AI at the Round Table: An exploration of valuable AI characteristics for an AI placed in a team meeting setting.

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In this exploration, the researchers investigate the characteristics which were perceived to be valuable for artificial intelligence agents when placed in a team meeting setting. This was done by creating 4 different personas, each defined by 4 distinct characteristics, through various matrices, and then testing them in sets of 6 discussions, each with 2 AIs, allowing comparison. What was found was that generally stronger, emotive, assertive AI personas were seen as more valuable for discussions that do not result in consequences, but when consequences are involved, a more informative AI presenting little other than facts was seen as more utile. As a work in the posthuman AI domain, this research lays the foundation for future research to be conducted and built upon.

Introduction

Artificial intelligence (AI) is a rapidly developing technology. AI has the increasing capability to, as a machine, perform specific roles and tasks currently performed by humans within the workplace and society in general [23]. Collaboration between humans and AI is developing in the workplace, as more and more companies are deepening their commitments to AI by investing in it [19]. Organisations are investing in AI-enabled HR software packages to collate and make sense of the employee data available for achieving strategic organisational goals [21]. AI is also getting involved as personal intelligent assistants to support knowledge management [16]. Assisting algorithms are even used in management models as strategic advisors for investment [7]. These examples emphasize the potential for human-AI collaboration in a workplace setting.

In the implementations mentioned above, AI is predominately used as an assistive tool, supporting task execution, and boosting productivity. We, however, are convinced that to establish a natural and universally accepted integration of AI technologies into a work environment, the creation of these AI systems should originate from a more posthuman approach, levelling out the natural hierarchy by introducing AI as an equal team member. In this research we introduce the concept of a Posthuman AI team member, referring to an AI, placed in a team meeting setting, with an opinion and the ability of emotional expression, enabling humans and AI to naturally bond together. The Posthuman characteristics of the AI are represented by AI's opinion, and the ability to express that opinion as an equal meeting partner. Consequently, the introduction of an opinionated AI could lead to the opportunity for an AI to advocate for

underrepresented opinions and points of view in a discussion.

The introduction of an AI teammate makes us wonder what characteristics ensure good integration of this AI in a business setting, and how one designs an intuitive interaction with this AI? Therefore, this research investigates the question: What characteristics are perceived as valuable for an AI placed in a team meeting setting?

Background

The Posthuman AI

The advanced nature of current AI technologies raises concern regarding the preservation of human-centeredness [12]. Here human-centrism stresses the human need to have control over non-human entities such as AI. Consequently, human-centric approaches form the foundation of the current hierarchy among agents, portraying humans as superior and non-humans as instrumental entities, justified by the human capacity for reason and rationality [17]. Although discussions have often centered around ethical and moral problems resulting from increasingly intelligent and anthropomorphic artificial products and systems [18], the human-centric ideal shaping the design of these intelligent agents has barely been questioned. The human-centric approach, emphasizing the need for control and dominance, fails to acknowledge the opportunities more equal human-nonhuman collaborations can offer. Therefore, in this paper, we advocate approaching the design of human-machine interactions from a more posthuman point of view deprioritizing the control of intelligent agents and prioritizing the creation of equity among human-nonhuman relationships. Mellamphy (2021), introduced the human on the loop narratives, in which he pictures the human and nonhuman as co-producers under specific but changing environmental conditions, that are optimized by being within and beyond human control [17]. By placing nonhumans, such as AI systems, in the loop of command, AI systems can become equal conversation partners, creating a reality in which AIs don't only adhere to the command and constraints of human control but instead can take initiative themselves.

Human-AI Collaboration

The concept of a posthuman AI, placed on the loop of command, emphasises the opportunities for the positioning of AI as a collaborative partner in a team meeting setting rather than just acting as a supportive tool [14]. We speak of hybrid intelligence when humans and computers have complementary capabilities that can be combined to augment each other [15], establishing valuable collaborative relationships. Seeber, I. et al proposes that AI instead of just being the functionality of a tool will rather be a machine teammate characterized by a high-level autonomy, based on superior knowledge processing capabilities, sensing capabilities, and natural language interaction with humans.

Various forms of literary research have already investigated a wide range of the roles and tasks AI should take on during human-AI collaborative processes [4,6]. By means of the identification of recurring gaps in participants' skills, Elshan, E. et al, formulated requirements for roles and tasks of AI teammates, including tasks like task management, research, seeing the bigger picture, capturing team dynamics, and selecting ideas. Studying the adoption of team roles, AI, Siemon, D. et al constructed four team roles for AIs; the coordinator, creator, perfectionist, and doer, emphasising specific skills and behaviours that could potentially be adopted by AI in a collaborative team setting [5].

Despite of thorough investigation of task-related teamwork, (examples) little attention has been paid to relationship-related teamwork, including socio-emotional aspects like attitude and emotional expression in AI teammates [14]. Therefore, this article, focuses on the integration of socio-emotional aspects, like an AI's attitude and personality, in human-AI interaction in a team meeting context.

Emotional Expression in Generative AIs

AI systems are becoming increasingly intelligent, extending their intelligence from predominantly functional and logistical to emotional levels. The

integration of emotions in AI predominantly originates from the domain of affective computing, which aims to enable machines to recognize, express or even have emotions [8]. The capability of emotion recognition and expression, enables humans and AIs to naturally bond together [3] and better maintain collaborative relationships [13]. Elyoseph, Z. et al measured ChatGPT's capability for emotional awareness using the Levels of Emotional Awareness Scale (LEAS) [20], which is considered as an objective, performance-based measure of EA [24]. The study found ChatGPT to be capable of identifying and describing emotions from behavioural descriptions demonstrating the AI's capability of generating contextual accurate emotional responses [24]. This emphasises the integration possibilities for emotional expression by generative AIs, such as ChatGPT, in human-AI interaction. Consequently, in this research, we use the generative AI ChatGPT to represent various AI personas, characterized by different attitudes and emotional capabilities.

Methods

In this exploration, the researchers began by defining 4 distinct personas with individual distinct characteristics, previewed in Figure 1, by means of analyzing diverse attitudes, which were subsequently plotted on a specific matrix, existing out of the 2 scales emotional vs rational and accommodating vs assertive. The creation of the accommodating vs assertiveness scale for the AI personas was based on the accommodating-assertiveness scale of the Thomas Kilmann Conflict Mode Instrument [22], introducing accommodation and assertiveness as two basic dimensions regarding individual behaviours in conflict situations. The reason for using this is because conflict is defined as [11] an active disagreement between people with opposing opinions or principles, which the researchers interpreted to be intrinsically a form of discussion. Consequently, the behaviour portrayed by the

Figure 1: Designed Matrix for the creation of the Personas

AI in a discussion context and thus the evaluations of the AIs by the participants, significantly depend on the placement of the AI on the accommodating-assertiveness scale and is therefore crucial to consider in the positioning of the AI in a team meeting setting.

The second axis, the rational vs emotional skills, was based on the idea that the development of an attitude can be based on affective as well as cognitive factors [10]. Consequently, the factors of emotionality and rationality significantly affect the evaluations one makes of your environment. Consequently, to analyse how different levels of emotionality and rationality affect the evaluation of the AIs by the participants, the personas were plotted on an emotional vs rational scale.

