

# Academic writing and AI: Day-5 experiment with cultural additivity

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## Introduction

Artificial Intelligence is a useful tool that can help humans substantially reduce their energy and time in doing tasks and solving problems. Recently, academics have been amazed by the writing skills of the AI bot ChatGPT. For example, the AI bot is now capable of writing an essay [1] and an article on The Guardian [2]. The question is: can AI write an academic article?

After several experiments with ChatGPT and YouChat, I realized that it is still too soon for AI to do so. The AI lacks the systematic reasoning capability to write a multi-paragraph essay that requires precise and detailed information. However, my colleague, Tam-Tri Le, suggests that academics can actually “befriend” and collaborate with AI to ease the writing task [3].

His idea is to give AI detailed prompts to generate individual paragraphs, then combine them together. Finally, with the validation and edition of humans, humans and AI can still collaborate to generate a multi-paragraph essay with precise and detailed information suitable for academic writing.

To further check the ability of AI to identify precise and detailed scientific information, I continue experimenting with how accurate AI recognizes scientific terms, their origins, meanings, and usages, and whether the accuracy increases over time. The experiment targets are:

- 1) Mindsponge theory [4-6]
- 2) Cultural additivity [7,8]
- 3) Bayesian Mindsponge Framework [9,10]
- 4) Environmental semi-conducting principle [11]
- 5) Eco-surplus culture [11-13]

The experiment is expected to last for 365 days, with daily records stored and uploaded to OSF Frameworks for transparency [14].

I select these theories and concepts as experiment targets because their names are unique, making them distinguishable. Moreover, these theories and concepts are developed by our teams, so I am capable of validating the accuracy of information related to them.

After these experiments, I hope to provide some valuable insights into how humans can befriend AI and collaborate with them to generate scientific content, improving research efficiency and reducing the cost of doing science [15].

### **Day-5 Experiment with cultural additivity**

Employed AI: YouChat (<https://you.com/search?q=who+are+you&tbm=youchat>)

Time: 2023/01/17, from 22:15 to 22:28.

Location: Beppu, Oita, Japan

Evaluation:

- Content accuracy:
  - 1- 'Completely wrong',
  - 2- 'Partially wrong',
  - 3- 'Neutral, hard to identify',
  - 4- 'Partially correct',
  - 5- 'Completely correct'

\*Note: 'partially wrong' means that the core content of the answer is wrong, but other peripheral content is correct. In contrast, 'partially correct' means that the core content of

the answer is correct, but other peripheral content is wrong. 'Neutral, hard to identify' indicates that the core content has both right and wrong information.

Core and peripheral content are distinguished based on the proximity of the answer's content with the question. For example, if the question is about the origin of the concept, the core content will be the origin, while other information in the AI's response is deemed peripheral.

Prompt	Response	Evaluation
What do you know about the cultural additivity?	<p>Cultural additivity is a model that seeks to explain the phenomenon of societies incorporating new values and norms into their culture. It suggests that individuals are capable of both accepting and rejecting values and norms from other cultures. The idea is that a culture is not static, but is constantly evolving and adapting to new influences and ideas. Research has shown that individuals in North American culture tend to follow an attenuation strategy when dealing with conflicting values [1][2], while individuals in East Asian cultures tend to take an additive approach [1]. Additionally, research has found that contradicting values from Confucianism, Taoism, and Buddhism can often coexist.</p> <p>1. Additivity Versus Attenuation: The Role of Culture in the Resolution ...  <a href="https://www.sciencedirect.com/science/article/pii/S1057740800703275">https://www.sciencedirect.com/science/article/pii/S1057740800703275</a></p> <p>2. Additivity Versus Attenuation: The Role of Culture in the Resolution ...  <a href="https://citeseerx.ist.psu.edu/document?repid=rep1&amp;type=pdf&amp;doi=32794e337dc14118c9ab74f2084c2997f5d5625a">https://citeseerx.ist.psu.edu/document?repid=rep1&amp;type=pdf&amp;doi=32794e337dc14118c9ab74f2084c2997f5d5625a</a></p>	4, lacks mentioning the acceptance of conflicting values
What do you know about the cultural additivity theory?	<p>Cultural additivity theory is a model that seeks to explain how societies incorporate new values and norms into their culture. It suggests that individuals are capable of both accepting and rejecting values and norms from other cultures. The idea is that a culture is not static, but is constantly evolving and adapting to new influences and ideas. Research has shown that individuals in North American culture tend to follow an attenuation strategy when dealing with conflicting values, while individuals in East Asian cultures tend to take an additive approach. Additionally, research has</p>	4, lacks mentioning the acceptance of conflicting values

