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# COMPREHENSIVE ANALYSIS ON AI-GENERATED CONTENT FOR BROAD AND NICHE TOPICS

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## ABSTRACT :

Historically, mastery of writing was deemed essential to human progress. But as AI becomes a part of the creative process for human fiction writers, questions arise regarding its efficacy across different domains of knowledge. This paper provides a comprehensive analysis on the effectiveness of AI-generated content compared to human-written content across broad and niche topics. The methodology was based on tagging AI-generated content and Human-written content. In result from a preliminary study, we found that AI-generated content may excel in addressing broad topics due to its capacity for processing vast amounts of data but may struggle with nuanced or niche subjects where detailed understanding and contextual knowledge are essential. This analysis sheds light on the strength and the limitations of AI-generated content and offers insights in its applicability across different domains of knowledge

Keywords: Artificial Intelligence, Generative AI, creative process, AI-generated content, human-written content, ChatGPT

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## 1. Introduction:

The rapid development of machine learning has made it possible for Artificial Intelligence (AI) to collaborate with humans to generate creative content [1]. The current generation of openly available generative AI has rightly been called AI's great inflection point. Generative AI is shaping to become a general-purpose technology, a "fundamental, horizontal technology that will touch everything in our lives" (Tim Cook, Apple CEO, speaking at Università Degli Studi di Napoli Federico II in Naples, Italy, 29 September 2022) [2].

As the progress of Artificial Intelligence begins to go to the realm of creative writing, A fundamental question arise regarding the efficacy and the authenticity in which the generated content strives to deliver the vast amount of the human knowledge that has been assimilated for generations to the common reader, or will the ai-generated content provide a more nuanced meanings and provide methodological implementation. And most Importantly, will our common reader can determine whether the written material that has been provided to them is either a human written one or an ai-generated one.

This study aims to determine how a reader effectively differentiate between an ai generated content and a human written content based solely on the way in which the composition of the knowledge is being shared.

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## Methodology

To Collect data, we distributed a Google form to draw conclusions regarding the usage patterns of given data. The survey has a quiz of Paragraph comprehension, in which we give them a part of a speech. It could be either from a human or has been AI generated using ChatGPT 3.5. Whenever we now use AI-generated, it should be inferred that we use the data generated by ChatGPT 3.5. The range of topics is not fixed as to provide a more diverse set of topics to pick.

These results will then be judged based on Broadness, Nuanced and polarization.

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## Key Insights

### 1.1. Result of Data Inputted by the User

Table 1 – Data taken from the Survey [17]

Topic	Content Type	Human-written Selected	AI-generated Selected
Embracing the Call to Action: Addressing AI Climate Change Together	AI	7	8
Startup has become a social culture and no one can stop a social culture	Human	10	5
Navigating Change: The UK Beyond Brexit	AI	6	9
War and Terrorism	Human	11	4
The importance of carbon to life	Human	7	8
Blending Cultures: Westerners' Growing Interest in Indian Traditions	Human	9	6
Navigating the Currents of Change: The State of the IT Industry	AI	7	8
Accountants Will Save the World	Human	14	1
Embracing the Revolution: The Future of Cryptocurrency	AI	6	9
The Ending of End of Evangelion Explained	Human	5	10
Unlocking Opportunities: The Benefits of Investment	AI	6	9
An Unfortunate Impact of Piracy on Businesses	Human	5	10
The Turing Test	Human	6	9
Balancing Power and Innovation: The Microsoft Antitrust Case	AI	3	12
Transforming Transactions: The Rise of Indian Currency and UPI	AI	7	8
Japan's population crisis was years in the making - and relief may be decades away	Human	11	4
Embracing the Digital Revolution: The Impact of Digitization in India	AI	8	7
Social media and Mental Health	Human	12	3
Navigating the Unknown: The Terrifying Reality of Space Exploration	AI	9	6
Linux: A Beacon of Innovation in the World	AI	6	9
AI			

