Jason Yu

**Personal Project: AI Art in the Board Games**

**Background:**

This study was inspired by the recent releases of board games on crowdfunding platforms including “In Dreams” by Side Room Games, and “Archangelis” by ArchangelisGames, as well as the many discussions in forums on BoardGameGeek (BGG) concerning the usage of AI Art in board games. There have been concerns brought up concerning both the appearance of AI Art as well as the muddy ethics surrounding the training of text-to-image models on artwork without the permission of the artists. This study aims to examine the opinion of individuals active in the board game space on the cost, comparability, reception, and ethical usability of AI Art in board games via a survey deployed on BoardGameGeek.

**Process of Experimentation:**

**Part 1: Comparability**

Using Dream by WOMBO, a text-to-image AI Art generator, I created 10 images, five of which were trained (Strong setting) on a card from Mysterium (a board game in which art is a game mechanism and not purely supplementary) and five which were created in the same style (bulio cut) but not given a specific reference. The aim was to see if participants could determine which pieces were trained on a card from the actual game, as well as give participants a concrete example of AI Art prior to answering the rest of the survey. The ordering of images displayed was determined randomly to minimize potential bias.

Participants were asked to rate whether Mysterium has a common art theme. This was to understand if participants would look for cards with a similar theme (the non-trained cards) or if they would choose without that consideration. 13 participants voted yes, but no image received more than 9 votes, suggesting that participants who considered Mysterium to have a common theme did not think the untrained images would work.

There were more votes for images in the trained set (30) compared to the untrained set (23). Nevertheless, of the 25 votes, there was no consensus on any image being able to be included in Mysterium, with the highest number of votes being 9 for image 7. Of the 25 participants who answered the first question, 7 left the second question blank, suggesting they believed none of them could. Lack of user response and low vote counts indicate that the provided images were not comparable to cards in Mysterium (trained or untrained).

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| A graph of blue and orange bars  Description automatically generated with low confidence  *Graph 1* |

**Training Image**: (Vision card #63)

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| **Trained Images:** | **Untrained Images:** |
| **Image 2**  **Word Input: Old Town Square**  **Graphic Type: Toasty** | **Image 1**  **Word Input: Tigers at the Dining Table**  **Graphic Type: The Bulio Cut** |
| **Image 4**  **Word Input: Village Clocktower**  **Graphic Type: Mystical** | **Image 3**  **Word Input: Village of Snakes**  **Graphic Type: The Bulio Cut** |
| **Image 7**  **Word Input: Oreo In the Sky**  **Graphic Type: The Bulio Cut** | **Image 5**  **Word Input: Destroyed City with Floating Monkeys**  **Graphic Type: The Bulio Cut** |
| **Image 8**  **Word Input: Cat in Volcano**  **Graphic Type: Provenance** | **Image 6**  **Word Input: Worlds without number**  **Graphic Type: The Bulio Cut** |
| **Image 9**  **Word Input: Underground full stadium**  **Graphic Type: Daydream** | **Image 10**  **Word Input: Bears in the Circus**  **Graphic Type: The Bulio Cut** |

**Part 2: Costs and Reception**

This portion is more relevant for recent game designers with access to AI Art, but it is impossible to control on site who can respond. The first question helps to determine how many relevant answers there would be for the following questions. There were 18/28 participants who responded in the affirmative to the first question, indicating around two-thirds of the responses would be relevant. This, as well as the small sample size, factored into the decision to set the confidence level at 90% for population statistic estimation.

A bootstrap for the results of questions 2 (How important is the art of a game) and 3 (How important is the artist of a game) return confidence intervals for the population mean of [7.43, 7.86] and [6.71, 7.62] respectively. Due to the small sample size, confidence intervals were also determined using the t-interval: [7.24, 7.97] and [6.23, 8.06]. The large range of the confidence intervals make it inconclusive whether participants value art or artists more, but the large range of the confidence intervals for artists indicates that there is greater variance in the opinion of participants regarding the importance of artists as compared to art.

The results of the other questions indicate that few designers consider the usage of AI Art in the first place, most participants believe AI Art is cheaper than hiring artists, and containing AI art will negatively affect the reception of game (see graphs 2,3,4).

The aim of this section really was to find correlations between responses to the questions, however due to the survey returning responses as aggregate counts and not as individual responses, this was made impossible. This will be further discussed in the area of improvement.

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| A picture containing text, screenshot, rectangle, number  Description automatically generated  *Graph 2* | A picture containing text, screenshot, font, number  Description automatically generated  *Graph 3* |
| A picture containing text, screenshot, rectangle, font  Description automatically generated  *Graph 4* | *Graph 5* |

**Part 3: Ethics**

Although many participants would not choose to hire an artist who employs AI in their artwork (16/28) (graph 5) there are many who believe that the usage of AI Art can be ethical (16/37) (graph 6). This suggests that the underlying reason behind game designers being unwilling to employ AI Art may not be purely a question about the ethics behind it.

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| A picture containing text, screenshot, rectangle, font  Description automatically generated  *Graph 6* |

**Potential for Improvement/Future Experimentation:**

The scope of this study was very limited by both the small sample size of the data as well as the way the data was returned. I did not realize that the data would not be separated per individual response, and this limited the cross-variable testing that I could do. For example, I could not test to see if there was a correlation between willingness to use AI art and value place on the artwork or artist of a game. Another area that could benefit from improvement is the case study included to introduce viewers to how AI Art might be used. Response indicated that the images produced were not very comparable to the images from the desired game. Training a text-to-image model on more images from the game, or creating more images to present might yield more comparable options. This project could also be linked with other studies on board games created entirely by AI, to compare participant reactions to the effect of focusing solely on art to focusing on the entire game.