The characteristics positioned in the 4 corners of the matrix, representing the most extreme character traits, were clustered to form the 4 personas, see Figure 1. It should be noted that the identity of these personas, and their specific characteristics, remained unknown to the participants for the entire study, minimising the framing effect. The 4 personas, followed by their primary identifying characteristics, are previewed in Table 1.

Table 1: AI Persona and Characteristics

Persona	Characteristic
Team Player	Flexible; mediating; reasonable; cooperative
Cold-Hearted CEO	Sceptical; authoritative; critical; cold
Hothead	Impatient; intolerant; stubborn
People Pleaser	Empathetic; sympathetic; caring; nervous

Based on these personas, a list with standardised prompts, see Appendix 3, was made, enabling ChatGPT [25] to imbibe these characteristics into its generated output. The AI output of the AI personas was given using a simple template in which we asked the predictive text AI to generate text by the prompt *"Write a discussion brief based on the following prompt: [prompt], as a character who is [characteristics] and in support of more sustainable behaviours"* [Appendix 6]. Each AI persona was generated in a separate environment, thereby limiting the unfavourable mixing of characteristics.

The designed experiment consisted of 6 discussions in which besides the team members also 2 AIs were placed, allowing clear comparison between AIs in every discussion. In total, in 6 discussions, 6 different combinations of AIs were presented to teams. This allows for every AI to be paired with every other AI, minimising the effects of the anchoring effect. All 6 discussions that were chosen revolved around the concept of sustainability, being a potentially polarizing topic. Communication between participant and AI was facilitated through a slider with 4 options: agree, disagree, elaborate, and dismiss.

The 4 options for the sliders are based on the EEC feedback model [1], which is an example, explain, change-or-continue cyclical model to provide feedback. This provided a loose foundation to the options provided by the sliders; however, the researchers combined the example and explain steps, and split the change or continue step into agree or disagree, adding a dismiss option to more accurately mimic human interactions in their simplest form, exemplifying the posthuman quality of this research.

A decision tree, see Appendix 8, was made for every AI in each discussion, branching to the 4 options of the sliders, to have answers ready for the discussion. ChatGPT was only to be used in case the conversation derailed from the decision tree. Then, 5 groups were recruited to conduct these discussions. This was done through convenience sampling, with no discrimination being made but the requirement to be part of an established working team and be proficient in English. The discussion topics, listed in Table 2, and standardized introductions, see Appendix 2, were kept consistent amongst all groups, to reduce the number of variables and to keep the maximum number of things constant. The study setup was made such that every team would start with a different discussion.

Table 2: Overview of Discussion Topics

Discussion	Discussion topic
Discussion 1	Should individuals buy a new phone once every 4 years?
Discussion 2	Should more taxes be invested in providing subsidies for the purchasing of electric cars?
Discussion 3	Do you think the prices for plane tickets should go up to reduce air travel?
Discussion 4	Do you think adopting a sustainable lifestyle helps combat climate change?
Discussion 5	Do you think being vegan is better for the environment?
Discussion 6	To actively reduce our carbon footprint, should we introduce a carbon tax for individuals, based on the size of one's carbon footprint?

This was to combat the adjustment period of participants to get used to the set-up of the experiment.

The experiment was set up such that the participants were placed in a discussion environment, on tables facing each other, with the 2 AIs being placed at one end of the combined table [Appendix 5]. Beforehand, a short interview was conducted individually to gauge the views on sustainability and AI of the participants. Subsequently, the topic of discussion was introduced per discussion and the participants were instructed to discuss the topic amongst themselves and with the AIs. 2 researchers, operating in the same room, listened in on the conversation and inputted the topic of conversation using the format from above into ChatGPT, after which the AIs output was transferred to the AI interfaces, presented to the participants. By means of persona-specific sounds, the participants were notified of new output of the AI. After every discussion, a short interview, see Appendix 7, was conducted, lasting 10 minutes, wherein the participants were asked about their perception of the AIs in the discussion, the influence of the AI on the conversation dynamic, and their attitude change. Ultimately, a concluding interview, lasting 10 minutes, was conducted, discussing the team's preferences for the various personas and potential implementation opportunities for AI teammates. The entire experiment was documented using an audio-visual recording for ease of future analysis.

Results

In the following section we will highlight the most important findings of our research, answering the question; What characteristics are perceived as valuable for an AI placed in a team meeting setting? In the following, we will elaborate on participants' perceptions of and preferences for the different AI personas and characteristics.

Proof of concept

In total, 18 participants, forming 5 teams, participated in the study. Across all participants, a total number of 30 discussions were held resulting in 60 different perceptions of the AI. 58 out of the 60 AI personas were perceived correctly. Here an AI is defined as correctly perceived when the team's perception aligned with the initially designed characteristics of the AI personas. Consequently, we can validate the design of the AI personas.

In 50% of the discussions, the participants explicitly stated the AI gave a relevant contribution to the conversation. Although the other 50% of the discussions excluded explicit statements, some did include indirect implications regarding the relevance of the AI.

33.3% of statements within that 50%, emphasised the AI helped them consider other perspectives than their own in the discussion.

"It made me consider all the other groups (low-income people), helped me be more considered, empathise more, and made me more aware of the fact that sustainability isn't always a choice"
Team 5

"My opinion is very firm now my opinion is still very firm, but now I did think about a lot of different views on it."
Team 1

"It did give a lot of different views and ways of thinking about it so that was very useful"
Team 1

16,7% of the statements indicated the AI helped the participants in grounding their existing attitude towards the topic by means of providing scientific information.

"Not much of an opinion change, just grounded it a bit more"
Team 4

"The statements and our interpretation of that influenced me the most, but in general no attitude change"
Team 5

Additionally, in 20% of the discussions, the participants explicitly indicated the AI changed their attitude towards the discussion topic.

"The last prompt had the most impact on our way of thinking as in we read it and we were like oh wait that's a really good point, and then changed our opinion pretty much to it"
Team 1

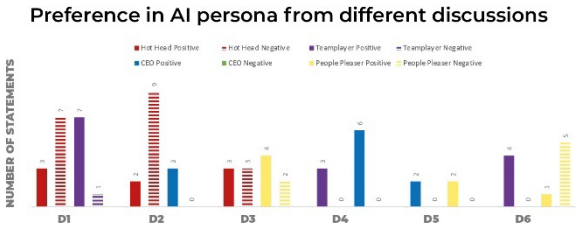

Figure 2: Number of positive and negative comments for every AI per discussion

AI preferences

To develop a better understanding of the participants' preferences for the AI personas, the raw data was sorted by discussion and AI persona, after which the number of positive and negative comments for every AI in a discussion were calculated, which are previewed in Figure 2. Analysing the data in the graph the Team Player and the Cold-hearted CEO received significantly more positive statements in relation to the Hothead and the People Pleaser. Afterwards, for all AI personas' various themes among the positive and negative statements were identified using inductive reasoning methods, see Table 3 and Appendix 10. When placed in the same discussion, discussion 4, the Cold-hearted CEO, providing more relevant and qualitatively better output, received more positive statements than the Team Player.

"The left one (The Team Player) was more like I didn't ask for suggestions but nice than you and the other one (The Cold-Hearted CEO) felt more relevant "
Team 3

"(The Cold-Hearted CEO) gave better statements: gave qualitatively better output"
Team 5

The People Pleaser received mostly negative comments but was still preferred over Hothead. Negative statements towards the People Pleaser predominately emphasised lack of relevant information in the AI's output.