A Total Of 15 participant input were taken in a quiz

Total Number of responses=300

Total Correct Answers = 155

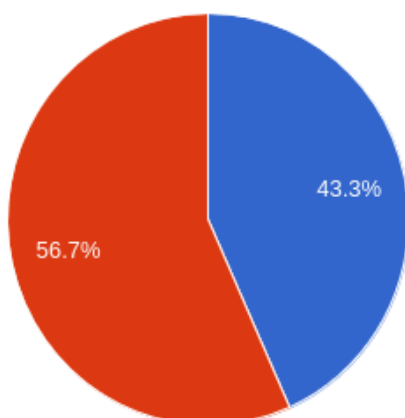
Total Wrong Answers = 145

Total AI answers = 150

Total Human Answers = 150

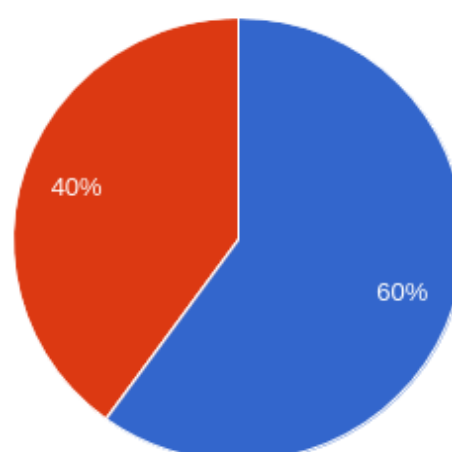
a.

**Total AI Marking**



b.

**Total Human Marking**



● Correct Answers  
● Wrong Answers

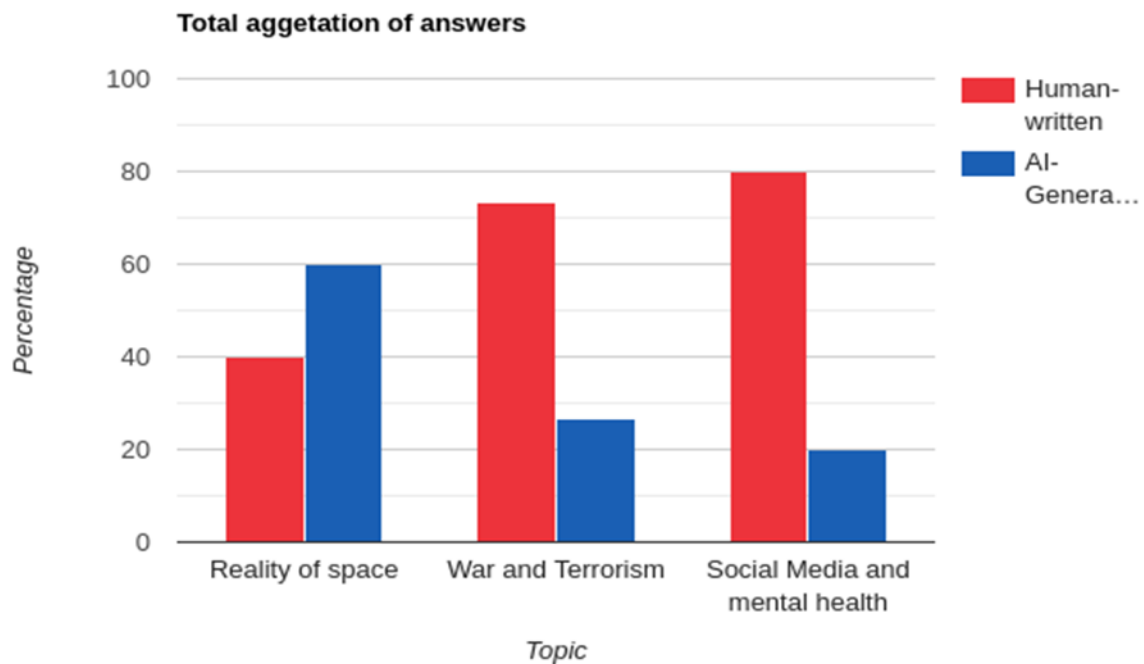
**Figure 1- Chart on total right answer on (a) AI (b) Human**

### 1.2. Broadness

This Represents the Broader Topics That are included in our study. These help to shed light on the difference in the ai-generated content and a human-written content. Some of the topics that are interesting include:

- Reality of Space Exploration
- War and terrorism
- Social Media and Mental Health

The Topic “war and terrorism” and “Social Media and Mental Health” stand out as particularly poignant examples as they are clearly a heavy topic with a sense of dread and uneasiness that comes with human-written content. Also, though “war and terrorism” and “Reality of Space Exploration” are two topics with a similar tone. There exists a profound disparity in user response, as the user can easily feel the difference in the written material and emotion that a human written content can provide which the ai-generated content lacks.

