Illuminating Perspectives

The Impact of Amsterdam Light Festival – Edition 12 on Visitors' Attitudes Towards AI in Art

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Abstract

Recent developments in artificial intelligence (AI) have expanded its application in the arts, raising questions about public perceptions of AI-generated art. Research has shown the existence of a negative bias towards these artworks, with findings emphasizing the complexity of the underlying reasons. This study investigates whether exposure to AI-themed artworks at Amsterdam Light Festival (ALF) can alter public attitudes towards AI (in art). We hypothesized that attending ALF, which was AI- and technology-themed during the 2024 edition, would positively influence attendees' attitudes towards AI. We surveyed 782 festival attendees before and after their visit of the event to assess changes in their attitudes and emotional responses. A total of 168 participants eventually filled out the entire questionnaire. The main findings reveal no significant change in attitudes or emotions towards AI-generated art post-visit. The present study shows that altering public perceptions of AI (in art) can be challenging and highlights the need for more educational interventions. Considering the rapid advancements of AI and its impact on society, the current results and future research will be of the essence for artists, policymakers, and educators in shaping future public interaction with AI.

Illuminating Perspectives: The Impact of Amsterdam Light Festival – Edition 12 on Visitors' Attitudes Towards AI in Art

Historical context and evolution of AI in art

On a summer day in 1956, the word *Artificial Intelligence* sprung into existence. This happened during the *Dartmouth Summer Research Project on Artificial Intelligence* (*DSRPAI*), the objective of this project being to set up a new research area for building machines that could simulate the intelligence of humans (Haenlein & Kaplan, 2019). The brilliant minds that came together during those weeks, after failing to agree on the standard methods used in this field, probably did not expect artificial intelligence (AI) to become what it is today.

The aim of this chapter is to introduce the reader to the topic of artificial intelligence, and the research that has been done in this field. First, to gain knowledge on how AI has grown into what it presently is, the historical context is laid out. Second, some current applications of AI are described. Furthermore, this introduction conveys the present standings on AI, covering controversies, ethical questions, and human perceptions and attitudes. Lastly, the purpose of this thesis is presented, as well as research questions and hypotheses.

It was Alan Turing who, in 1936, created the first computer that was able to work with and translate any symbols, which he accordingly called the 'Turing Machine'. This machine is considered the foundation of the modern computer as we know it (Williamson, 2023). Inspired by the computational power of his creation, Turing got interested in the intelligence of these machines. He created his famous Turing Test to assess whether a machine can truly act like an intelligent being. This would be the case when a human is not able to distinguish another human and a computer from each other during an interaction with both. In the years following this period, the perceived 'minds' of AI and humans kept growing closer together.

In 1997, chess grandmaster Gary Kasparov lost a six-game match to Deep Blue, a program developed by IBM which had the ability to calculate the best move by looking 20 moves ahead and processing 200 million moves per second (Campbell et al., 2002). As impressive as it was, this program was not identified as a true intelligent system, because it was not able to identify external data and adapt to this new information (Haenlein & Kaplan, 2019). To be able to achieve exactly that, Donald Hebb had earlier introduced a theory called Hebbian Learning (Hebb, 2002), which led to increased research on Artificial Neural Networks (ANNs), or machine learning. IBM describes a neural network as “a machine learning program, or model, that makes decisions in a manner similar to the human brain, by using processes that mimic the way biological neurons work together to identify phenomena, weigh options and arrive at conclusions” (IBM, n.d.). This concept laid the groundwork for most present AI systems.

With the development of ANNs in the following years, AI has expanded into multiple fields such as security, criminal justice, finance, health care, and transportation (West & Allen, 2018). Another topic in which AI is increasingly relevant, is the analysis and creation of visual art (Cetinic & She, 2022). The recent years saw a rapid development of AI tools for creating art. However, the earliest version of these systems goes back to the 1960s. That is when AARON, the forefather of the art-creating programs we know today, was created (Garcia, 2016). This small robot was developed by Harold Cohen, an artist turned engineer, who spent most of his years teaching the machine how to create art. First this was with a set of simple rules and forms to draw primitive pictures, but with the development of neural networks and machine learning, AARON’s capabilities developed further.

Fast forward to 2014, at which point Ian Goodfellow proposed the framework for general adversarial networks, or GANs (Goodfellow et al., 2014). This system was revolutionary for the world of visual content generation. It is based on two models (descriptive and generative) that work against each other, to generate new content from prior training data. However, Elgammal et al. (2017) argued that the GAN is limited in producing truly novel and creative content. They built upon Goodfellow’s technology and created CAN: creative adversarial networks, which specifically focused on deviating from existing norms and styles, giving AI the ability to create truly novel images. Experiments done with CAN-created artworks showed that participants had difficulty distinguishing these from ‘real’ artworks. One CAN-generated artwork even sold for $16,000 (Elgammal, 2019). Between the introduction of CANs and the present, the research on AI has all but stagnated.

The current state of creative AI

In 2021, OpenAI introduced *DALL·E* (Ramesh et al., 2021). This is a neural network which can create images based on textual prompts. The basis of this network is several GANs (StackGAN

(Zhang et al., 2016), StackGAN++ (Zhang et al., 2017), AttnGAN (Xu et al., 2017)), which have developed since their introduction (Goodfellow et al., 2014). Other generative AI tools have been developed as well, such as *Midjourney* and *Stable Diffusion* in 2022. These programs have made it possible for every person with a network connection to create and shape images to their likings.

The amount of AI tools is steadily increasing, with thousands being added daily (McGill, 2023). Art and image generation is only one of the many creative purposes AI can be applied for. For instance, AI is used in the development of games, creating musical scores, script writing, animation, and many other creative endeavors (e.g., Jordanous, 2022; Tigre Moura et al., 2023). The outputs these AI-based systems generate can be used for monetary purposes. For instance, in October 2018, British auction house Christie's sold the artwork "Portrait of Edmond Belamy" for $432,500 (Christie's, 2018), this event undoubtedly sparking interest from artists around the globe. Furthermore, the artwork being AI-generated, many questions on authorship and ethics arose, as well as whether AI art is inherently creative (Cetinic & She, 2022).

Creativity is defined as the creation of something that is both novel and useful (Sternberg & Lubart, 1999). When viewed in the context of AI, creativity is the one thing that is inherently human, and it is what separates us from computers (Sawyer, 2014). However, with the development of AI-assisted art generation, these works are becoming more creative, given the fact that new styles and artworks are generated because of improved deep learning. According to Cheng (2022), AI has the potential to become a "real artist", which raises the question of whether this poses a threat against present-day artists. Davis (2021) proposed the concept of 'co-creativity', which focuses on the collaborative effort between human and AI. Co-creativity has been getting more focus and researchers suggest that this should be incorporated into creativity research, because "the future possibilities of human-AI co-creativity are endless, and we are only beginning to explore them" (Wingström et al., 2022).

Public perception of AI-generated art

In general, people tend to display a negative bias towards AI (Ragot et al., 2020). Reasons for this are, among others, low trust due to uncertainties about the influence of AI on society and data privacy, fear for loss of human intelligence, and fear of AI replacing jobs (e.g., Zhang & Dafoe, 2019;

Schepman & Rodway, 2020; Gillespie et al., 2021; Sindermann et al., 2021; Bergdahl et al., 2023; Brauner et al., 2023). Like biases against general artificial intelligence, this pattern is also seen in AI art. However, findings vary. Elgammal and colleagues (2017) found that some AI-generated artworks are perceived as more novel and aesthetically pleasing than human-created works, but the reason for this remained to be investigated. The authors called for future studies to better understand public perception and the factors influencing AI art appreciation.

Factors shaping negative biases against AI art include the traditional belief that art should be made by human hands, the perception that AI-generated art lacks human feelings (Lu et al., 2005), and perceived lack of effort (Jucker et al., 2014). Furthermore, Hertzmann (2020) states that the negative bias is due to a lack of understanding about art and AI, implying that if one has more experience and knowledge about these topics, the bias could be negated. Another reason for the negative bias results from the inability to effectively distinguish human- from AI-created works (e.g., Köbis & Mossink, 2021; Gangadharbatla, 2022; Grassini & Koivisto, 2024). On average, humans perform slightly better than chance in correctly identifying the creator. Lastly, following a survey study in the UK, it seems that demographical factors play a role in AI-acceptance, with certain age groups (16-29), sex (males), and education (a degree or equivalent) leading to more favorable attitudes. This may be related to the finding that only 17% of participants reported having knowledge on and awareness of AI. This number decreased with age (Harris et al., 2023).

In his research on AI attribution knowledge, Gangadharbatla (2022) found that prior knowledge about the creator influenced appreciation of artworks. Participants generally attributed abstract art to AI, whereas representational paintings were considered more human. Therefore, when an abstract artwork was indeed AI-generated, this alleviated the negative bias. Supporting the AI-bias, Hong and Curran (2019) found a clear difference in appreciation for AI- versus human-created artworks, with the latter being rated significantly higher for composition, expression, and aesthetic value. Many recent studies have found similar results (e.g., Elgammal et al., 2017; Chamberlain et al., 2018; Hong, 2018; Ragot et al., 2020; Cheng, 2022; Chiarella et al., 2022; Bellaiche et al., 2023). The number of studies on this topic is increasing, and reason for these biases are being investigated.