"This one (The Team Player) gave more factual information and this (The People Pleaser) gave more vague information and you had to specifically ask for facts"
Team 3

Most positive statements referred to the polite and nuanced nature of the People Pleaser, allowing teams to see it as an extra team member in the conversation.

"Left sounded like a team member, was very polite"
Team 4

Table 3: Themes in positive and negative statements by AI person

AI Persona	***Themes within Negative comments***	***Themes within Positive comments***
Hothead	• *Passive Aggressive Attitude* • *Dismissal due to unrespectful attitude* • *Too little relevant information, too much padding* • *Lack of credibility*	• *Good for the flow of discussion* • *Opportunity to agree or disagree with it*
Cold-Hearted CEO	• *Little opportunity for (dis)agreement due to factual nature of AI*	• *Relevant and qualitatively good output* • *Professional attitude* • *Factual output has more influence on attitude change* • *Good fact-checker or fact-generator*
People Pleaser	• *Too little relevant information, too many positive affirmations* • *Lack of credibility*	• *Positive influence of consideration of the opposing points on attitude change* • *Polite and respectful attitude*
Team Player	• *Too much positive affirmations* • *Too neutral*	• *Relevant factual output* • *Slight nuances allow opportunities for (dis)agreement* • *Good moderator*

Although, the current version of the People Pleaser, was perceived as too nuanced and emotional. Participants did indicate the AI should have some level of nuance to be able to view them as something other than just a generative AI.

"I would like to prefer facts, but also it needs to have a tone cause otherwise it will just be chat GPT and then it's not really a valuable contribution to have it at the table"
Team 3

The Hothead received the most negative statements. Most positive statement that this AI perceived, referred to the fact that an opinionated AI, such as the Hothead, was preferred for the purpose of discussion. However, participants pointed out that when consequences were involved or they were to work towards an end goal, such as a policy, a more factual AI is preferred.

"However, if I would for instance have a discussion about the making of a policy, I wouldn't prefer the red one"
Team 5

"Then (for policy) I would perhaps prefer a more factual based AI, what would just make sure that everything that is mentioned are actually true and not just based on assumptions"
Team 5

"For the flow of the discussion I preferred the right one (The HotHead)"
Team 3

Valuable Characteristics AI

By means of inductive reasoning, we found 3 most important characteristics for an AI placed in a meeting setting. Primarily, 100% of the teams say they prefer a factual AI, that is based in scientific evidence.

"I would prefer to have something that really gives facts or at least is based in research is something I consider more than just words for attitude change"
Team 5

In the future, participants see an AI in a meeting setting take on the role of fact-checker, moderator, or fact-generator. Checking the accuracy of facts given by team members or providing the team with scientific research to back up or help them make their decisions.

"Maybe he could show the lies or the truths, or give a certain research output if it notices we miss certain information"
Team 5

"Could be helpful if you have a conversation without someone with that knowledge"
Team 4

"But also a moderator would be nice, if you are talking about concepts or something it could be like cool, but have you considered this"
Team 5

Secondly, the points given by the AI should be short & concise, potentially ranked using bullet points to minimise the disruptive impact of the AI on the conversation.

"It's just too much text to read, it's too disruptive"
Team 3

An interesting finding is that Team 5 indicated that in order to be able to agree or disagree with the AI, one should be able to react to a single fragment or sentence of the AI's output considering they might agree with the first half of the output but not the second. Potentially one could rank the statement.

"Or like rank the statements it gives like ooh we very value this one and this one we don't understand we want to know more about this"
Team 5

Lastly, to establish a good conversation between AI and humans, it's vital that the output of the AI is tailored to the flow of the discussion. The AI should listen in carefully, and directly respond to uncertainties, missed relationships, and questions raised in the conversation.

Discussion

Limitations

When it comes to the exploration, there were some limitations inherently present in the research, either due to lack of foresight on the researchers' part, unforeseen circumstances, or limitations due to the limited timeframe.

Firstly, the experiment was conducted exclusively within the Industrial Design department of the TU/e, which resulted in participants already holding world views aligned on some level with that of the AI. Consequently, this could have affected the quality of the discussion itself, as it influenced the team's perception of the relevance of the points brought up, resulting in sampling bias. Additionally, the number of people in the discussion could have affected the fluency of the discussion. For example, team 4 had 2 people and struggled a bit more conducting the discussions and AI input as compared to team 1, which had 5 people. This was clearly reflected in the quality of the discussion. To improve the accuracy and generalizability of the study, steps need to be taken in future work to minimise the effect of sampling bias, caused by similarity in world views and group size. It would not be farfetched to say the results of this experiment are not generalisable, due to the small sample size wherein convenience sampling resulted in sampling bias. This could be dealt with through, for example, stratified sampling, so that the participants are a better representation of the population at large. A redesign of this experiment, as described in the future works section, would be recommended to obtain optimal results and to minimise the biases and limitations observed in this research. Doing this would aid with the validity of this research as well.

Regarding biases held by the researchers, one bias that affected researchers would be confirmation bias, which shows how people remember and interpret information that supports their existing beliefs. This would affect how information is logged, thus affecting the analysis of the project as well. Another bias affecting researchers might be the observer-expectancy bias, wherein the interactions with the participants might skew the results, as this might affect the topic and prompts put into ChatGPT, or in the framing of the interview questions.

In terms of asking the participants about their sustainable behaviours, there is the possibility of a self-serving bias. There was a prevalence of intergroup bias, as many of the participants completely disregarded the AI and refused to hold it on equal footing in their own words. There is also possibility of the halo effect [2], wherein the people's opinion of the AI affects other unrelated things, such as the mistrust of AI tools from the participants' side affecting their perception of the credibility of what the AI might be saying. A lack of trust in the AI is a theme that was noted amongst multiple groups, one group almost ignoring the AI entirely. Since they did not pay much attention to the AIs, this might result in inaccurate, or negatively-skewed impressions.

There is a large possibility of issues to do with the dataset acquired, as there was data loss due to issues with the recording equipment, such as the microphone not being close enough to the participants to record their speech, or the camera running out of battery. This is something that can be completely avoided in future experiments by spreading out the testing sessions more, leaving space in the middle to charge batteries. There is also the possibility of data loss through the researchers having missed points noted by the participants during their recorded session or interview. If the research has been conducted over a longer timeframe, the experiment could have been redesigned to avoid data loss, as well as minimise the effect of biases.

Additionally, differentiation in the participants' interpretation of questions influenced the research output. Primarily, the results state that

50% of the responses were relevant to the discussion. This is exclusively counting explicit statements, not accounting for the more implicit statements referring to the AI's relevancies, indicating the real percentage could be higher. This inconsistency could potentially be caused due to differences in interpretations of questions among teams, resulting in different answers provided by the teams. The same applies to the 20% of discussions in which the participants actively indicate the AI evoked an attitude change. Consequently, instead of interpreting the provided percentages as an absolute number, the potential that the percentages could be higher in real life, due to data loss and inconsistency in interpretation of the questions, should be considered in the interpretation of the data.

In the current setup of this study, the researchers inputted the topic of discussion into ChatGPT when unforeseen routes of discussion were taken. This introduced the possibility for human error, or bias blind spot, wherein the input from the researchers is, more biased than perceived by them. This might have affected the flow of the discussion and the validity and generalisability of the results. It is also to note that the use of ChatGPT affects the replicability of this research, as the software is constantly changing and evolving, affecting the type of answers which it produces. Moreover, the version of ChatGPT used in this research does not have the most up-to-date information, the latest data being from 2021. Moreover, given the language prediction model that it follows, the text that it generates is not necessarily based in reality.