**Figure 2- Bar graph on topics based on broadness**

### 1.3. Nuanced

this represents the smaller and granular details that are being present in the article. These may include wordplay, obscure factual information, clear intent or message to the reader that even though cannot be stated, but can be sensed by the clear wordplay in the topic or direction the written material is heading. Some Topics in This category is:

- Startup has become a social culture and no one can stop a social culture
- The Ending Of End Of Evangelion Explained
- The Microsoft Antitrust Case
- Japan’s population crisis was years in the making

The most Prominent of the topic will be the “startup social culture” topic, as it has been directly taken from the PM Narendra Modi’s Speech [5]. In this, we can clearly see the reference of PM addressing India as “Bharat”, showcasing the nuanced understanding present in human-written content, a dimension often lacking in AI-generated text

The “End Of Evangelion” is an intriguing case, because despite being written by a human and containing a representation of the author’s interpretation of the work, it is seen as ai-generated by the users. This is due to the fact that it is a nuanced topic with many data and relative facts unknown to the user. thereby highlighting a unique instance of user knowledge being the weakest link to the test

Similarly, in “The Microsoft Antitrust Case”, while the data may be AI-generated, the presence of human-written elements is still visible. This is attributed to the extensive study of the case, providing nuanced data for the AI to draw upon, resulting in text that closely resembles a human composition.