A recent study investigating the relationship between individual characteristics and the negative bias towards AI-art, found that participants with a high creative identity showed a preference for human-created over AI-generated art. This may be due to AI-art being seen as less creative (Grassini & Koivisto, 2024). Further results show that technological affinity had a positive relationship with liking AI-art. Participants with higher scores on openness also showed more liking for these artworks and experienced more positive emotions than with human-made works. Furthermore, the authors note that participants generally liked AI-generated artworks more than human-made ones, except when they knew these works were AI-generated. These results are in line with earlier studies on attribution knowledge (Gangadharbatla, 2022), and support the existence of a negative bias.

Amsterdam Light Festival

Amsterdam Light Festival (ALF) is an annual art show, exhibiting light-based works through the center of the Dutch capital. In collaboration with the University of Groningen, the organization aimed to do research on the people visiting their festival (e.g., demographic information, cultural interests, how visitors heard about ALF). Their mission is to use light art in the public space to connect and enrich people, and the organization hopes that the festival is an accessible way to make any person get in touch with art, leading to new insights (see https://amsterdamlightfestival.com/organization for specific information).

Every year, the festival is presented according to a certain theme. The theme of the 12th edition was ‘Loading… Revealing Art, AI and Tech’, and the artists were asked to reflect on the influences of technology and artificial intelligence on our day-to-day lives. More than twenty artworks surrounding this theme were presented (see https://amsterdamlightfestival.com/en/edition-12 for more information about this edition).

Current study

To add to the existing literature on AI-appraisal research, the present research question is: *“How does attending Amsterdam Light Festival – Edition 12 influence visitors’ attitudes towards AI in art and their perceptions of AI in general?”* Drawing from the Mere Exposure Effect (Zajonc, 1968), which states that repeated exposure to a certain stimulus will positively affect one’s attitude, we hypothesize that visiting the festival positively influences visitors' attitudes towards AI, moderated by the extent to which the participants enjoyed their visit. It is expected that interaction with the artworks leads to more familiarity with and increased exposure to AI. Research shows that this is significantly related to positive attitudes towards AI (Gillespie et al., 2021; Darda & Cross, 2022; Grassini & Koivisto, 2024). Furthermore, art can lead to the elicitation of strong emotions (Menninghaus et al., 2019), and emotions are important in forming attitudes and driving behaviors (Beaudry & Pinsonneault, 2010). Thus, we further hypothesize that as with attitudes, emotions towards AI are more positive after visiting the festival. Furthermore, the current study is done in an ecological setting, whereas most studies are done in a controlled environment (Chiarella et al., 2022). This will add to the ecological validity of the current research. Studying the effects of art festivals on attitudes and emotions towards AI can offer valuable insights into how these events can influence one's acceptance of AI, which is crucial considering the increasing involvement of AI in the creative fields.

Methods

Participants

Visitors of *Amsterdam Light Festival* volunteered for this survey experiment, with an initial participant pool of N = 782 (for a comprehensive overview of demographic distributions, refer to the Results section). Eligible participants were those who attended the festival of ages 16 and above. The current research was approved by the Ethics Committee at the University of Groningen.

We employed a convenience sampling method, selecting participants based on their availability and willingness to participate during the festival. This approach was chosen due to practical considerations regarding getting access to potential respondents. While convenient for data collection, this sampling method may limit the generalizability of our findings.

There were some incentives for partaking in the current study. Participants that filled out the entire survey, and gave permission, were automatically enrolled in a raffle. 25 vouchers, each with a value of 20 euros, were distributed among these participants.

Materials

An online survey was conducted, which was set up using Qualtrics. The survey contained a pre-test with 33 questions, and a post-test with 38 questions. Examples of questions were word associations (e.g., *"What words or associations arise when thinking of technology and AI?"*), demographic questions (e.g., age, sex, degree, income), questions that interested the organization behind ALF (e.g., cultural interests, amount of previous visits, how they heard of the festival), art rating questions, Likert-scale questions, and emotion ratings on the Geneva Emotion Wheel, or GEW (Scherer, 2005). For the entire survey, refer to the Appendix.

Additionally, four items from the Attitude Towards Artificial Intelligence (ATAI) scale were used (Sindermann et al., 2021), in which fear and acceptance of AI were assessed on a scale from 1 to 7. Internal consistency for the scale was found to be acceptable across three samples, with Cronbach's alpha values of 0.65 and 0.66 for the Acceptance and Fear scales, respectively, in the German, 0.73 and 0.61 in the Chinese, and 0.64 and 0.65 in the UK sample. Validity for the scale was not assessed thoroughly. Nonetheless, face validity was found to be high.

The Geneva Emotion Wheel (GEW, Scherer, 2005) was used to assess emotional responses in a valid and reliable way. Participants had the option to select a maximum of two emotions (e.g., anger and fear). The GEW provides a selection of emotions, divided between four quadrants, combining positive (right) versus negative (left) valence, and high (upper) versus low (lower) arousal. Figure 1 shows the distribution of emotions within the GEW.

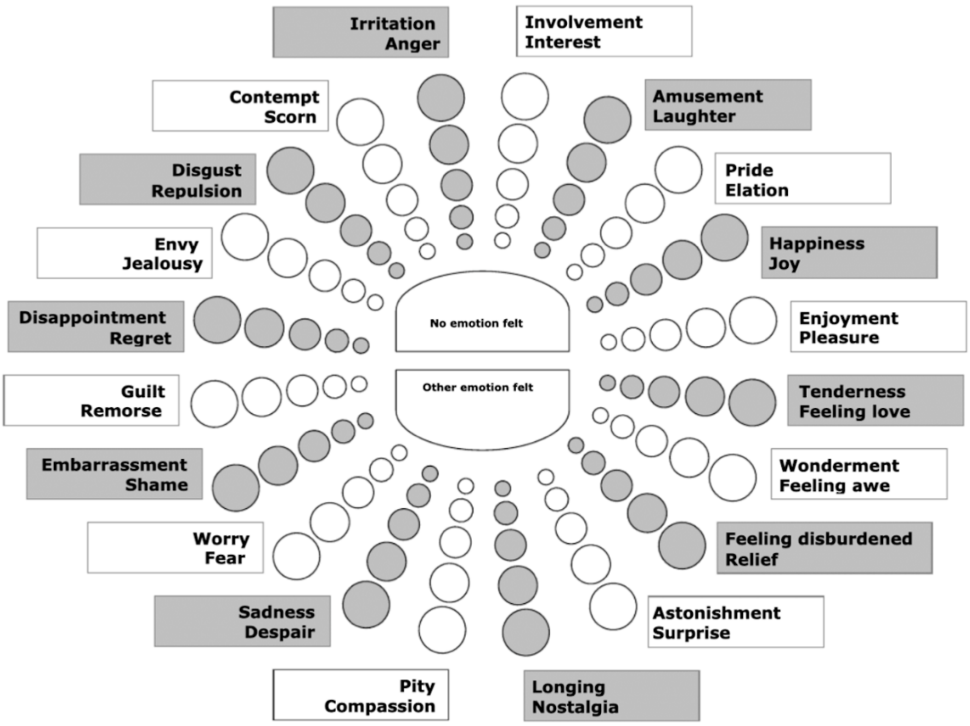
Procedure

Participants volunteered after having bought a ticket to ALF. Depending on the type of ticket the participants bought (guided tour, boat tour, no tour), they were either recruited through ALF's website, their app, or via email. The participants received a link to an informational video, and information about how to start the survey. Before their visit, they were asked to fill out the first part (pre-test) of the survey. If they had already visited the festival, they could only fill out the final part (post-test). Consequently, the number of participants who filled out the first part does not equal the amount of posttest results.

Consent was requested at the start of the survey. Participants were informed about the anonymous data processing, and the eventual deletion of their private data. The survey was administered online. Participants could fill it out on any electronic device with an internet connection.

A week after having filled out the first part, participants received a reminder email to fill out the second part of the survey. The festival ran from the 30th of November 2023 until the 21st of

Figure 1
The Geneva Emotion Wheel



Note. From "Geneva Emotion Wheel Rating Study", by Shuman, V., Schlegel, K., and Scherer, K., 2012. *Geneva, Switzerland, Swiss Center for Affective Sciences*. http://www.affective-sciences.org/researchmaterial

January 2024. After this period, participants who had filled out the first, but not the second part of the survey, were sent a second follow-up email inviting them to participate in the last part of the study.

Data analysis

The primary objective of the current study was to examine the participants' attitudes and emotions towards artificial intelligence (within art), the possible impact that visiting the festival might have on this, and whether their festival experience had an influence on this relationship. To achieve this, we conducted a paired-samples t-test, in which participants' attitudes towards artificial intelligence before and after attending the festival were compared. For the main research question, only data was used from participants that filled out both the pretest and posttest questionnaire. This ensured the paired-samples data that were needed for the data analysis. All analyses were performed with SPSS.

The Attitude Towards Artificial Intelligence scale items were grouped into two scales: acceptance and fear. This was done according to the factor analyses that were run in the original validation experiment (Sindermann et al., 2021). For the acceptance scale, the items reflecting positive attitudes towards AI were averaged into a composite score. The same was done for the fear scale, but with the negatively-valenced items. To test our hypothesis that the festival experience influences the change in participants' attitudes towards AI, we ran a regression analysis with interaction terms on the ATAI scales. The interaction used was the question in the post-test: *"To what extent were your expectations met?"*, which was rated on a scale from 1 to 10, and the scores on the pre-test of each ATAI scale.