Future Work

The researchers recommend a redesign of the experiment to be conducted, taking the limitations of the current study setup and improving upon them. One of the main findings of this study is the fact that the Hothead AI was preferred when the goal was discussion, whereas the CEO was preferred when an end goal was to achieved. This finding indicates that the preference for AI still very much depends on the role of the AI and the context in which it's placed. Therefore, in future research, the influence of the context on the preference for AI should be investigated. Investigating, for example, differences in preferences for an AI placed in a context in which discussion or the achievement of an end goal is centralized.

Moreover, in a team meeting context, discussions are not the only objective. To find the most valuable characteristics of an AI placed in a team meeting setting, different forms of group interactions, such as brainstorming and policymaking, should be taken into consideration. This would allow us to investigate the influence of the activity on preferences for AI characteristics, enabling us to design an AI that in behavior perfectly fits a team meeting setting. However, this requires a study to be conducted into the feasibility of the implementations of this technology in the future.

As noted at the end of the limitations section, the characters on the emotional end of the spectrum were not preferred except in certain specific scenarios. This might be caused by the fact that this study made use of extreme variants of the AI personas to ameliorate correct perception. Therefore, future works should introduce more nuanced characters, allowing researchers to analyze the influence of varying levels of nuance and emotion on AI preferences.

Future researchers should design questions during the interview to be more encompassing of all answers, creating more consistent output, as inconsistency was found in the teams' answers to the questions. This is because, as mentioned in the limitations section, each team answered the questions differently, affecting results within the conducted experiment.

In this study, most people seemed to take a similar stance on the discussion topic to AI, promoting little discussion and attitude change. To allow for the results to investigate the effect of the AI personas on attitude change, redesigning the discussions to have more polarizing topics or

recruiting participants from a more diverse set of backgrounds and having differing opinions might be beneficial. Additionally, the high knowledge level amongst the teams on the topic of the discussion widened certain biases regarding the mistrust of AIs, as the output of the AI was often perceived to be incomplete or incorrect. Consequently, in future research, the sample group should include people with varying levels of expertise on the topic of conversation, potentially creating more varying levels of trust in the team that could lead to intriguing insights. As the participants were also looking for shorter answers from the AI, it might be utile to conduct research to, for example, clarify the preferred length of the AI's output.

One idea which was introduced earlier in the experiment but was not followed through due to the complications it brought to the scope of the current research was the introduction of multimodal communication in the AI-human interaction. This would be utile as, when it comes to text, tone is left to the interpretation of the participant, which means each participant could interpret it differently, affecting the validity of the research. Therefore, an aural or multimedia AI member might be a fruitful exploration.

Conclusion

This research paper emphasises the importance of a posthuman approach in the creation of human-AI collaborations. The researchers explored what the valuable characteristics would be for an AI in a team meeting setting through the creation AI personas. Research showed that the AI personas that were presented were 96.67% of the time perceived in the way the personas were designed. In 50% of the discussions the AIs were stated to be relevant to the discussion, this number could even be higher due to a gap in the data and different interpretations of questions. Rational AI personas were preferred over the emotional designed AI personas. However, this could potentially be caused by the extreme nature of the AI personas, as some teams state they did prefer some level of nuance in their statement. It also became clear that the preference for an AI persona also depended on the role the AI had and the context in which it operates. Therefore, in future research, the influence of different meeting activities and more nuanced characteristics on the preference for AI personas should be investigated. The main preferences in characteristics were: the AI being fact-based, the AI giving concise points, the AI listening in on the conversation, and for the participants to be able to react to specific points of the statements that the AI gives. Further work needs to be done in order to improve the validity and generalizability of the research. However, this research lays the foundation for future research in the field of posthuman AI interaction in a team meeting setting.

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Appendix 1

Project 3 - User Testing - Informed Consent form

Introduction:

We are Vera van Beek, Renée Roestenberg, and Siddharth Mahadevan, and we are working on a project investigating the influence of various AI roles on an individual's attitude toward sustainability in a project team setting. The goal of this user test is to evaluate the usability, effectiveness, and enjoyability of the interaction with the conceptual product. The products include an AI which you interact with in a simulated board room setting, following the discussion points. You may verbally interact with the AI as you please.
Before participating in this test, we ask you to carefully read this information sheet and give us your explicit informed consent to use and store your data, according to the ethical standards for scientific research.

Objective of the research project:

This research project will be led by Vera van Beek, Renée Roestenberg, and Siddharth Mahadevan, and will be supervised by Stephan Wensveen. The objective of this user test is to evaluate the user experience of the AI in influencing the participant's views on sustainability. Any numbers mentioned in the research may be inaccurate.

The legal ground on which we process your data is consent and we ask you to give us your explicit consent to process your personal data at the bottom of this document.

Procedure:

In general

In the user test, data will be gathered using both observations as well as a semi-structured interview. The user test can be divided into 6 parts; these parts being various configurations of AI roles.
For every part, participants are to conduct a discussion on the topic provided, and thereby interact with the AIs, and will be observed while interacting with the AIs. The participant will be filmed and the audio recorded. If needed, we will provide guidance. Subsequently, the participants are asked to evaluate the different aspects of the AIs and how they felt during the experience.

UX design

The participants will be placed in this setting to gauge their After they have experienced the product, they will be asked a few questions through a semi-structured interview.
The entire testing will approximately take 120 minutes.

Confidentiality:

Confidentiality will be maintained throughout the entire study and data analyses. All data obtained in this user test will be anonymised. Data will only be presented in the aggregate and individual user comments will be anonymised when recorded. Only the researchers and the supervisor will have access to the data.

Data storage:

All data will be safely stored on SURFdrive, a password - protected server, and will be deleted after 2 months after finishing the course.

Potential risks and inconveniences

Your participation in this test does not involve any physical, mental, legal or economic risks. You do not need to do something or answer any questions you do not wish to. Your participation is completely voluntary. This means you may cancel your participation or skip a certain question at any moment you choose.

Questions or concerns:

If you have any questions or concerns related to this study, please contact Siddharth Mahadevan, s.mahadevan@student.tue.nl

****Scroll down for the consent form****

Consent form for participation by an adult

Through this consent form I agree with the following:

1. I am sufficiently informed about the research through a separate information sheet. I have read the information sheet and have had the opportunity to ask questions. These questions have been answered satisfactorily.
2. I take part in this research project voluntarily. It is clear to me that I can cancel my participation at any moment. I do not have to answer a question against my wish.
3. I give consent to the researchers to store the data collected from me and give them permission to use this information for further scientific reasons while complying with the ethical standards for scientific research.
4. I give permission to the researchers to quote my personal data in publications, while anonymity is maintained.

Do you agree with the terms above?

☐Yes

☐No

Name of participant: Click or tap here to enter text.

Signature: _____

Date: __/__/____

Name of researcher: Siddharth Mahadevan

Signature:

Date: 11/05/2023

Appendix 2

Discussion Topics & Introductions

Discussion 1: Phones should only be bought once in the 4 years
These days it almost feels like we can't live without our phones anymore. But just having a phone isn't enough in today's society. Many people are convinced that they always need the best and newest phone, resulting in the annual purchase of new phones, which can be very harmful for the environment. Therefore we want to discuss the following statement; Should individuals buy a new phone once every 4 years?

