the ideas to be communicated and how well it represents the discourse in the essay that resonate with the reader. Some essays use very accurate and effective vocabulary that contributes to a well-articulated discourse, for example, *essay 29* includes a phrase "AI enhances productivity and reduces operational costs", in this sentence, the word choice is very precise that enhances the clarity of the discours while there are some essays that use the repetitive phrases and sometimes very vague and poor phrasing has been used in the essays that lead to discourse redundancy. Repetition in the essays create a monotonous discourse that fails to maintain readers' engagement, for example, in *essay 5*, the phrase "AI is useful in many ways" has been repeated frequently. The word choice should be dynamic and precise to create an effective discourse otherwise poor phrasing results in the ambiguity and it loses the interest of the reader.

Sentence Fluency

Sentence fluency is a crochet trait in creating a smooth discourse. Some essays have used fluent sentences and well-structured paragraphs that contribute to a coherent discourse. The sentence fluency in some of the essays is well-managed where the sentences vary in length and structure and they create a proper rhythm that makes the essay easy to read. For example, *essay 39* contains the sentences like "AI has transformed industries from healthcare to education. Its applications are diverse and impactful. Conversely, there are some messages that use very short sentences and they also lack proper transitions, for example, *essay 3* uses the sentences like "It is very important". This kind of structure of the sentence creates a very choppy discourse and these disjointed sentences lead to a broken less cohesive discourse.

Convention

Many essays show the use of convention i.e. grammar, punctuation, and spelling in a very professional manner that shows its impacts for providing smooth communication of ideas. They provide a very clear well-structured discourse. In *essay 40*, the student has been irrelevant to the conventions and it create the uninterrupted discourse, for example, *essay 40* uses a sentence “AI is used in various fields including healthcare and education.” In contrast, most of the essays show grammatical errors and punctuation and spelling mistakes. It leads to the disruption in discourse. Many essays contain incorrect sentences with incorrect grammar, spelling mistakes and missing commas that lead to the fragmented discourse and break the flow of the ideas. Convention is vital for maintaining a smooth and professional discourse whereas error deteriorate the continuity of thoughts.

Presentation

The final trait of 6+1 trait writing model is presentation. It is used to show a coherent discourse. Many essays like *essay 25* is well structured and shows the structural discourse while some essays are disorganized, scattered, and they show difficulty to navigate the discourse. There are some incomplete bullet points, lack of proper formatting, and missing paragraph in such essays, for example, *essay 4* suffers with the absence of clear sections that leads to the confusion about the relationship between different points.

Contrastive Analysis

Ideas

The first trait is ideas in human written essays and AI crafted essay. They differ in the ideas very broadly. Human essays cover similar topics related to AI but they struggle in articulating clear and concise ideas for instance, *essay 11* does not provide the sufficient depth and does not support its argument with specific examples. Essay 12 relies on overly general statements, like “AI is good for many things”, without providing any examples. Essay 9 presents its ideas in very repetitive manner, for instance, the phrase “AI helps in everyday task” has been presented multiple times. On the other hand, AI generated essay articulates very clear and specific ideas regarding AI applications in healthcare, education, and business. AI generated essay adds depth and relevance to the ideas and makes the argument more compelling, for instance, it states, “Machine learning algorithms analyze vast amount of medical data to assist in diagnosing diseases”. This sentence showcases volumes of understanding and clear articulation of the idea that many human essays lack.

Organization

The second trait of 6+1 trait writing model is organization. Many human written essays exhibit weaknesses in organization. The essays that are written by the students show inconsistent paragraphs, and unclear introductions. They are not well-structured and lack proper introductions and conclusions. They fail to summarize the major key points in the conclusions and they also

show unorganized presentation of data in the main body, for example, *essay 6 and 10* do not provide the coherent structure. There is also lack of transitions between paragraphs that diminishes the overall effectiveness of the argument. It leads to a very disjointed reading experience for the reader. On the other hand, AI generated essay presents a very clear and logical structure. It uses impactful transitions. It begins with an effective introduction that follows the distinct paragraph for healthcare, education, and business and in the end, it concludes the essay in a very good manner that shows its potential. For example, AI essay effectively separates the ideas in different well-defined paragraphs such as in healthcare, in education, and in business sector.