To examine emotional change before and after attending the festival using GEW, we employed the Stuart-Maxwell test, which is a test of marginal homogeneity. This test is also called the generalized McNemar's test, since it is suitable for measuring more than two categorical outcomes among two paired groups. We categorized the emotions of the GEW based on the valence and type of arousal. If two emotions were recorded for one participant, opposing scores on either dimension would result in a 'Mixed' result. This resulted in eleven different categories (Positive/High, Positive/Low, Positive/Mixed, Negative/High, Negative/Low, Negative/Mixed, Mixed/High, Mixed/Low, Mixed/Mixed, Other, None). The distribution of these categories is compared between the pre-test and post-test, testing the null hypothesis that the proportions remain the same after the intervention (i.e., attending the festival).

Results

Demographics

From the initial pool of participants (n = 782), 168 participants who completed the entire questionnaire (i.e. both pre- and posttest) were identified. From this point on, this sample will be referred to as the 'combined' sample (as opposed to pre- or post-test only). Within this sample, 73.8% were female (n = 124), 23.8% were male (n = 40), and the remaining 2.4% identified as non-binary (n = 2) or preferred not to say (n = 2). The following paragraphs will contain more information about how the participants in this sample were demographically distributed. A more comprehensive overview of the variables, including participants that have not finished the entire survey, is provided in Table 1. The data from this latter group is useful for exploratory purposes.

Age distribution within the sample was varied, with 23.8% aged 26 to 35 (*n* = 40), followed by 19.6% between 56 and 65 years (*n* = 33). The age groups 36 to 45 and 46 to 55 each consisted of 17.3% (*n* = 29) of the sample. Participants aged 18 to 25 made up 14.9% (n = 25), those aged 66 to 75 comprised 5.4% (*n* = 9), and a very small percentage were either older than 75 (0.6%, *n* = 1) or younger than 18, with a minimum age of 16 (1.2%, *n* = 2). Figures 1 and 2 show the age distributions of both samples, categorized by gender.

Regarding educational attainment, most participants had obtained a master's degree or equivalent (48.8%, *n* = 82). This was followed by a bachelor's degree or equivalent (31.5%, *n* = 53), upper secondary education (8.9%, *n* = 15), doctoral degree or equivalent (6.0%, *n* = 10), lower secondary education (2.4%, *n* = 4), and primary education (0.6%, *n* = 1), with 1.8% preferring not to disclose (*n* = 3).

Lastly, most participants were from the Netherlands (81.5%, *n* = 137). with others coming from Germany (5.4%, *n* = 9), the United Kingdom (3.0%, *n* = 5), Belgium (2.4%, *n* = 4), and other European countries (7.1%, *n* = 12). One participant was from the United States (0.6%).

Attitudes towards artificial intelligence

Attitudes towards artificial intelligence were measured between pre- and posttest, divided between a fear and an acceptance towards AI scale. The changes are shown in Figures 4 and 5. A paired-samples t-test was conducted to examine to what extent the changes were significant.

The results from the pre-test (*M* = 3.73, *SD* = 1.35) and post-test (*M* = 3.64, *SD* = 1.32) for the fear scale indicate that there was a slight overall decrease in fear towards artificial intelligence. However, this change is not significant, $t(167) = 1.09$, $p = 0.28$, with a small effect size: Cohen's d = 0.08, 95% CI [-0.07, 0.24]. For the acceptance scale, the pre-test (*M* = 4.43, *SD* = 1.13) and post-test (*M* = 4.38, *SD* = 1.18) results also show a non-significant decrease in overall scores, $t(167) = 0.78$, p = 0.44, with a small effect size: Cohen's d = 0.06, 95% CI [-0.09, 0.21]. When comparing the t-tests by gender, some differences were found between females and males. For females (*n* = 124), the difference between pre-test (*M* = 3.8, *SD* = 1.31) and post-test (*M* = 3.8, *SD* = 1.26) on the fear-scale was non-significant, *t*(123) = 0.09, *p* = 0.93, Cohen's *d* = 0.01, 95% CI [-0.17, 0.18]. For males, the

Table 1

Demographic Characteristics of Participants in both the combined (pre-post) and ***pre-test only*** *samples*

Sample Characteristics	*n*	%
Gender		
Male	40, **133**	23.8, **27.4**
Female	124, **340**	73.8, **70.1**
Non-binary	2, **4**	1.2, **0.8**
Non-disclosed	2, **8**	1.2, **1.6**
Age		
<18	2, **4**	1.2, **0.8**
18-25	25, **75**	14.9, **15.5**
26-35	40, **112**	23.8, **23.1**
36-45	29, **83**	17.3, **17.1**
46-55	29, **89**	17.3, **18.4**
56-65	33, **90**	19.6, **18.6**
66-75	9, **26**	5.4, **5.4**
>74	1, **5**	0.6, **1.0**
Education		
Primary	1, **2**	0.6, **0.4**
Lower secondary	4, **17**	2.4, **3.5**
Upper secondary	15, **63**	8.9, **13.0**
Bachelor's	53, **163**	31.5, **33.7**
Master's	82, **208**	48.8, **43.1**
Doctoral	10, **23**	6.0, **4.8**
Non-disclosed	3, **7**	1.8, **1.4**
Country of residence		
Netherlands	137, **394**	81.5, **81.7**
Germany	9, **21**	5.4, **4.4**
United Kingdom	5, **14**	3.0, **2.9**
Belgium	4, **8**	2.4, **1.7**
Italy	3, **6**	1.8, **1.2**
United States	1, **5**	0.6, **1.0**
Other	9, **34**	5.4, **7.1**

Note. Other countries are countries with low participant rates (European countries, Afghanistan, Australia, Canada, China, Hong Kong, Namibia, New Zealand, and Singapore)

differences between pre-test (*M* = 3.53, *SD* = 1.3) and post-test (*M* = 3.18, *SD* = 1.31) were slightly higher yet non-significant, *t*(39) = 1.85, *p* = 0.07, Cohen's *d* = 0.29, 95% CI [-0.03, 0.61]. Results for the acceptance-scale are as follows: pre-test (*M* = 4.37, *SD* = 1.08) and post-test (*M* = 4.41, *SD* = 1.1) results for females saw a non-significant increase, $t(123) = -0.5$, $p = 0.62$, Cohen's $d = -0.05$, 95% CI [-0.22, 0.13].

Figure 2

Age distribution in the combined sample

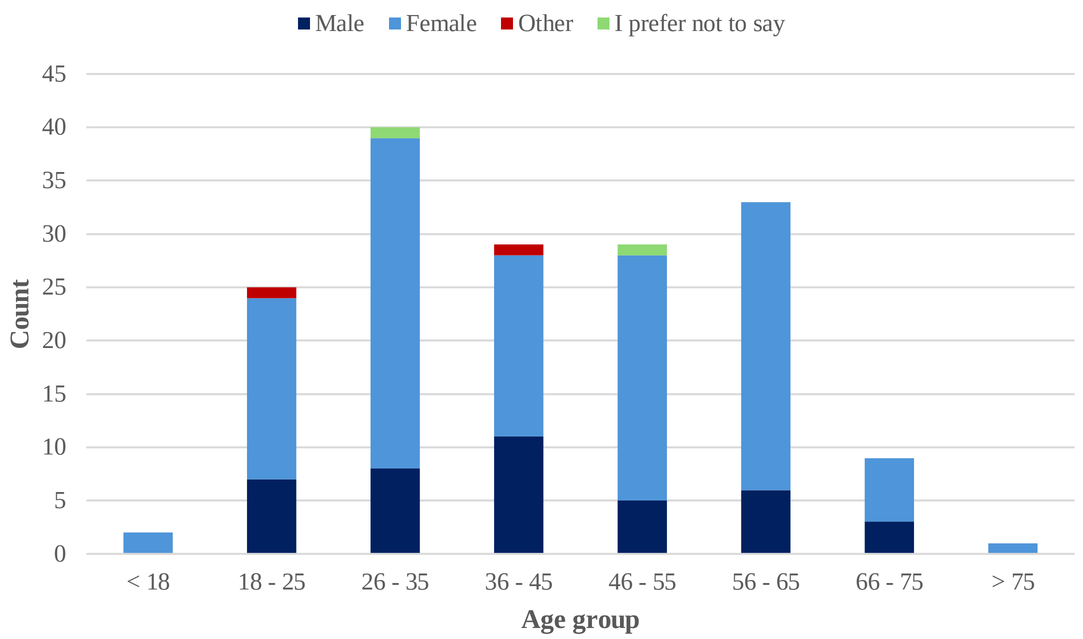
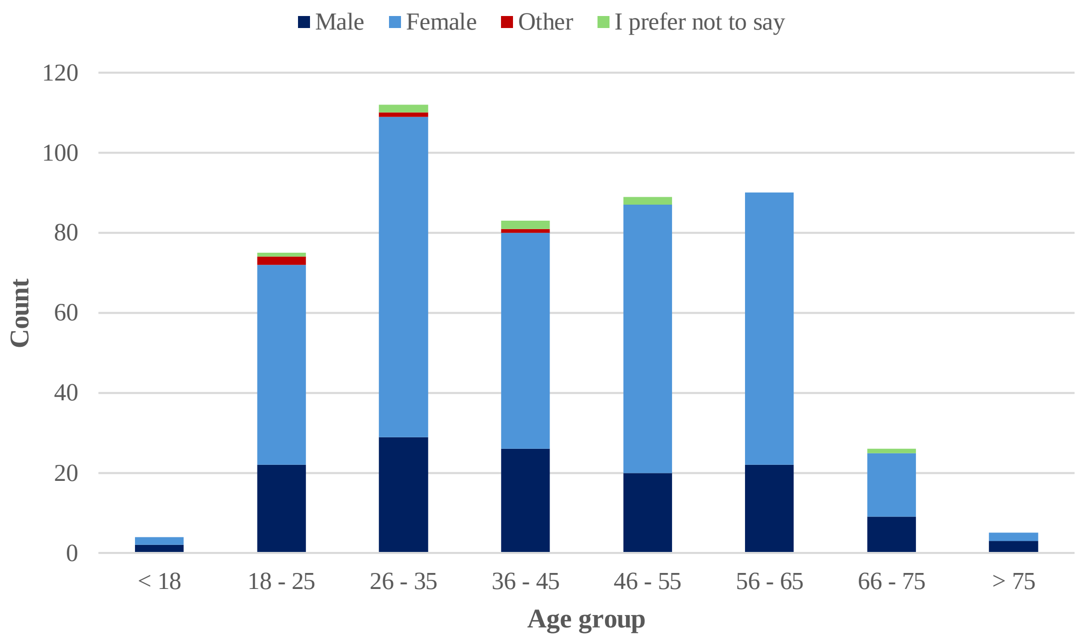