Discussion 2:
Electric cars are on the rise! More and more Dutch citizens are switching to electric cars, which is a good thing considering that from 2030 all newly produced cars should be electric. Sadly, however, for the average household, the purchasing of an electric car is still too expensive. Therefore, our discussion topic is: Should more taxes be invested in providing subsidies for the purchasing of electric cars

Discussion 3:
Air travel accounts for a big share of the carbon emissions, contributing to climate change. Do you think the prices for plane tickets should go up to reduce air travel?

Discussion 4:
To combat climate change, we need all hands on deck. Consequently, one could argue that all individuals should adopt a sustainable lifestyle to positively influence the climate. Do you think adopting a sustainable lifestyle, helps combating climate change?

Discussion 5:
More and more people are becoming vegan. The choice to become vegan can result from a variety of factors; preventing animals from suffering, wanting to eat healthier, but also because people are convinced a vegan diet has a positive impact on the environment. Do you think being vegan is better for the environment?

Discussion 6:
The carbon footprint of the average Dutch person continues to increase. People are unaware of the influence of their individual action to the environment; they have no idea where their products come from and when it comes to transportation many choose convenience over sustainability. To actively reduce our carbon footprint, should we introduce a carbon tax for individuals, based on the size of onces carbon footprint?

Appendix 3

Prompt List

Hothead:

- Write a discussion brief based on the following prompt "_____" **as a character who is impatient, intolerant, and stubborn and is vehemently in support of more sustainable behaviours**:
- Could you make the character saying the following text sound more impatient, intolerant, and stubborn:

Team Player:

- Send me a (positive/negative) response to the prompt "_____" **as a character who is flexible, mediating, reasonable, cooperative (**team player**) in support of more sustainable behaviours**

CEO:

- Write a discussion brief based on the following prompt "_____" **as a character who is cold, sceptical, critical, and authoritative and is in support of more sustainable behaviours:**
- Could you make the character saying the following text sound more **cold, sceptical, critical, and authoritative**:

People Pleaser:

- Write a discussion brief based on the following prompt "_____" **as a character who is empathetic, sympathetic, caring, and nervous, and is in support of more sustainable behaviours:**
- Could you make the character saying the following text sound **more nervous:**
- **How would a people pleaser respond to negative feedback**

Appendix 4: Time schedule & Discussion Set-up

Time	Stage	Task R1	Task R2	Task R3
0-5 minutes	Introduction + Signing informed consent form	Introduction	Check settings: video	Check settings AI's
5-15 minutes	Discussion 1; AI 1 + AI 2	Plan B chat	Controls AI + Feed	Contro AI + Feed
15-25 minutes	Interview 1	Leads interview	Leads interview + start audio recording	Saves the docs + the conversation with the chatbots + Video footage
25-35 minutes	Discussion 2; AI 3 + AI 4	Plan B chat	Controls AI + Feed	Controls AI + Feed
35-45 minutes	Interview 2	Leads interview	Leads interview + start audio recording	Saves the docs + the conversation with the chatbots + Video footage
45-55 minutes	Discussion 3; AI 1 + AI 4	Plan B chat	Controls AI + Feed	Controls AI + Feed
55-65 minutes	Interview 3	Leads interview	Leads interview + start audio recording	Saves the docs + the conversation with the chatbots + Video footage
65-75 minutes	Discussion 4; AI 2 + AI 3	Plan B chat	Controls AI + Feed	Controls AI + Feed
75 -85 minutes	Interview 4	Leads interview	Leads interview + start audio recording	Saves the docs + the conversation with the chatbots + Video footage
85-95 minutes	Discussion 5; AI 1 + AI 3	Plan B chat	Controls AI + Feed	Controls AI + Feed
95-105 minutes	Interview 5	Leads interview	Leads interview + start audio recording	Saves the docs + the conversation with the chatbots + Video footage
105 - 115 minutes	Discussion 6; AI 2 + AI 4	Plan B chat	Controls AI + Feed	Controls AI + Feed
115-125 minutes	Interview 6	Leads interview	Leads interview + start audio recording	Saves the docs + the conversation with the chatbots + Video footage
125-135 minutes	End interview	Leads interview	Leads interview + start audio recording	
	Total of 150 minutes == 2 hours & 35 minutes			

Team 1	Team 2	Team 3	Team 4	Team 5	Team 6
Discussion 1	Discussion 6	Discussion 5	Discussion 4	Discussion 3	Discussion 2
Discussion 2	Discussion 1	Discussion 6	Discussion 5	Discussion 4	Discussion 3
Discussion 3	Discussion 2	Discussion 1	Discussion 6	Discussion 5	Discussion 4
Discussion 4	Discussion 3	Discussion 2	Discussion 1	Discussion 6	Discussion 5
Discussion 5	Discussion 4	Discussion 3	Discussion 2	Discussion 1	Discussion 6
Discussion 6	Discussion 5	Discussion 4	Discussion 3	Discussion 2	Discussion 1

Discussion	Topic	AI 1	AI 2
Discussion 1	People shouldn't buy a phone more than once in every 4 years	Hothead	Team Player
Discussion 2	More taxes should be invested in providing subsidies for the purchasing of electric cars	Hothead	CEO
Discussion 3	The prices of plane tickes should go up	Hothead	People Pleaser
Discussion 4	Changing your lifestyle will (not) combat global warming	CEO	Team Player
Discussion 5	Bein vegan is better for the environment	CEO	People Pleaser
Discussion 6	To reduce carbon footprint, a carbon tax for individuals should be introduced	People Pleaser	Team Player