Voice

The third trait is voice. The voice in human written essays lack engagement and clarity and some essays keep fluctuating between formal and informal language that undermines the seriousness of the topic and also detract the reader and makes it less engaging. *Essay 7, essay 13, and essay 22* are the examples of such essays. Contrastively, AI essay uses a very confident and engaging voice. It is not monotonous. It does not use any informal language and it uses the phrases like “AI facilitates personalized learning experience” that strikes a balance between formal and conversational voice that enhances the engagement of the reader.

Word Choice

The word choice that has been used in human written essays is often wavy and sometimes the essays use repeated language, for example, in *essay 8*, the phrase “AI tools” has been repeated frequently. In *essay 16*, the terms like “helpful” and “useful” are overly used and *essay 19* shows the language that does not provide any evidence, for example, it states that “AI is great for many things” but it does not support the argument with any example. It fails to convey specific meaning or depth. On the other hand, AI uses very precise and varied vocabulary. It uses proper terms and examples to show the specific meaning that enhances the argument in the essay.

Sentence Fluency

Some essays written by the students display many issues with sentence fluency. They use the awkward phrasing and run on sentences. Some essays also contain very lengthy sentences that confuse the reader and sometimes the sentences in the essays are very poorly structured that leads to the choppy sentences, for example, *essay 23* uses the sentences like “AI helps in schools. It also helps at home. AI is important.” and *essay 20* uses the sentences “AI can help students and it can also help teachers and it can be useful in many different ways.” Such kind of sentence structures lack the flow of ideas while AI demonstrates strong sentence fluency. All of the sentences written by AI logically connect with each other providing well-structured paragraphs. This essay also uses a makes of mix of short and long sentences, for example, AI essay

showcases the effective sentence structure that maintains clarity and fluidity contrasting the human essays.

Convention

Human essays frequently contain grammatical errors, typos, repetitive phrases, inconsistent formatting, and unprofessional writing style. Most often, they do not follow the proper guidelines and also display the issues with capitalization and punctuation, for example, *essay 14*, *essay 17* and *essay 24* are poorly structured with a lot of spelling mistakes. On the other hand, AI essay contains complete grammatical conventions and display a very high level of accuracy in spelling, punctuation and overall structure. Not even a single mistake either grammar or spelling has been done by AI. It also uses very clear and concise phrases and follows proper conventions.

Presentation

Human essays exhibit very vague presentation. In most of the essays, there is inconsistent formatting and lack of bullet points or any clear headings. There are also no paragraph breaks and it shows a very cluttered layout even it is very difficult to distinguish between different sections or ideas within an essay. *Essay 23, 26, and 30* are good examples of poorly presented essays while on the other hand, AI presents a very straight forward format where all the sections are clearly discussed and the paragraphs are well-organized where they present the ideas.

Trait	Mphil Student Essays (Average Score)	AI-generated Essay (Score)	Comments
Ideas	4.1 /5	3.2 /5	Students include personal experiences while AI's ideas are more generalized.
Organization	4.3 /5	5 /5	Students show varied organization while AI's essay is more structured but less creative.
Voice	4.2 /5	3 /5	Human essays have dynamic voice while AI lacks personalized experience.
Word Choice	4.0 /5	3.5 /5	Students use richer vocabulary. AI uses simplified, neutral terms.
Convention	2.8/5	5/5	Students tend to make grammatical mistakes while AI does not.
Sentence Fluency	3.1/5	4.5/5	Students use awkward phrasing and run-on sentences while AI showcases effective

			sentence structure.
Presentation	3.3/5	4.5/5	Human essays exhibit vagueness while AI essay is well-structured.