Figure 3

Age distribution in the pre-test only sample



For males, the change between pre-test (*M* = 4.55, *SD* = 1.25) and post-test (*M* = 4.33, *SD* = 1.36) saw a slight decrease. This change was non-significant, $t(39) = 1.26$, $p = 0.21$, Cohen's $d = 0.2$, 95% CI [-0.12, 0.51]. These results imply that, in the current sample, scores on the Attitudes Towards Artificial Intelligence scale do not significantly change after visiting the festival. Dividing these results to compare genders yielded no significant results. These results were not in line with our hypothesis that attitudes towards AI would change significantly after visiting the festival.

To examine whether festival experience moderated the changes in fear towards and acceptance of AI between pre- and post-test, a regression analysis was conducted with an interaction between festival experience and the pre-test scores. The dependent variables were the differences between pre- and post-test scores for fear and acceptance of AI, respectively.

The interaction between pre-test fear scores and festival experience was non-significant, $b = -0.12$, $t(167) = -1.64$, $p = 0.10$. For the acceptance scores, the interaction with festival experience was also found to be non-significant, $b = 0.01$, $t(167) = 0.16$, $p = 0.87$. These results indicate that the extent to which participants liked the festival did not significantly affect the relationship between initial fear and acceptance of AI and changes in these scales.

Figure 4

Pre- and post-test differences for acceptance of artificial intelligence

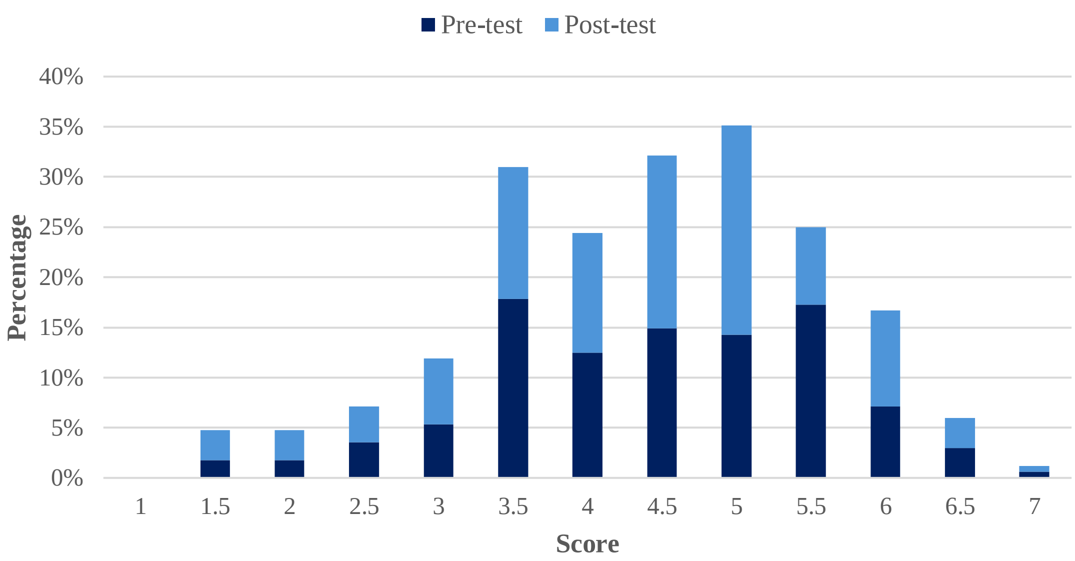
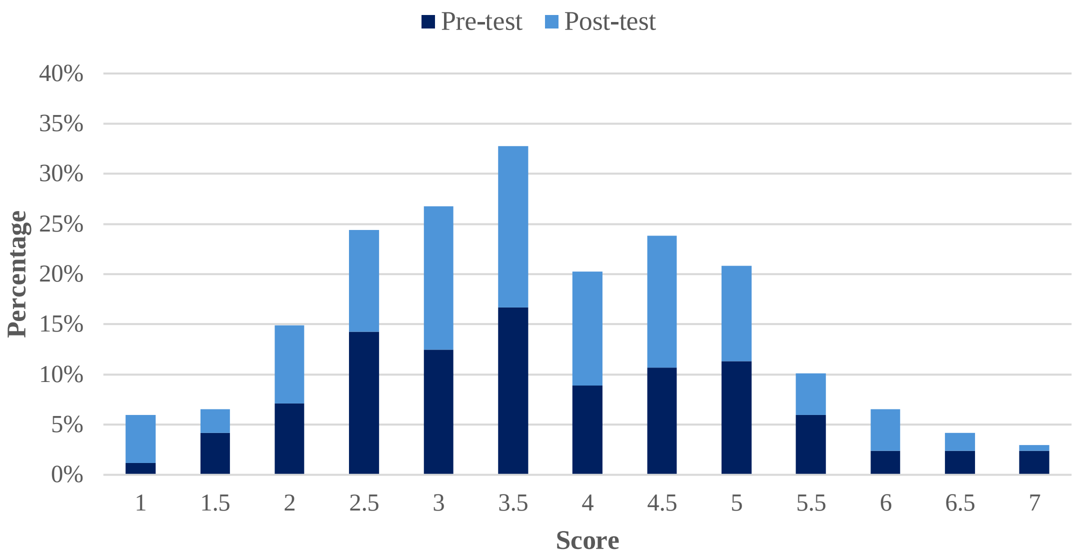


Figure 5

Pre- and post-test differences for fear of artificial intelligence



Emotions surrounding artificial intelligence (in art)

A Stuart-Maxwell test of marginal homogeneity was conducted to examine to what extent the proportions of emotions (i.e., the frequency distribution of the type of emotions elicited when thinking about AI (in art) within the current sample) changed between the pre- and posttest. This test assumes that the proportions for the first paired group is equal to the proportions of the second paired group. For emotions towards artificial intelligence in general, a non-significant result was found, $p = 0.052$, implying that, in this sample, emotions did not change significantly after visiting the festival. However, more change was seen here than for emotions towards the use of artificial intelligence in art: a non-significant result was found, $p = 0.43$. This implies that, in the current sample, participants showed less emotional change in the context of AI in art, than in the context of AI in general. The changes in males and females were compared, to identify any differences in gender. The Stuart-Maxwell test was run again, resulting in a non-significant value for the change in emotions towards AI for females, $p = 0.09$, and an even weaker value for the change in emotions towards AI in art, $p = 0.33$. For males, these values were $p = 0.53$ and $p = 0.77$, respectively. This implies that, although the changes in the distribution of emotions was not significant, females saw more change between pre- and posttest than males. These results do not support the hypothesis that there will be a significant change in emotions after visiting the festival. Table 2 shows the overall changes in emotions between pre- and post-test, as well as gender-specific differences.

Exploratory results

The effects of familiarity and usage of AI on fear and acceptance

Aside from the analyses for the main research question, we conducted exploratory analyses to examine eventual relationships that may reinforce findings from existing literature or build on top of that. The previous analyses have been done using the paired sample (n = 168). However, for some exploratory analyses it may be insightful to analyze the larger overall sample, with the pre-test consisting of n = 783 participants and the post-test consisting of n = 365. As indicated, these datasets are not complete: not all participants finished the entire pre- or post-test. Therefore, for each analysis, the appropriate sample size is reported.

In the combined sample, familiarity with AI was significantly correlated to both the fear (r = -0.23, $p < 0.05$) and the acceptance scale (r = 0.33, $p < 0.001$) in the pre-test, as well as in the post-test (r = -0.25, $p < 0.001$; r = 0.30, $p < 0.001$, respectively). Similar results were found for the extent to which AI is part of the participant's lives. For the pre-test, a significant negative correlation was found for fear towards AI, r = -0.30, $p < 0.001$. For acceptance towards AI, a positive correlation was found, r = 0.38, $p < 0.001$. For the post-test, similar results were found. The extent of AI being a part of the participant's lives correlated negatively with fear towards AI, r = -0.24, $p < 0.001$. Acceptance towards AI correlated positively, r = 0.37, p <0.001. These results indicate a significant relationship between AI familiarity and AI usage, and fear (negative correlation) and acceptance (positive correlation) towards AI.

To examine whether these variables moderate the change in attitudes before and after the festival, a regression analysis was run. However, no significant interactions were found (fear and familiarity: b = 0.05, t(167) = 0.64, p = 0.52; fear and part of life: b = 0.04, t(0.58), p = 0.57; acceptance and familiarity: b = 0.12, t(167) = 1.69, p = 0.09; acceptance and part of life: b = 0.17, t(167) = 0.48, p = 0.63). This implies that, considering the current findings, familiarity with AI and the extent to which AI is part of one's life do not significantly influence the change in attitudes towards AI between the pre- and post-test.