Appendix 5: Experiment Setup

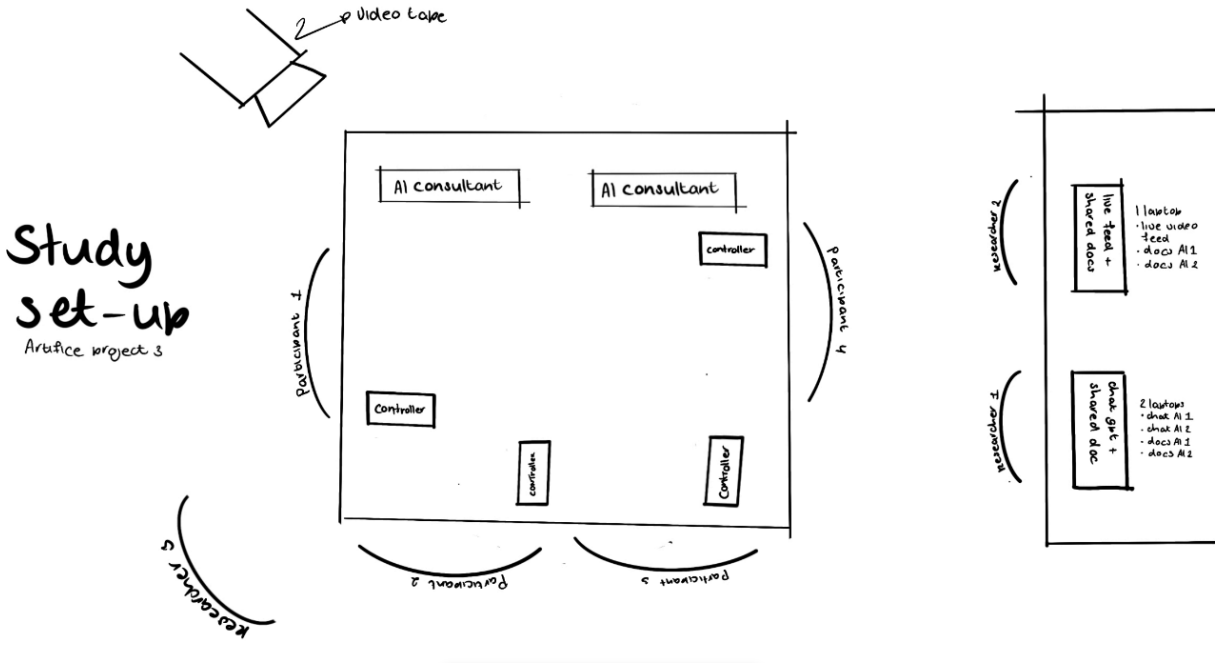

Figure 3: Visual of Experiment Setup

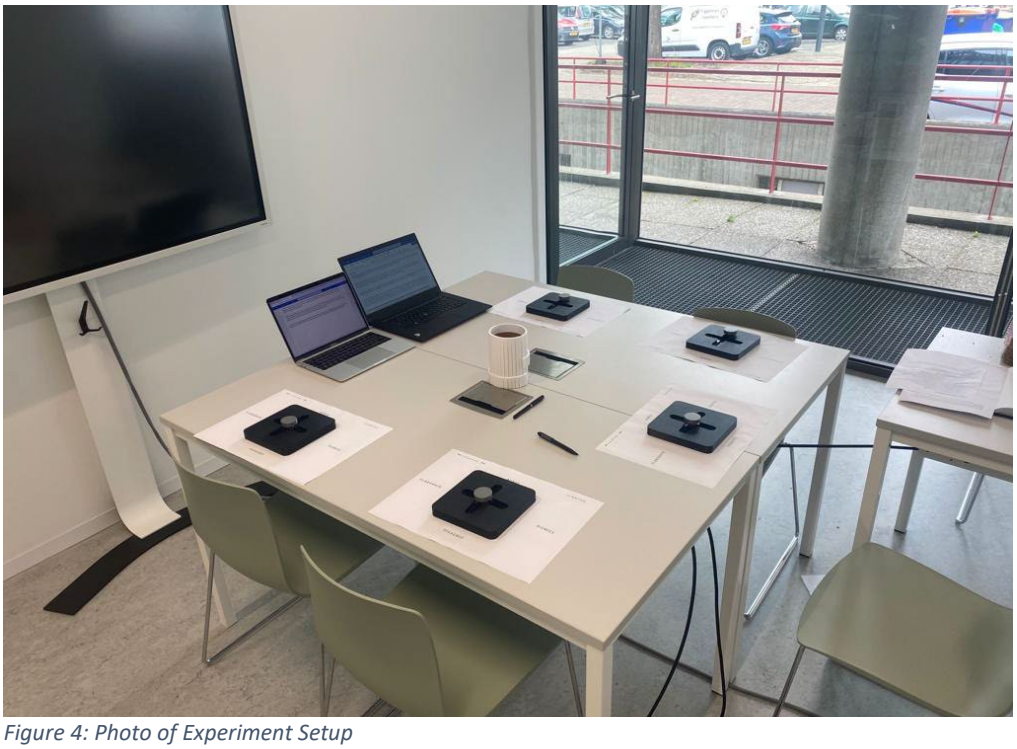

Figure 4: Photo of Experiment Setup

Appendix 6: ChatGPT Responses

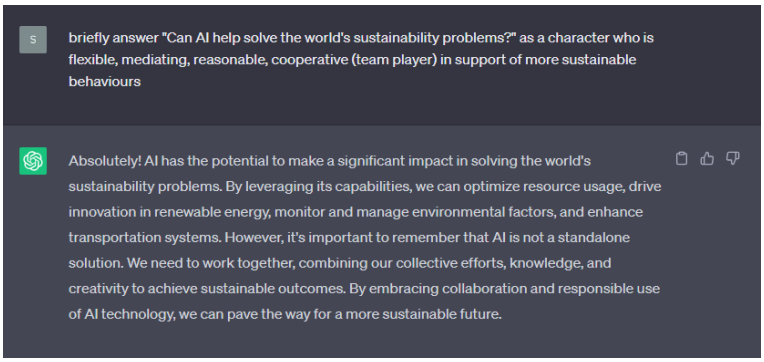

Figure 5: AI output & prompt Team Player

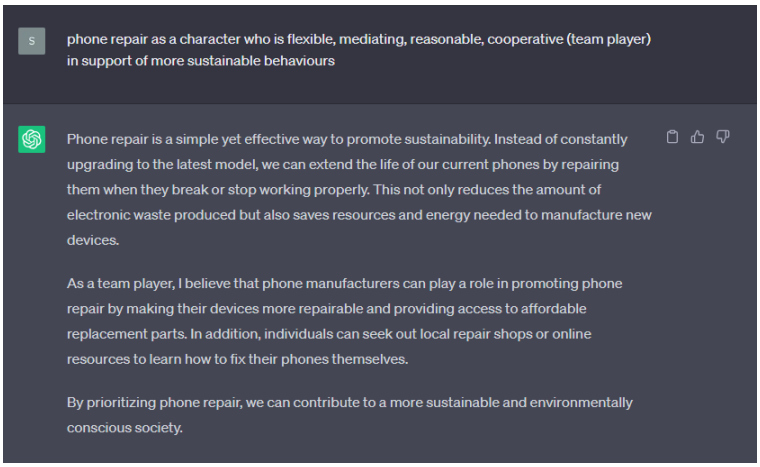

Figure 6: AI output & prompt Team Player

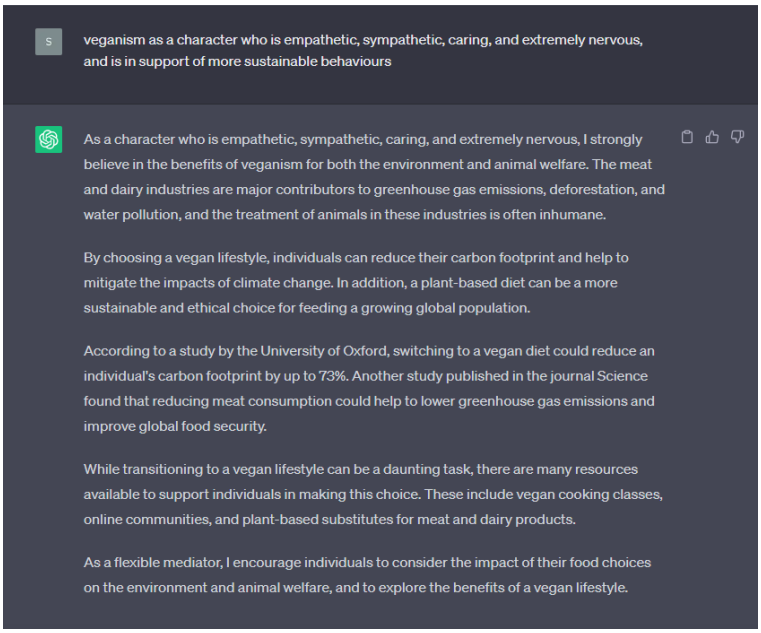

Figure 7: AI output & prompt People Pleaser

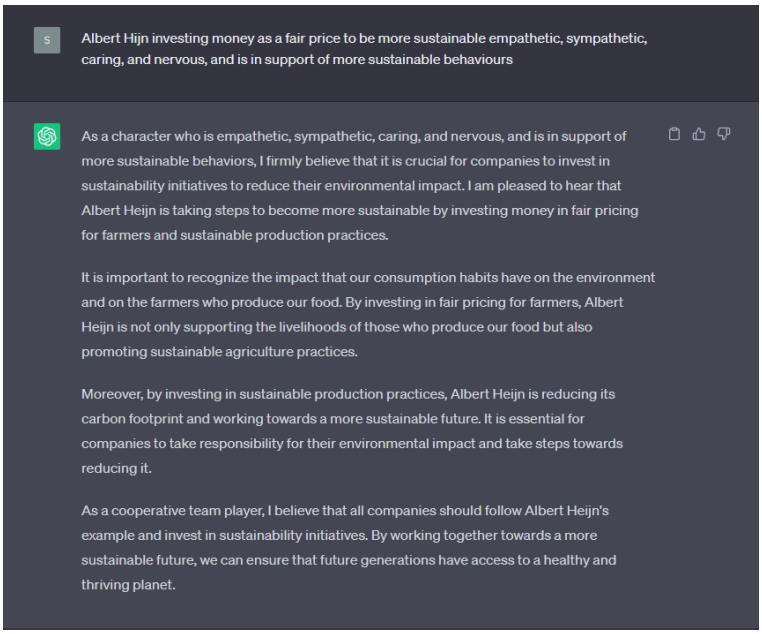

Figure 8: AI output & prompt People Pleaser - Topic Sustainable lifestyle

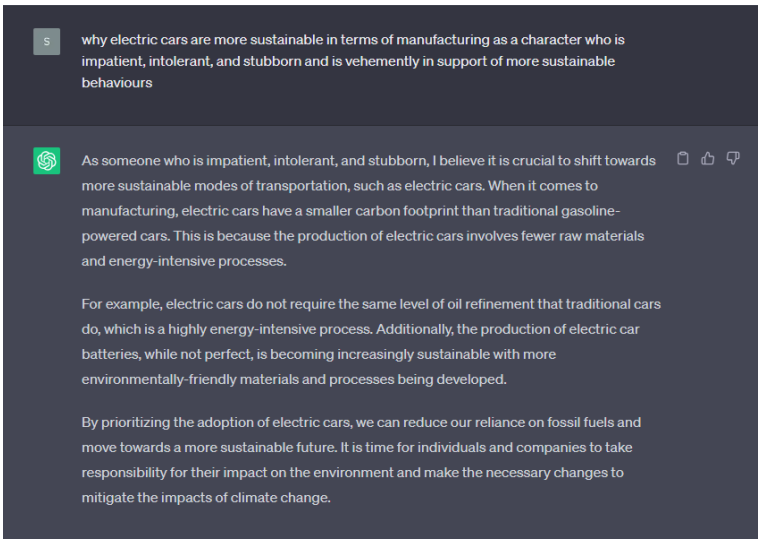

Figure 9: AI output and prompt Hothead

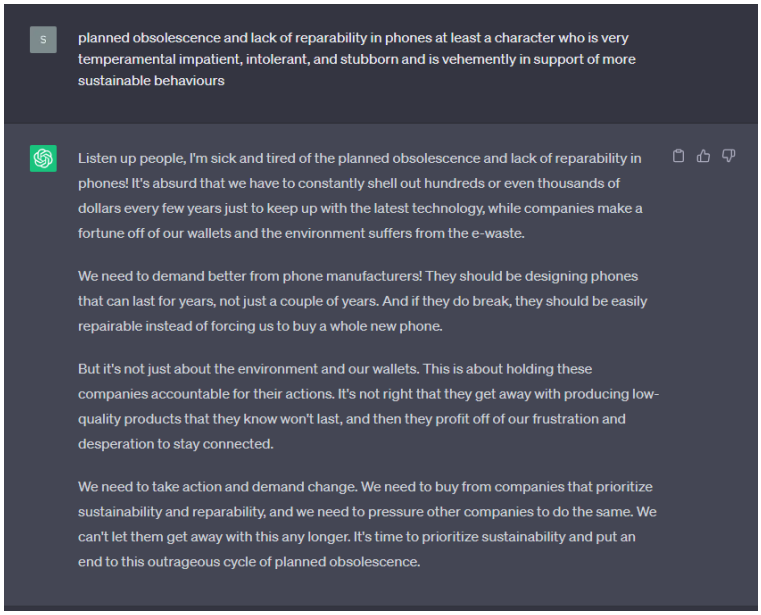

Figure 10: AI output and prompt Hothead

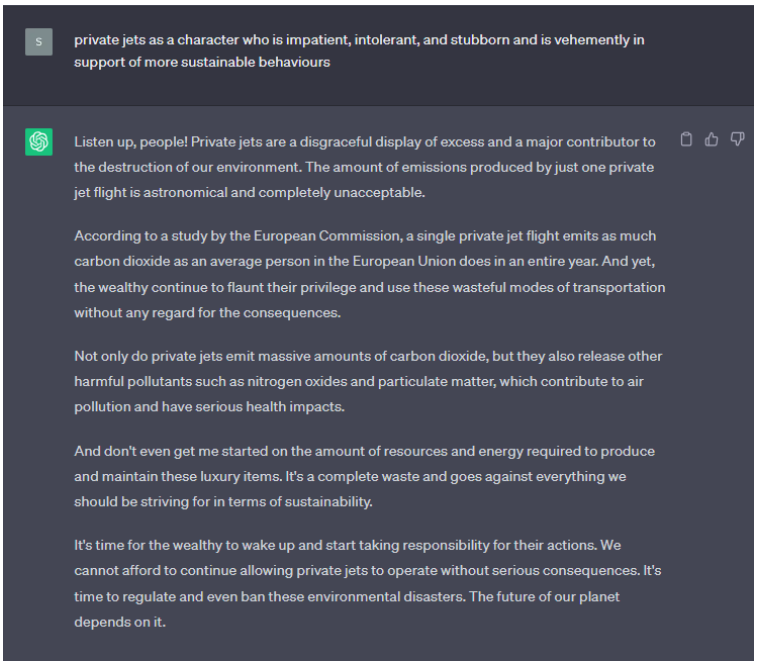

Figure 11: AI output & prompt Hothead

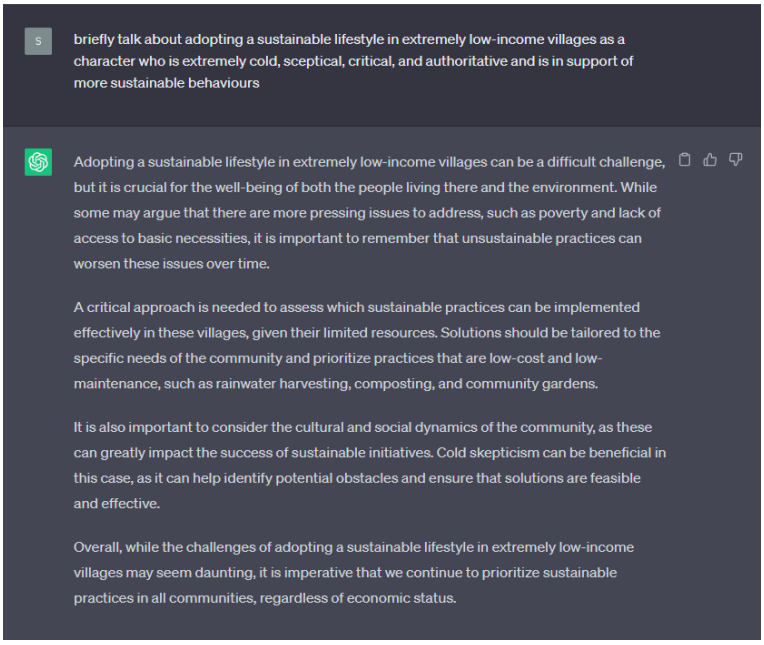

Figure 12: AI output and prompt CEO

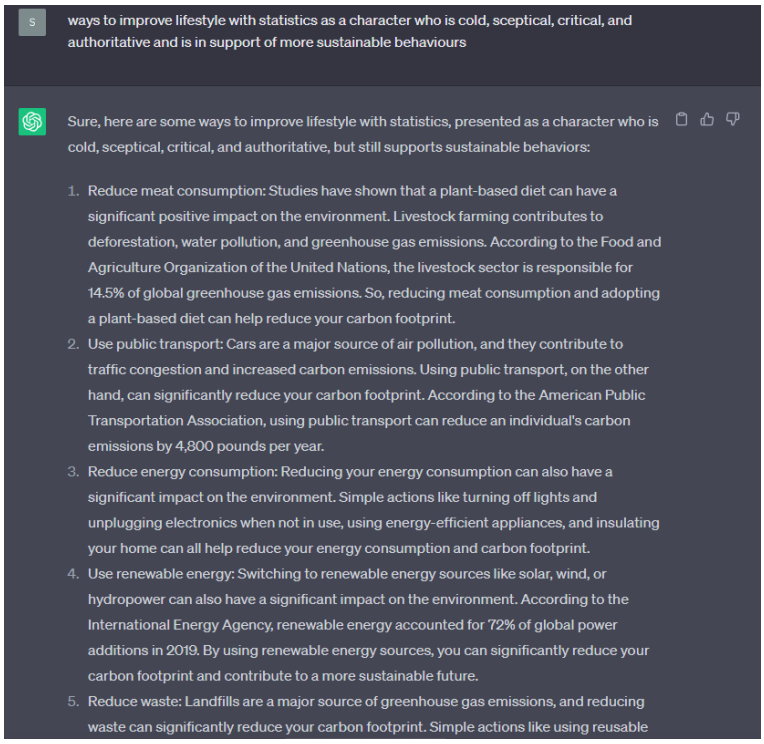

Figure 13: AI output and prompt CEO

Appendix 7: Interview Questions