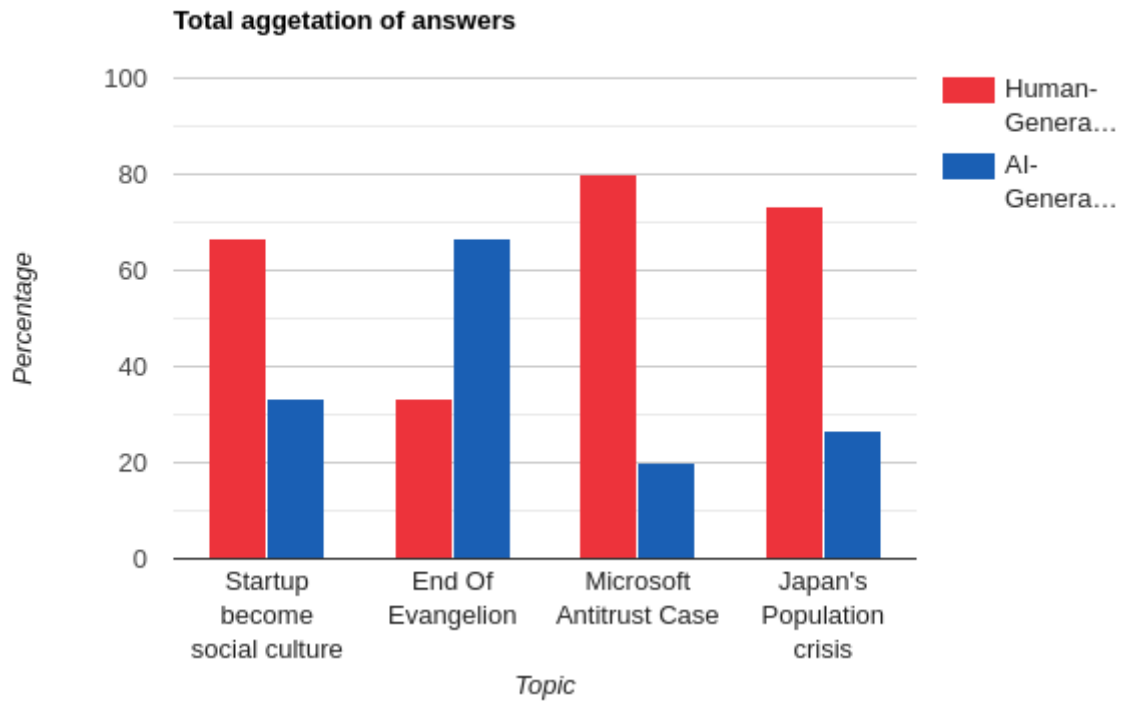


Figure 3- Bar graph on topics based on nuanced topics

1.4. Polarization

This is where the topic is made for ideological beliefs rather than any fact and figures in its place. In Generative AI, there is a clear trend on not making any polarizing remarks, that is, not making any biased judgment or aggressive comments at individuals based on factors such as color, gender or ethnicity [3]. So, we put some of the articles in topics with more polarizing viewpoints between the people. These topics include:

- UK beyond Brexit
- The state of IT industry
- Impact of Piracy on business
- Impact of Digitization in India

These titles gave an insightful review at what a reader may consider as an AI generated or a human written article. Like in the case of “UK beyond Brexit”, people considered it as more on the side of Human-written rather than AI-generated. But it is in fact generated by AI. This may be due to the way the AI generated the speech. It was like a first-person written perspective rather than a third person written perspective.

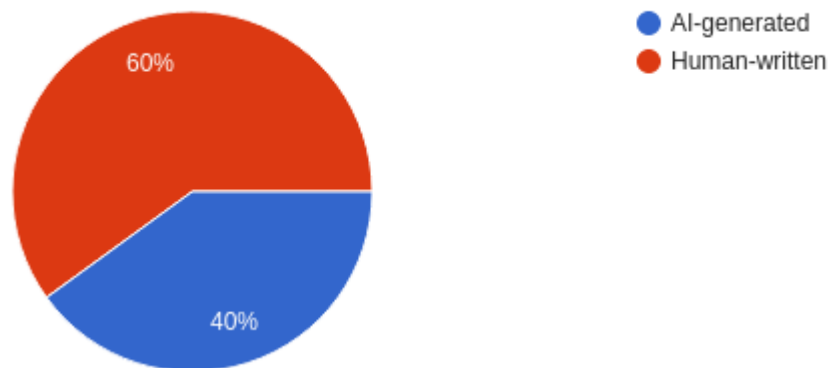


Figure 4- Chart on the result in “UK and Brexit”

We see the confirmation of this thesis in the topic “impact of piracy on businesses”. This article was heavily suggested as AI generated. But it is in fact Human-written, because of the simple fact that it was written in a Third view perspective.

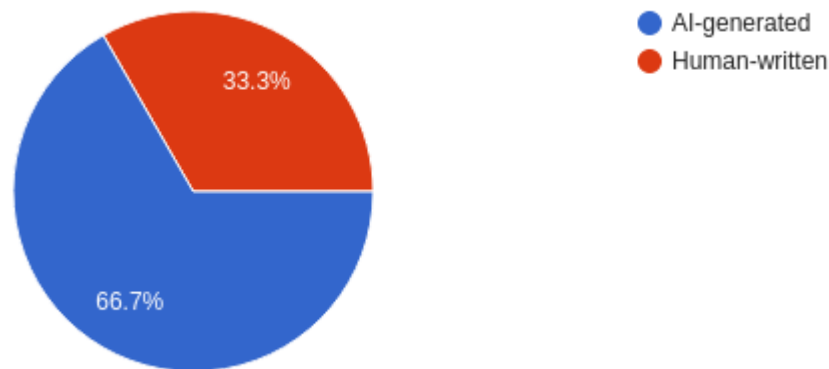


Figure 5- Chart on “impact of Piracy”

Topics like “impact of Digitization” and “the state of IT Industry” that are more broader topics and can be vague in their morality and judgment tend to be sitting on a lenient 50-50 percentage. As these topics don’t have any insightful moral dilemma. So, they are harder to differentiate in terms of their content.