Table 2

Emotion scores during pre- and posttest

Emotion category	Emotions towards AI			Emotions towards AI in art		
	Pretest	Posttest	Change (%)	Pretest	Posttest	Change (%)
Positive + high	42	55	30.95	70	57	-18.57
Males	11	11	0	14	16	14.29
Females	31	42	35.48	54	40	-25.93
Positive + low	8	11	37.5	13	13	0
Males	1	1	0	3	2	-33.33
Females	7	10	42.86	10	11	10
Positive + mixed	32	23	-28.13	49	50	2.04
Males	21	9	-57.14	11	10	-9.09
Females	9	14	55.56	38	39	2.63
Negative + high	1	5	400	3	10	233.33
Males	1	2	100	2	2	0
Females	0	3	-	1	7	600
Negative + low	12	9	-25	2	3	50
Males	1	1	0	2	0	-100
Females	11	8	-27.27	0	3	-
Negative + mixed	4	7	75	5	4	-20
Males	2	3	50	1	1	0
Females	2	3	50	3	3	0
Mixed + high	3	4	33.33	5	9	80
Males	1	3	200	1	4	300
Females	2	1	-50	3	5	66.67
Mixed + low	14	8	-42.86	4	4	0
Males	3	0	-100	3	1	-66.67
Females	10	8	-20	1	3	200
Positive + high/negative + low	43	38	-11.63	6	10	66.67
Males	11	9	-18.18	0	1	-
Females	31	28	-9.68	6	9	50
Negative + high/positive + low	2	1	-50	4	6	50
Males	0	0	-	2	2	0
Females	2	1	-50	2	3	50
Other	6	6	0	2	0	-100
Males	0	0	-	0	0	0
Females	6	6	0	2	0	-100
None	1	1	0	5	2	-60
Males	0	1	-	1	1	0
Females	1	0	-100	4	1	-75

Note. For specific differences in gender, non-disclosed and 'other' groups have been left out for visual clarity. Furthermore, because these groups were underrepresented, no valuable data can be displayed.

AI in the future

Participants were asked to what extent they positively evaluate the following two future scenarios: AI creating art on its own (N = 508, M = 3.48, SD = 1.6), and AI creating art in collaboration with humans (N = 508, M = 5.05, SD = 1.55). These two scenarios were significantly correlated with both fear and acceptance of AI. The first statement, *"Artificial intelligence creates art on its own"*, saw a correlation of r = -0.31 with fear towards AI, $p < 0.001$. For acceptance, the correlation was positive, r = 0.32, $p < 0.001$. For the second statement, *"Artificial intelligence creates art in collaboration with humans"*, we also found a negative correlation with fear, r = -0.33, $p < 0.001$, and a positive correlation with acceptance, r = 0.38, $p < 0.001$. These results imply that people who have less fear and more acceptance of AI, are also more positive towards AI being an (individual) art creator in the future.

Demographic influences on attitudes towards AI

To examine the relationship between demographics and attitudes towards AI, we conducted a Chi-squared test of independence. Because some cells had low frequency, the ATAI-scores were grouped into low (1 through 3.5), neutral (4), and high (4.5 through 7) scores. Furthermore, age groups were divided into younger (under 18 through age 35), middle (36 through 55), and older (56 and above) ages. Lastly, education levels were grouped by lower (primary, lower and upper secondary), and higher (bachelor's, master's, doctor's) education. For all variables, 'prefer not to say' and 'other' were left out, due to low frequencies and practical difficulties adding them to one of the groups mentioned above. To gain insight into how the frequencies were distributed for the original groups, Tables 3, 4, and 5 show a summary for both the acceptance and fear towards AI.

For gender, the results of the Chi-squared tests indicated non-significant associations with attitudes towards AI. For the acceptance scale, $\chi^2(2, n = 473) = 2.39$, $p = 0.30$. For the fear scale, $\chi^2(2, n = 473) = 1.92$, $p = 0.38$. These results imply that in the current sample, there were no significant differences in attitudes towards AI between males and females.

When comparing age groups, the Chi-squared test yielded the following results: for the acceptance scale, we found a Chi-squared value of $\chi^2(4, n = 484) = 27.82$, $p < 0.001$. This significant result shows that, in the current sample, a notable difference exists between age groups when compared for their acceptance of AI. For the fear scale, we found a Chi-squared value of $\chi^2(4, n = 484) = 3.29$, $p = 0.51$. This result implies that, in the current sample, no significant differences were found for fear towards AI between different age groups.

Lastly, when comparing education levels, significant results were found for the acceptance scale only. The Chi-squared value resulted in $\chi^2(2, n = 453) = 10.03$, $p = 0.007$. This shows that there is a notable difference between acceptance of AI for participants with different education levels, with lower levels rating higher proportions of low acceptance. For the fear scale, no significant difference was found between groups, $\chi^2(2, n = 453) = 1.97$, $p = 0.37$. These results indicate that the level of educational attainment is not significantly related to one's fear towards AI, but they do significantly relate to one's acceptance of AI.

Table 3
Gender differences in attitudes towards AI

Gender	Fear		Acceptance	
	N	*M*	*N*	*M*
Female	339	3.89	339	4.33
Male	133	3.63	133	4.65

Table 4
Age differences in attitudes towards AI

Age	Fear		Acceptance	
	N	*M*	*N*	*M*
<18	4	3.5	4	4.5
18-25	75	3.6	75	4.86
26-35	112	3.87	112	4.61
36-45	83	3.87	83	4.31
46-55	89	3.80	89	4.46
56-65	90	3.94	90	3.96
66-75	26	3.6	26	4.04
>75	5	4.9	5	5.3

Table 5
Educational differences in attitudes towards AI

Education	Fear		Acceptance	
	N	*M*	*N*	*M*
Primary	2	3.5	4	4.5
Lower secondary	75	3.6	75	4.86
Upper secondary	112	3.87	112	4.61
Bachelor's	83	3.87	83	4.31
Master's	89	3.80	89	4.46
Doctoral	5	4.9	5	5.3

Discussion

The present study tried to answer the question of whether (and to what extent) visiting an art festival has an impact on visitors' attitudes and emotions towards artificial intelligence, and towards artificial intelligence in art. Reflecting on the findings of this study, we found that attending an art festival may not have a significant influence on one's attitudes towards AI or AI in art, nor one's elicited emotions when thinking about these concepts. Moreover, how positively one evaluated the festival did not moderate the change in attitudes. These results spark new thoughts about the relationship between art, AI, and the acceptance thereof. While art can influence people and their perceptions (Pelowski et al., 2017), it might not be able to do just that when it comes to attitudes on artificial intelligence (in art). The reasons for these findings, implications, and the limitations of the current study are discussed below.

Several reasons could be addressed for the non-significant difference in attitudes before and after visiting the festival. One possibility is that a lot of the artwork installations at the festival emphasized the negative sides of artificial intelligence and technology. Among others, topics such as loneliness and isolation through excessive phone usage, loss of control and loss of privacy, and our minds and behaviors being influenced by artificial intelligence, were inspiration for the presented artworks (Amsterdam Light Festival, 2024). After interacting with these artworks, one's attitudes might not be influenced as much as when these artworks emphasized the positive sides of artificial intelligence. Rather, the participants may leave with more negative thoughts. This could be an explanation for the (although slight and statistically non-significant) decrease in acceptance of AI scores.

Participants' evaluation of the festival did not moderate attitudinal changes. The way evaluations were measured, was not straightforward. In the pre-test, participants were asked to rate their expectations, and in the post-test, to what extent their expectations were satisfied. These were questions that were of interest to the organization of the festival, so they were included in the survey as is. Clearly, a participant with a high rating in the post-test and a low rating on the pre-test question is inherently different from someone with very high expectations to begin with. Thus, it may still be possible that a moderator effect exists, with a more positive experience leading to stronger positive change in attitudes towards AI. A better measurement would be the question: *"On a scale from 1-10, how would you rate your festival experience?"*.

Additionally, relating to the theory of mere exposure (Zajonc, 1968), the reason for the current findings (i.e., a lack of change in attitudes and emotions towards AI) might lie in the fact that most visitors were only exposed to these artworks once. To enhance attitudes, it is crucial that a subject is repeatedly exposed to a certain stimulus. Therefore, taking a single tour around the artworks at the current festival may not be enough to stimulate significant changes in attitudes towards AI. It remains unclear whether an art festival can have enough impact on one's attitudes after multiple visits. This requires further investigation.

Despite the non-significant findings for the main hypotheses, results that are in line with existing literature were found (Zhang & Dafoe, 2019; Harris et al., 2023). Firstly, previous research has shown that younger people tend to show more favorable attitudes towards AI. This result was reproduced in the current study, with younger age groups showing significantly higher acceptance than older ones. The same was found for education: participants with a bachelor's degree or higher were more positive than those with lower education. One possible reason is that this latter group has a higher fear of being replaced by machines (Brauner et al., 2023). Contradicting previous findings, we did not find a substantial difference between males and females. The reason for this remains unexplored. Earlier findings show that some populations show significant differences between gender groups. However, it has been suggested that these differences are decreasing in the modern age, as women have been increasingly involved with current technologies (e.g., Chat-GPT, social media; Sindermann et al., 2021). Lastly, the significant findings were only for the acceptance scale, and not the fear scale. The reasons for the above findings remain unclear, and research on the relationship between AI-acceptance and demographic factors should keep exploring new possibilities.