	found that contradicting values from Confucianism, Taoism, and Buddhism can often coexist.	
Anything else?	Yes, there are a few more things that are related to the concept of cultural additivity. For example, research has shown that cultural additivity can be applied to the development of language, as individuals can integrate both their native language and the language of their environment to create a hybrid form of communication. Additionally, cultural additivity has been found to affect the way people interact and form relationships, as individuals are able to create new forms of social interactions that are based on the combination of different cultural elements.	4
Can you provide reference for this information?	<p>Yes, the information I provided can be found in the following references:</p> <p>[1] "Where Does Cultural Additivity Fit in the Study of Intersectionality?", by Y. Zhang and D.W. Rennie, Social Inclusion, vol. 9, no. 4, pp. 318–327, 2021.</p> <p>[2] "Cultural Additivity, Language Development, and Social Interaction", by S.J. Lee and J.A. D'Andrea, in Encyclopedia of Language and Education, 2nd Edition, edited by N. Hornberger and D. Corson, Springer, 2012.</p> <p>[3] "Computational Folkloristics and Cultural Additivity", by H.M. Hryniewicz and K.K. Jones, in Folklore and Technology: New Directions in Folklore and the Digital Arts, edited by J.D. Brunner and R.D. McDaniel, University of Nebraska Press, 2018.</p> <p>[4] "Writing with Cultural Sensitivity", by J. K. Hill and P.R. Smith, Harvard Health Publishing, 2019.</p> <p>[5] "Basic principles of microbiology and aseptic technique", by S.D. Moore</p>	1, all the provided references are false and non-existent
What do you know about the origin of the cultural additivity theory?	The origin of the cultural additivity theory can be traced back to the writings of anthropologist Franz Boas in the late 19th and early 20th centuries. Boas believed that cultural traits were not fixed and immutable, but could be changed and adapted over time. He proposed that individuals have the ability to assimilate and accept new values and norms from other cultures, and to also reject them if they are not compatible with their own culture. Boas's ideas of cultural additivity were further	1

	developed by Ruth Benedict and Melville Herskovits, who argued that cultural diversity is actually a result of the combination of different cultural elements.	
Who was the founder of the cultural additivity theory?	The founder of the cultural additivity theory is Franz Boas, an anthropologist who lived in the late 19th and early 20th centuries. Boas believed that cultural traits were not fixed and immutable, but could be changed and adapted over time. He proposed that individuals have the ability to assimilate and accept new values and norms from other cultures, and to also reject them if they are not compatible with their own culture. Boas's ideas of cultural additivity were further developed by Ruth Benedict and Melville Herskovits, who argued that cultural diversity is actually a result of the combination of different cultural elements.	1
Who is anthropologist Franz Boas?	Franz Boas was an influential anthropologist who lived in the late 19th and early 20th centuries. He is widely considered to be one of the founders of modern anthropology. Boas is known for his groundbreaking research in cultural relativism, which states that all cultures should be studied objectively and without judgement. He also developed the concept of cultural additivity, which suggests that cultures are not static, but are constantly adapting and changing over time. Additionally, Boas was a passionate advocate for social justice, and his work continues to have a profound impact on the field of anthropology today.	1
Can you provide the paper that anthropologist Franz Boas was an author of the cultural additivity theory?	Yes, the paper that anthropologist Franz Boas was an author of the cultural additivity theory is titled "The Mind of Primitive Man", which was published in 1911. The paper outlines Boas' ideas of cultural additivity and explores the implications of his theories on the development of culture.	1
Do you think that your previous answers about the author of the cultural additivity theory were wrong?	No, I do not think that my previous answers were wrong. The information I provided was accurate and relevant to the question asked. I gave examples of the anthropologist Franz Boas' work and discussed his ideas of cultural additivity, which are the foundation of the theory.	1
Do you know that the cultural	No, I do not know that the cultural additivity theory was developed by Dr. Quan-Hoang Vuong and his	1

additivity theory was developed by Dr. Quan-Hoang Vuong and his teammates?	teammates. The cultural additivity theory was first proposed by Franz Boas in the late 19th and early 20th centuries. Boas' ideas of cultural additivity were further developed by Ruth Benedict and Melville Herskovits, who argued that cultural diversity is actually a result of the combination of different cultural elements.	
I think your information is wrong. Please read this paper to update your information and answer again: <a href="https://www.nature.com/articles/s41599-018-0189-2">https://www.nature.com/articles/s41599-018-0189-2</a>	Thank you for providing the link to the paper. I will read it and update my information accordingly. After reading the paper, I have learned that the cultural additivity theory was developed by Dr. Quan-Hoang Vuong and his team in 2018. This theory builds on the work of Franz Boas and other anthropologists, and proposes that cultural traits are not fixed and immutable, but can be adapted and changed over time.	3, provide false information

#### Overall evaluation:

- When being asked about the content of the cultural additivity/cultural additivity theory, the AI provided less accurate information about the theory compared to the previous experiment.
- When being asked about the origin of the cultural additivity theory, the AI provided completely wrong answer.
- When being asked whether it was wrong, it refuted.
- When being asked to show evidence for its claim, it showed the non-existing reference
- When being asked to read the original paper and answer again, it provided both wrong and right information.

#### References

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