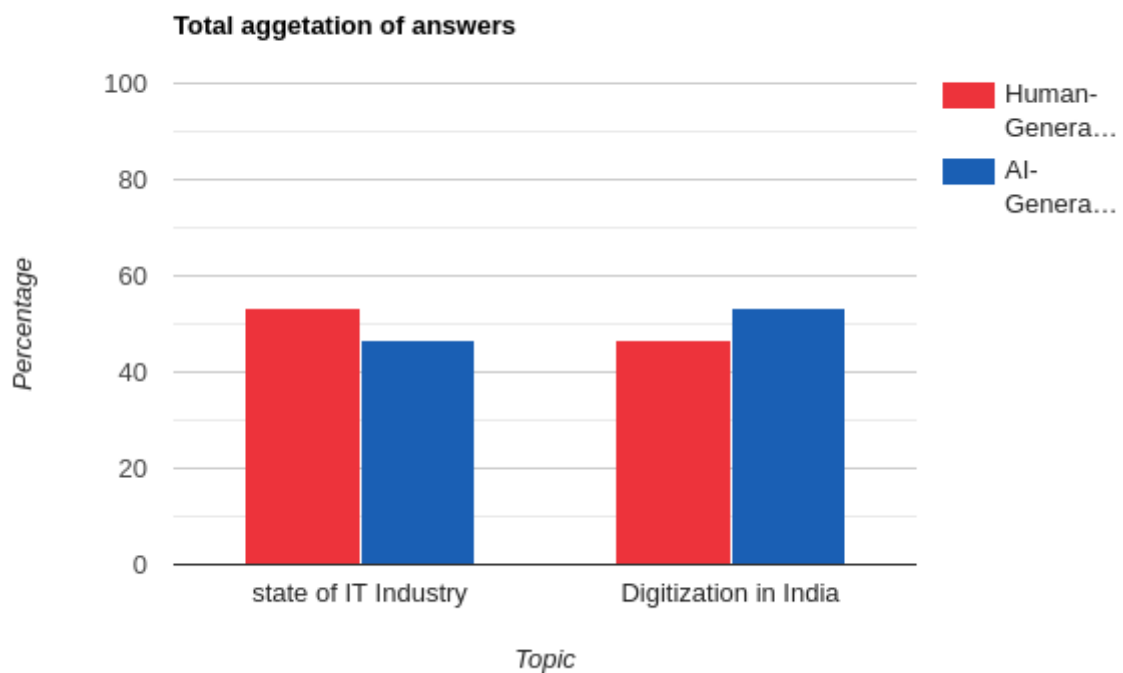


Figure 6- Bar graph on topics based on topics with polarizing opinion

## 2. Impact And Discussion

Based on the given analysis that we performed, we can devise several points by which an AI-generated Content can be differentiated from a human written article:

### 2.1. Inherent Message or Theme

The Content can be differentiated on whether it has an inherent message or theme build around it. In the article "War and Terrorist", we can see how it wants us as a reader to want to feel: fear and disgust, whereas AI-generated content like "Reality of Space Exploration" may lack such emotional cues.

## 2.2. Granularity and Nuanced Knowledge

The Granularity that a human-written data can achieve with nuanced knowledge and experience can never be replicated in AI-generated content

## 2.3. Extent of Provocation or Polarization

Due to the sterile nature of AI-generated content, A more extreme, provocative or polarizing may lead to it being human written. However, it's crucial to remain vigilant, as even a half-neutral stance could still originate from AI-generated content.

## 2.4. Fulfilment in Broader Topic

The AI-generated content can become more akin to human-written when encountering broader, more wide topics This is evident in topics like "Impact of Digitization" and "The State of the IT Industry," where the lack of insightful moral dilemmas can lead to a more balanced perception between AI-generated and human-written content.

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## 4. Conclusion :

Overall, our findings underscore the multifaceted nature of content creation and perception, highlighting the importance of understanding the nuances and implications of AI-generated content across various domains. As AI continues to shape the landscape of content creation, further research in this area will be essential for navigating the evolving relationship between technology and human creativity.

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