The current scale for measuring attitudes towards AI was quite short, consisting of only four items. Despite the scale being sufficiently valid in assessing one's attitudes towards AI (Sindermann et al., 2021), we think it may have not captured the broader nuances of people's attitudes. To capture the full essence, the General Attitudes towards Artificial Intelligence Scale, or GAAIS could be a more reliable replacement (Schepman & Rodway, 2020). However, this scale consists of 20 items, and including it in our current study would have made the survey larger than it already was, possibly leading to higher drop-out rates (Hoerger, 2010). Furthermore, neither the ATAI-scale nor the GAAIS include items specifically aimed at attitudes towards AI creating art. At present there are no validated scales for assessing these attitudes.

Opposing our expectations, no significant changes in emotions towards AI (in art) were found between pre-test and post-test. This finding highlights the possibility that emotions can be quite rigid, or that the festival was not impactful enough to foster emotional change. However, unless new research can reproduce these findings, they are all but definitive, as they can be influenced by a multitude of factors. For instance, it may be hard for people to objectively think of what emotion they feel when they think of a concept such as artificial intelligence. The question asked in the survey was *"What emotion(s) do you feel when you think of technology and artificial intelligence (in art)?"*. This question may be too broad to elicit specific emotions, resulting in the participant having difficulty selecting their exact emotions felt in that very moment. An anecdote or a nudge to think of an example of AI may have engaged the participants more effectively. Furthermore, their general momentary emotional state may have affected the emotions they reported. For instance, if a participant had a particularly good day, their emotions may in turn have been more positive than were it on a bad day (Bower, 1981). This could be controlled for by a baseline measurement of their current moods. Moreover, for more precise results, future research may investigate emotions *in situ*, while a participant is interacting with an artwork, and measure physiological states as well (i.e., heart rate, skin conductance), which are related to one's experienced emotions (Mauss & Robinson, 2009; Ciuk et al., 2015).

The current measurement of emotions was done with the GEW (Scherer, 2005), which is a reliable and valid tool. However, the participants could optionally report two emotions, resulting in a more complex analysis. Presumably, the original four quadrants would present clearer results than the 12 emotion categories created for the current analysis. Thus, the possibility exists that a difference between pre-test and post-test may have been found, were the analyses done differently. However, this would still lead to emotions being categorized into one of four quadrants and the specific distribution of emotions among the sample will remain ambiguous. One way to work around this is to apply heat maps, showing both the specific emotions and their intensity (e.g., Tinio & Gartus, 2018).

Our exploratory results show that participants did not rate their familiarity with AI as very high. The same result was found for their daily usage of AI. These two items may influence each other, because low familiarity with AI could lead to people not knowing when they are using AI-based technologies. Other studies have shown support for this finding, concluding that while most people use AI daily (e.g., navigation, streaming services, smart device assistants), they may not know that the applications they use contain AI (Zhang & Dafoe, 2019). This lack of awareness may have influenced the attitudes and emotions of a substantial part of the current sample (Kelly et al., 2023; Liang and Lee, 2017). Therefore, the possibility exists that human perceptions of AI may not be ready to change if this 'fear of the unknown' is not leveraged. This has earlier been claimed by other authors. For example, Chiarella and colleagues (2022) suggest that for a positive relationship between the public and AI, awareness should be increased by developing courses and workshops surrounding this topic. Hertzmann (2020) supports this notion, emphasizing that public education is necessary to eliminate misconceptions about AI tools. It should be noted that these results were merely explorative and require further investigation before definitive conclusions can be made.

Further analyses showed that participants showing more positive attitudes towards AI, were also more positive towards AI being used as a tool for creating art, or even creating art on its own. Generally, AI creating art in collaboration with humans was seen as a more favorable scenario. We did not measure these attitudes in the post-test, but exploring these differences may have proved fruitful, giving insight into to what extent experiencing an AI-themed art festival changes people's views on human-AI co-creativity. Although explorative, these results support the notion that co-creativity is a new concept of creativity that, considering recent technological developments, deserves further investigation (Davis, 2021; Wingström et al., 2022).

Limitations

In the discussion points mentioned above, some limitations have been pointed out. Besides this, some hindrances surrounding the festival need addressing. Firstly, the current sample was not entirely random, as it is a convenience sampling method by asking visitors of *Amsterdam Light*

Festival to participate. This sample may not be typical of the general population, as people that are not interested in art will presumably be underrepresented. Among others, Grassini & Koivisto (2024) showed that creative identity is related to AI-bias in art. This may have influenced the present findings in that higher creativity is positively related to openness to experience, and people scoring high on this personality trait are generally more inclined to visit art exhibitions (e.g., Schwaba et al., 2018), such as *Amsterdam Light Festival*. This being only one possible factor influencing the present results, the external validity of the current research may be limited. Furthermore, survey data is prone to several issues like social desirability bias and fence-sitting, leading to unreliable data, and survey fatigue, which could be a reason for dropouts and incomplete data. Lastly, the survey needing finishing prior to the festival led to limited opportunities for thoroughly analyzing existing literature on the current topic. Therefore, we do not reject the idea that the current research methods can be improved, and that a significant effect can exist after all. The ways on how to improve this, have been discussed above.

Future research

Considering the increasing relevancy of AI, research in this field remains crucial. The last years have seen an increase in scientific studies on attitudes towards AI, and many researchers call for interventions and education to increase acceptance (e.g., Schepman & Roday, 2020; Chiarella et al., 2022; Bellaiche et al., 2023). However, engaging the public to participate in workshops and visit lectures may be difficult. Because a lot of people are unfamiliar with AI (Zhang & Dafoe, 2019), they may not be interested in this topic to begin with. An engaging experience as an art festival or exhibition is presumably more approachable. Drawing from the present findings, a larger emphasis on the positive aspects of AI may be necessary to achieve attitudinal change in the public. Art helps in connecting humans, which is now more important than ever (Darda & Cross, 2022). Increasing acceptance will also help develop new AI systems, above and beyond creative processes. Adopting these systems will be of growing importance in the future (e.g., Sindermann et al., 2021; Davis, 2021; Gillespie et al., 2021), and understanding the negative bias will help policymakers and developers that work with AI (Goodfellow et al., 2014). Furthermore, it is important to educate the public and eliminate misconceptions about AI's ability to independently create art and emphasize the practical values of AI as a tool for artists (Hertzmann, 2020). Organizations and artists could take people along a ‘behind-the-scenes’ of how a particular AI-art piece was created, possibly piquing their interests and alleviating any negative biases. Understanding how people respond to AI-art, both attitudinally and emotionally, helps future artists in considering to what extent they should use AI tools (Messer, 2024). With AI developing the ability to resemble human art, it gets increasingly more important to understand public attitudes (Cheng, 2022).

Conclusion

Since we did not find any significant findings in relation to our hypotheses, the answer to our research question is that, considering the current study, visiting Edition 12 of Amsterdam Light Festival does not lead to considerable changes in attitudes or emotions. However, as discussed, the current results are not definitive. Therefore, the present study adds to the existing literature, emphasizing that factors determining human acceptance of AI is rather complex. Moreover, we hope this study sparks interest in researchers working in the field of psychological and computational research, and it is encouraged to, besides teaching the public about AI in courses and workshops, explore more creative ways of tackling the negative bias surrounding attitudes towards AI. Human fear of AI exists in substantive proportions all around the world (e.g., Zhang & Dafoe, 2019; Brauner et al., 2023; Harris et al., 2023). With AI increasingly being applied in the societal context, it is therefore important that research and interventions continue to add to this rather new research area.