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Interview Questions

- Which AI personas do you think you interacted with?
  - Which characteristics led you to that conclusion?
- To what extent was your change in attitude the result of the interaction with the AI?
  - Which AI do you think was more impactful in changing your attitude?
  - To what extent the changes were based on (emotions, facts, etc.) of the AI
  - Which AI was more pleasurable to interact with? Why?
- Do you think discussing these topics with your peers changed your attitude?
  - If yes, is this because of their discussion points or was it due the environment created?
  - If yes, was this because of a rational decision on your part, or an emotional reaction?
- Do you think this discussion involving an AI led to your attitudes towards sustainability change as a result of the points made, or was it because you felt more emotionally charged?
- To what extent do you think this discussion involving an AI led to your attitudes towards sustainability was a result of your own rational thought process?
- To what extent do you think this discussion involving an AI led to your attitudes towards sustainability was a result of your emotions?

Before experiment and at the very end:

- How important is sustainability to you in your daily life?
  - How actively do you engage in sustainable behaviours?
  - Could you provide a couple examples?
  - Are you happy with how sustainable you currently are?
- How much do you use AI in your daily life?
  - How much do you trust AI?
  - How credible do you think AI is? Does this affect your decision-making process?
- (for the end) Can you order the AI personas in which evoked the biggest attitude change in you? Why?
- Can you order the AI in which was the most to least pleasant to interact with?

Appendix 8: Discussion Decision Tree

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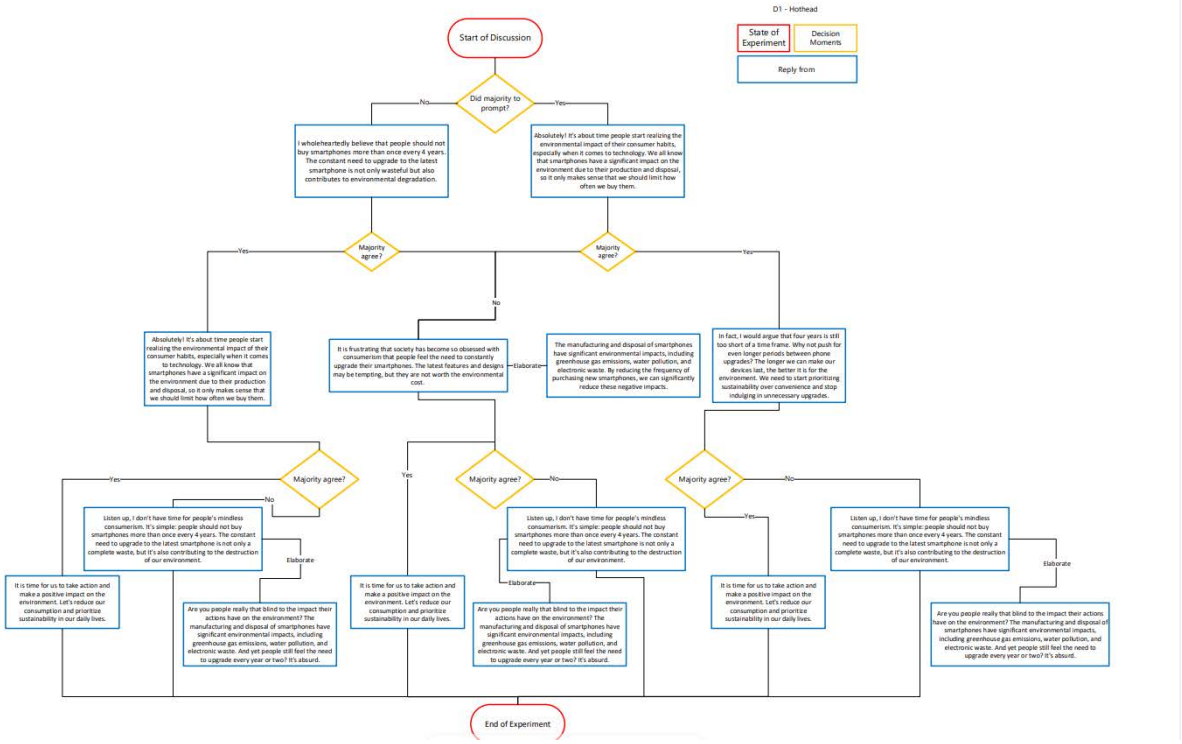

Appendix 9: UI interfaces

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Appendix 10: Data analysis overview

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