Conclusion:

In conclusion, the contrastive analysis describes significant differences between human written essays and AI generated essay. AI excels in all the seven traits used by 6+1 writing trait model with strong ideas, well-structured organization, good word choice, strong sentence fluency, conventions and presentation while many human essays display many errors in all of these areas that result in the confusion and a lack of engagement for the reader.

Discussion

Q1: How do the writing traits of essays written by MPhil students compared to those of an AI-generated essay on the usefulness of AI, as analyzed through the 6+1 Trait Writing Model?

A very valuable insight into the comparative analysis of the student written essays and AI generated essays has been provided by the 6+1 trait writing model including all the 7 features i.e. ideas, organization, voice, word choice, sentence fluency, convention and presentation. This model provides a very structured way to analyse the essays in both contexts and uncovers the features that each source demonstrates.

Ideas is the first trait of 6+1 trait writing model. It reflects the details that build the core argument and also describes the clarity and depth of the central message. The essays written by the students have clear ideas and they also add the real world experience in their essays. Some students have integrated their personal experiences with AI in the essays. For instance, *essay 3, 17 and essay 29* discuss the transformative potential of AI in personalized education and healthcare. As *essay 17* explains "revolutionize personalized learning environments in classroom." While, some essays present unclear ideas with very poor paragraphs. They are very vague and do not integrate any depth in the essays. On the other hand, the idea in the AI generated essay is very clear but it presents an abstract viewpoint. It is not subjective in nature that makes it less relatable and less insightful as compared to the essays written by humans.

Organization deals with the logical structure of the essays concerning the flow of ideas. The essays written by the students demonstrate strong organization yet some essays like *essay 13* and *essay 14* are poorly structured. They show light lapses in organization without showing smooth transitions. For instance, *essay 14* shows sudden shifts in educational and commercial

potential of AI without showing smooth transitions. Conversely, the AI-generated essay shows seamless organization along with smooth transitions. It starts with the introduction then moves forward to its applications one by one along with examples. It supports its ideas with argumentation and produces logically coherent content. Yet, it lacks the creative narrative flow that is found in human essays. Though its organization is technically proficient but it lacks the creativity that is present in human written essays.

Voice employs the writer's personality and style. The voice of human written essays is very dynamic as the students have used variations in the sentence structures. Students have used the combination of simple, complex and compound sentence that enhances the readability and grasps the interest of the reader. For instance, *essay 9* skillfully uses the combination of sentences as it says "AI, when used responsibly, can transform industries; however, it also presents unique ethical challenges." On the other hand, AI essay is grammatically correct and does not contain even a single spelling mistake, or punctuation error. Its fluency is very much proficient but still it lacks the rhythmic variation in the essays. Students' essays are more creative and dynamic while the sentence structure in AI essay gives a monotonous experience.

Convention is the trait that covers the grammar, spelling and punctuation of any writing. The essays written by students generally adhere to convention but some of them present grammatical errors, punctuation and spelling mistakes. For instance, *essay 11 and 28* contain occasional spelling mistakes, omitted commas, misplaced modifiers and inconsistent punctuation. These minor errors detract the readability of the essays. In comparison, the essay written by AI excels in convention strictly and contains not even a single error. Though strong convention is the strength of AI but it lacks the flexibility to break convention for stylistic purposes and does not have the advantage of using creative deviations.

Presentation includes the layout and formatting of the essays. Human essays exhibits varied presentation styles. Some of the students have used visually clear format that is reader-friendly, by incorporating paragraph breaks to explain the separate points effectively. For instance, *essay 15* explains different points in separate paragraphs. While, some essays written by the students show very poor presentation such as *essay 22* has no paragraph breaks or consistent formatting. The essay written by AI is neatly formatted with proper layout that uses spacing and visual breaks but it does not display flexibility in presentation.

In a nutshell, 6+1 writing trait model reveals that humans and AI both show their own strengths and limitations. Human essays shows individuality by incorporating personal experiences and are also very creative by demonstrating nuanced word choices and critical perspectives. AI excels in organization, fluency, convention and presentation but it shows limitations in ideas, voice and creative flexibility.