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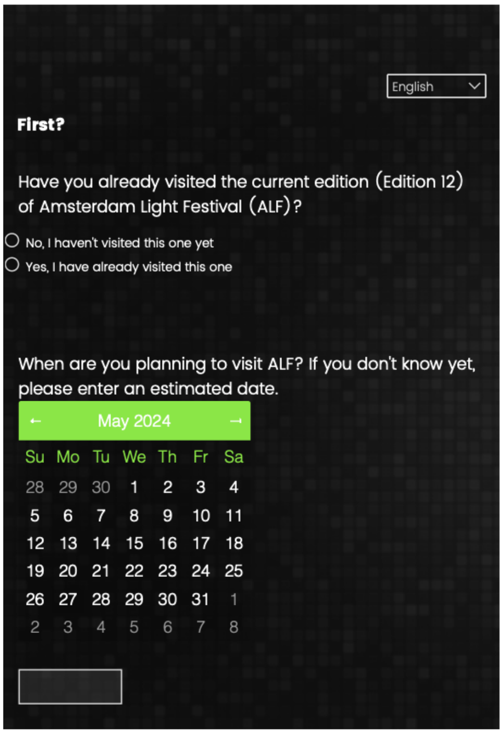
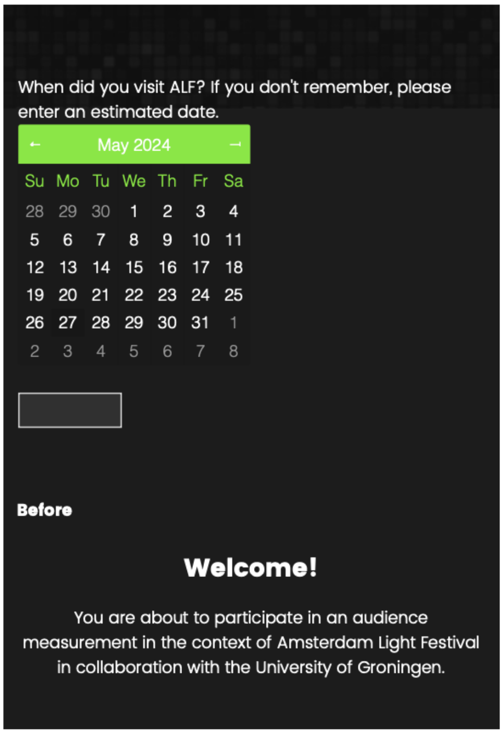
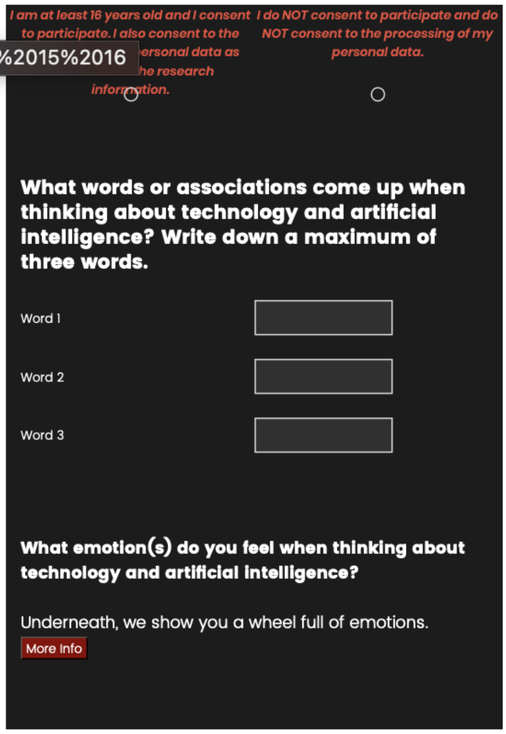
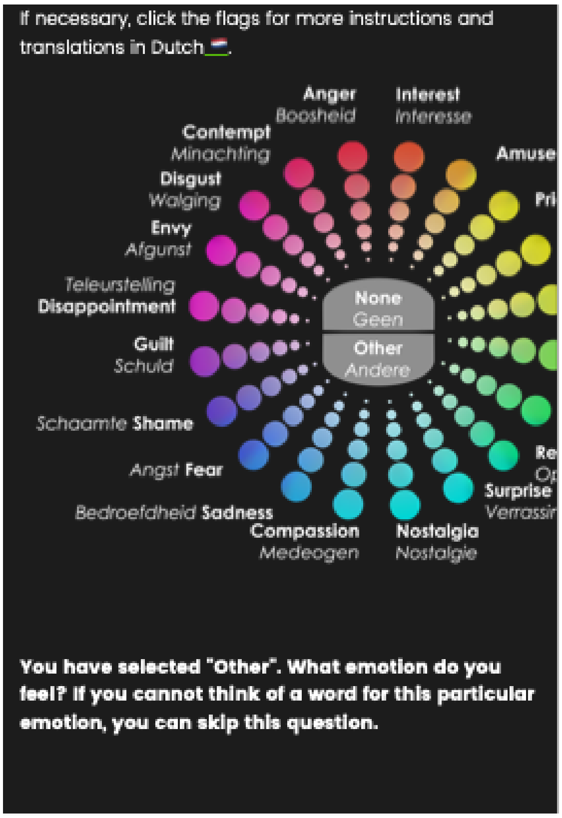
Appendix

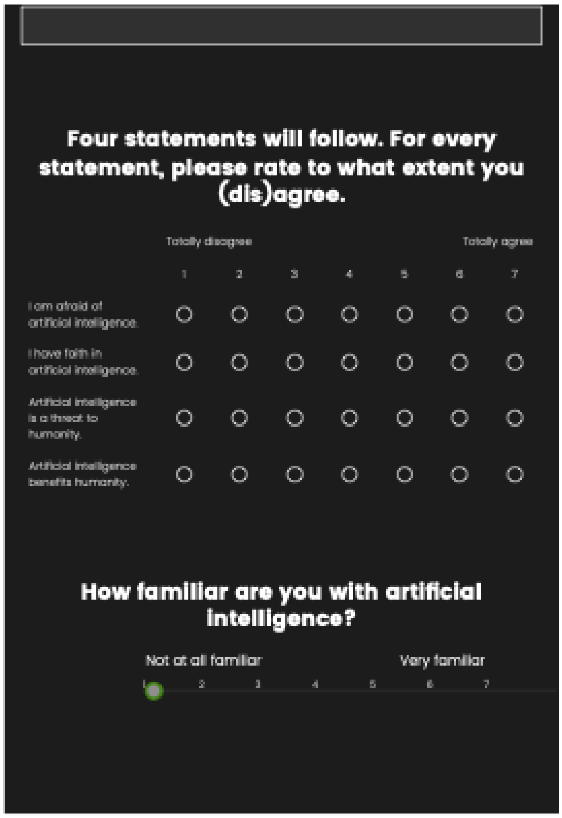
Print of Qualtrics Survey

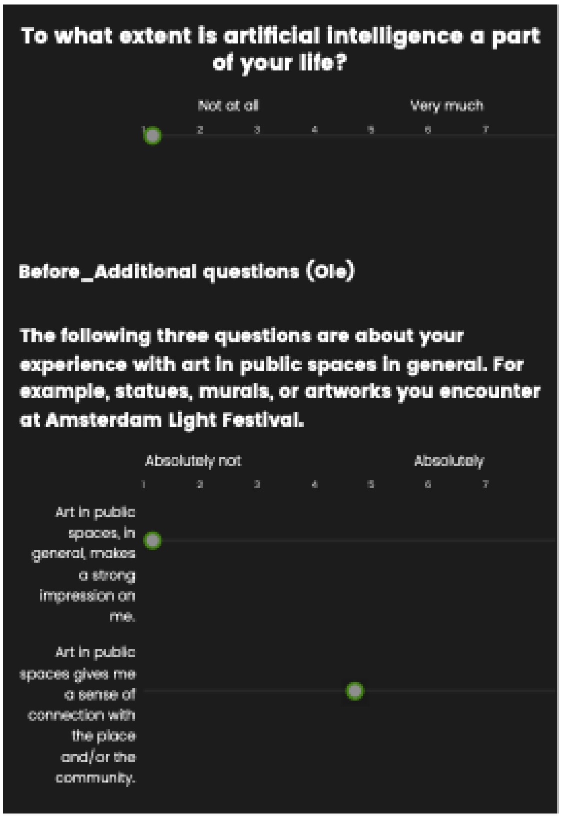


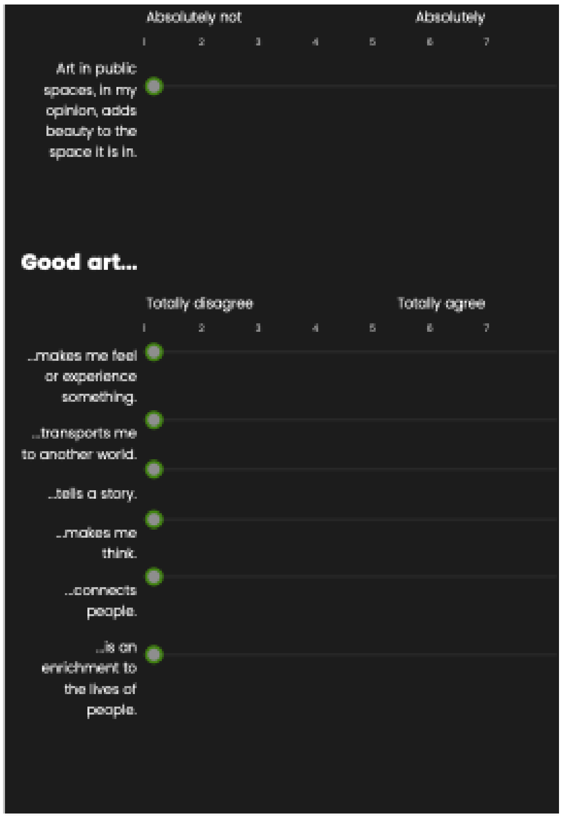


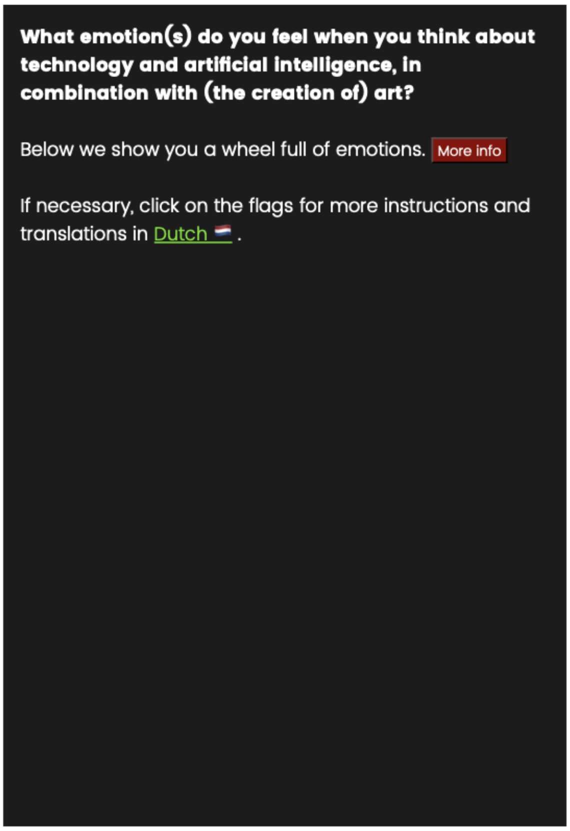



If necessary, click the flags for more instructions and translations in Dutch.
Anger
Boosheid
Interest
Interesse
Contempt
Minachting
Amuse
Disgust
Walging
Envy
Afgunst
Teleurstelling
Disappointment
None
Geen
Other
Andere
Guilt
Schuld
Schaamte Shame
Angst Fear
Surprise
Bedroefdheid Sadness
Compassion
Medeogen
Nostalgia
Nostalgie
You have selected "Other". What emotion do you feel? If you cannot think of a word for this particular emotion, you can skip this question.