Q2: What discourse patterns and structures emerge in student-written essays versus the AI-generated essay, and how do these affect the clarity and coherence of the arguments?

Students and AI both have used identifiable discourse patterns. Students' essays show variety of discourse as they integrate real-life experiences, personal insights, and critical evaluations to structure their essays. Some essays also used deductive reasoning pattern. For instance, *essay 13* opens with a brief introduction of AI, then it moves towards its growing role in education and builds up its argument with examples by using the words like "AI driven tutoring system". Many essays are logically layered that progress with specific examples to illustrate the discourse. While, AI-generated essay follows a linear and generalized discourse with broader concepts, without delving into experiential or critical viewpoint. It provides with a very straightforward pattern that is easily accessible and logically organized. It makes the discourse more formulaic which makes the subject more generalized and impersonal.

The essays written by students include an interplay of personal voice and critical analysis that strengthen the persuasiveness of the essays. For instance, *essay 7* presents the factual observation of the writer by including rhetorical questions like "Is it really beneficial to rely on AI for all tasks?" It draws the attention of a reader to a reflective stance. Such rhetorical strategies are typical to human-centered discourse and not AI. Human discourse also contains the use of examples and specific details. For example, *essay 21* provides an example of AI in medical field. It describes how AI tools help in diagnosing diseases and how they assist in this matter. While, the essay written by AI uses neutral and declarative language and lacks the critical questioning and emotive appeal. Moreover, the examples that are presented by AI are more abstract and follow a generic pattern. Human essays provide the vivid, contextual grounding while AI reduced the relatability of the argument.

Another notable discourse distinction lies in the use of transitions, and lexical choices of humans and AI. The essays written by students exhibit more organic transitions and create narrative like flow to create a coherent discourse. For example, *essay 15* uses the transitions like "furthermore" to add up in the argument and "in contrast" to shift the argument. AI uses more formulaic strategy and relies on the straightforward connectors such as "firstly", "secondly", and "finally". This way, it contributes to the clarity and logical progression.

As far as lexical choices are concerned, the students have used richer vocabulary with varied discourse patterns. For instance, *essay 10 and essay 32* incorporate terms like "ethical implications", and "societal integration" relatively. This advanced vocabulary shows the awareness of the students with the topic that enhances the clarity of the discourse. While, AI uses more neutral and accessible vocabulary and uses the words like "usefulness" and "benefits" without delving into specialized language that makes the discourse clear and simplistic in lexical choices.

Students' essays often display semi-formal and conversational tone. For example, *essay 18* contains a sentence, "AI might not be perfect, but it's here to stay, so we might as well learn to work with it." This sentence shows conversational and approachable tone that fosters a relatable and accessible discourse. However, AI maintains an overly formal tone throughout that makes the readers feel detached. Yet, AI's discourse is integrated in universally applicable style.

In conclusion, the discourse patterns of MPhil students are more dynamic and relatable where the essays exhibit argumentative techniques, rhetorical devices and creative traditions to contribute to a richer reading experience. While, AI follows a more predictable and formulaic discourse due to its impersonal style, neutral tone and linear organization. However, it can effectively convey structured information due to its critical depth.

Q3: In what ways do the linguistic features and rhetorical strategies differ between human-written and AI-generated essays, as revealed through Contrastive Analysis?

Many linguistic features and rhetorical strategies have been highlighted through contrastive analysis that differ in human-written and AI-generated essays. One significant contrast is lexical diversity. MPhil students often incorporate varied and topic specific vocabulary e.g. *essay 6* uses the terms like "automation", "ethical boundaries" and "technological innovation". This lexical variety gives depth to the argument as well as demonstrates critical thinking of the students. While, AI uses easy-to-understand and overly generalized vocabulary. For instance, terms like "useful", "helpful", and "convenient" can be seen throughout the AI essay.

Human written essays employ varied sentence structure including a mix of simple, complex and compound sentences. For example, *essay 14* uses interconnected clauses i.e. "While AI offers tremendous assistance in data processing, there remains a crucial need for human oversight, as the technology is far from infallible." It offers a very layered and nuanced perspective. While, AI favors short and straightforward sentences. It sticks to the uniform sentence patterns and prioritize simplicity over stylistic nuance.

Human essays frequently incorporate rhetorical questions to strengthen their argument. For example, in *essay 22*, a student asks "Can we truly trust AI with sensitive information, knowing its potential for misuse?" This question adds a critical point of view as well as a persuasive dimension to the essay. While, AI lacks rhetorical devices and uses neutral and fact based tone. AI uses more informative than persuasive tone.

Human essays display flexibility in presenting supporting ideas. For example, *essay 31* introduces AI's potential benefits and also questions its ethical implications. This approach demonstrates critical thinking of the students. While, AI adopts simpler and direct argumentative

structure. It lacks the analytical depth and critical questioning. It remains focused on conveying clear-cut, linear points.

In conclusion, contrastive analysis reveals that human essays present a very dynamic discourse as they tend to employ richer vocabulary, varied transitions, complex sentence structures, and rhetorical strategies. While, AI is more generalized and abstract in nature. It prefers simpler language, straightforward transitions, and a neutral tone.

Implications for Writing Instructions

AI tools offer both opportunities and challenges to enhance student learning. To maximize the benefits of AI, the teachers should promote AI as a supporting tool. It should not be used as a replacement for the writing process. AI tools like ChatGpt and Grammarly can assist the students in generating ideas and grammatical structure. Moreover, students should be encouraged to get the feedback from AI. Educators can also implement exercises where the students can discuss why they accept or reject certain suggestions given by AI. Moreover, the students can use AI tools for personalized learning by identifying specific areas of weaknesses and enhance their targeted practice by addressing individual needs.

Moreover, students can promote their long-term improvement by reinforcing awareness of their writing strengths and limitations by using 6+1 writing trait model. This model can also help the teachers and educators to evaluate the writing performance of their students. Educators can also include collaborative projects to analyze the strengths and limitations of students' writings.

Limitations of the Study

The study uses 50 human written essays while only one sample of AI-generated essay. It uses a very limited number of AI samples to compare to human written content. The lack of diversity in AI samples might lead to restricted ability to generalize findings about AI writing. Moreover, the samples from the students were collected in a controlled writing environment. The students wrote the essays in strictly monitored environment without the use of any external tools.

Moreover, the study uses 6+1 Trait Writing Model, Discourse Analysis and Contrastive Analysis. Though these models are comprehensive and focus on language, style and thematic patterns but still they may not fully capture other dimensions like creativity, critical thinking or deeper semantic meaning in the essays. Furthermore, since the study is solely based on MPhil English linguistics students, the findings may not generalize well to other academic levels or disciplines.

Conclusion

Many transformative shifts have been seen over past decades in education due to the integration of AI. AI has impacted a number of students and educators. AI tools are very beneficial for learning new things, exploring ideas, getting feedback on writing skills and assessing and evaluating the written tasks. However, artificial intelligence is quite different from human mind and it presents complex phenomena. Artificial intelligence and humans differ in their own mechanisms of writing.

According to 6+1 Trait writing model that was applied on all the 50 essays written by the MPhil students, humans and artificial intelligence excel in different ways. Humans have plenty of significant ideas based on their real-life experiences that creates a narrative flow in their writings while AI relies on general statements. Same way, artificial intelligence does not make even a single error in convention while many grammatical errors, punctuation and spelling mistakes have been seen in students' writings. Likewise, AI presents the written text in a very organized way with proper paragraph breaks whereas human essays are richer in voice. Discourse Analysis and Contrastive Analysis have also shown the same results.

In a conclusion, though humans and AI are different in nature but of them have their own strengths and limitations. It is difficult and quite challenging to prioritize one over the other. AI is more professional in writing that does not make any mistake and give us the generalized views of any topic while humans tend to include their own emotional experiences to create a narrative flow in the writings.

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