Four statements will follow. For every statement, please rate to what extent you (dis)agree.
Totally disagree
Totally agree
1 2 3 4 5 6 7
I am afraid of artificial intelligence.
I have faith in artificial intelligence.
Artificial intelligence is a threat to humanity.
Artificial intelligence benefits humanity.
How familiar are you with artificial intelligence?
Not at all familiar
Very familiar
1 2 3 4 5 6 7

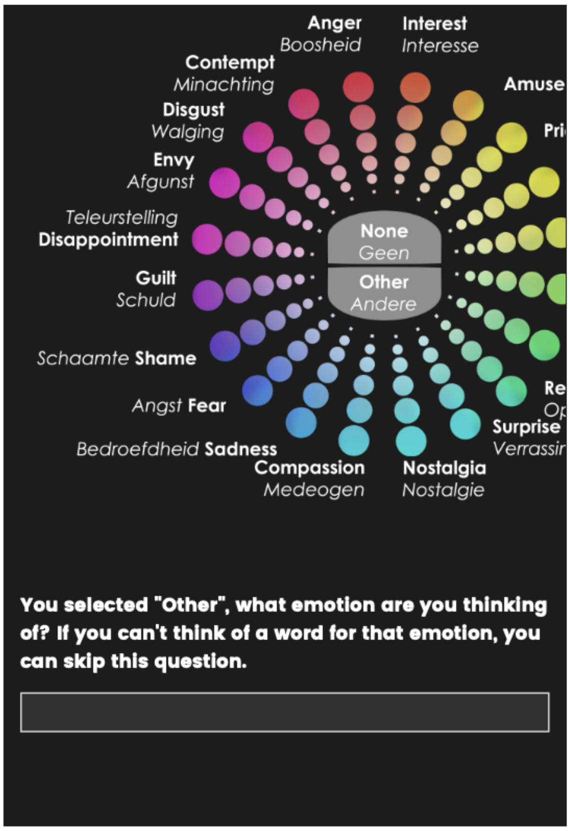

To what extent is artificial intelligence a part of your life?
Not at all
Very much
1 2 3 4 5 6 7
Before_Additional questions (Ole)
The following three questions are about your experience with art in public spaces in general. For example, statues, murals, or artworks you encounter at Amsterdam Light Festival.
Absolutely not
Absolutely
1 2 3 4 5 6 7
Art in public spaces, in general, makes a strong impression on me.
Art in public spaces gives me a sense of connection with the place and/or the community.


Absolutely not
Absolutely
1 2 3 4 5 6 7
Art in public spaces, in my opinion, adds beauty to the space it is in.
Good art...
Totally disagree
Totally agree
1 2 3 4 5 6 7
...makes me feel or experience something.
...transports me to another world.
...tells a story.
...makes me think.
...connects people.
...is an enrichment to the lives of people.

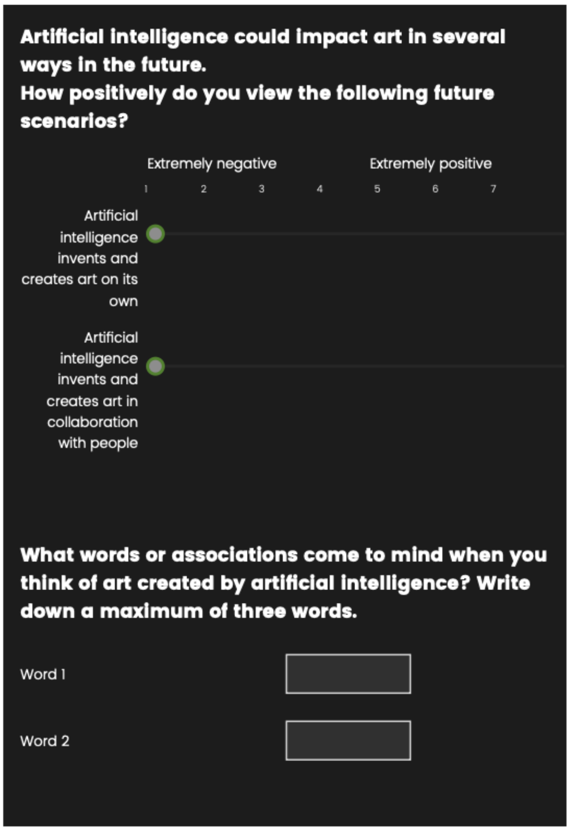

What emotion(s) do you feel when you think about technology and artificial intelligence, in combination with (the creation of) art?

Below we show you a wheel full of emotions. More info

If necessary, click on the flags for more instructions and translations in Dutch .



You selected "Other", what emotion are you thinking of? If you can't think of a word for that emotion, you can skip this question.


Artificial intelligence could impact art in several ways in the future.
How positively do you view the following future scenarios?

	Extremely negative 1	2	3	4	5	6	Extremely positive 7
Artificial intelligence invents and creates art on its own							
Artificial intelligence invents and creates art in collaboration with people							

What words or associations come to mind when you think of art created by artificial intelligence? Write down a maximum of three words.

Word 1

Word 2


Word 3

Before (Questions from ALF)

What is your age?

What is your gender?

- Female
- Male
- I identify as...
- I prefer not to say

What is your highest obtained degree?

What is the total combined income of your household?

In what country do you live?

In what city do you live?

What is your marital status?

How many children do you have?

What interests do you have in your spare time?

- Sports
- Music
- Travel
- Food/drinks
- Art and culture
- Reading
- Other, namely:

What cultural institutions do you like to visit?

- Museums
- Performing arts
- Visual arts
- Design/architecture
- Film/photography
- Arts
- None
- Other, namely:

How do you prefer to experience a cultural activity?

- With a map/brochure
- With a guide
- With an audio guide
- Without any of the above
- Other, namely:

How many times have you visited Amsterdam Light Festival before?

How high are your expectations of the festival?

very low 10 = very high

1 2 3 4 5 6 7 8 9 10

My expectations for the festival are:

To what extent are sustainability and inclusivity important topics to you?

very unimportant very important

1 2 3 4 5 6 7 8 9 10

Sustainability

Inclusivity

End of Pre

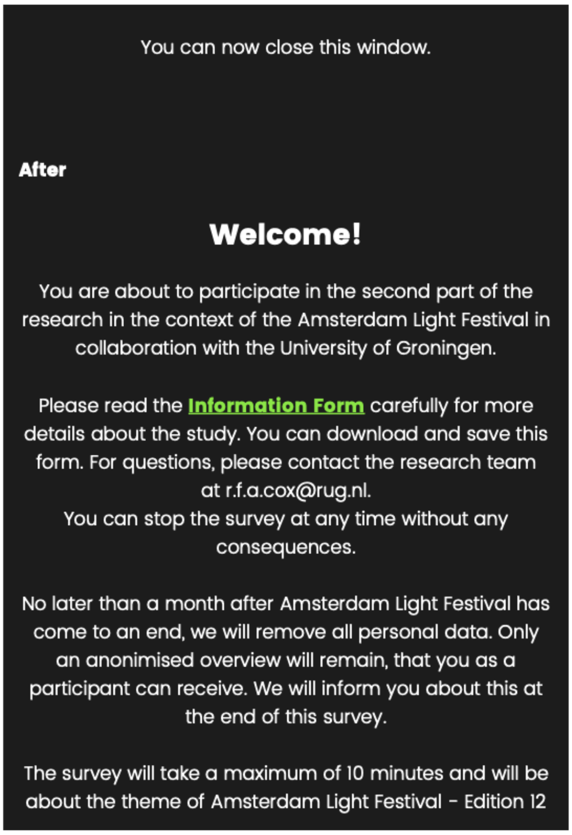
This is the end of the first part of the questionnaire.

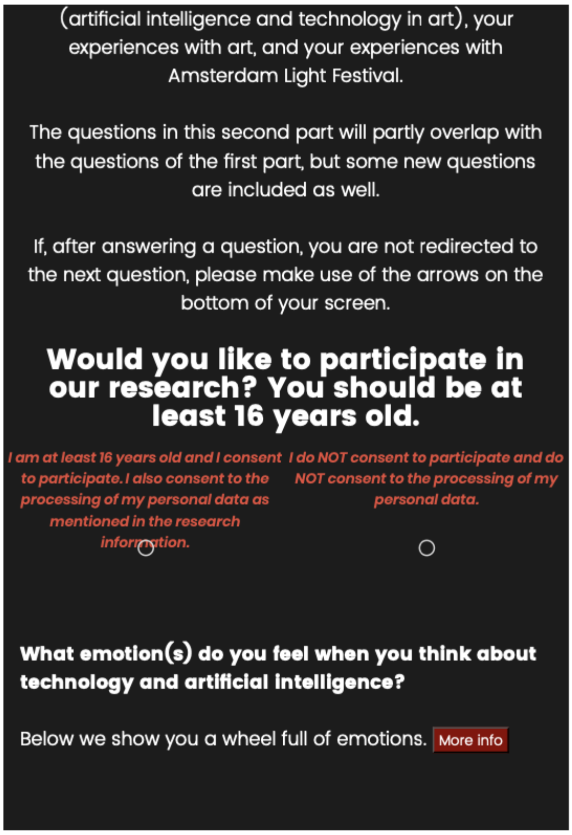
We would kindly ask you to return after your visit to complete the second part of this questionnaire.

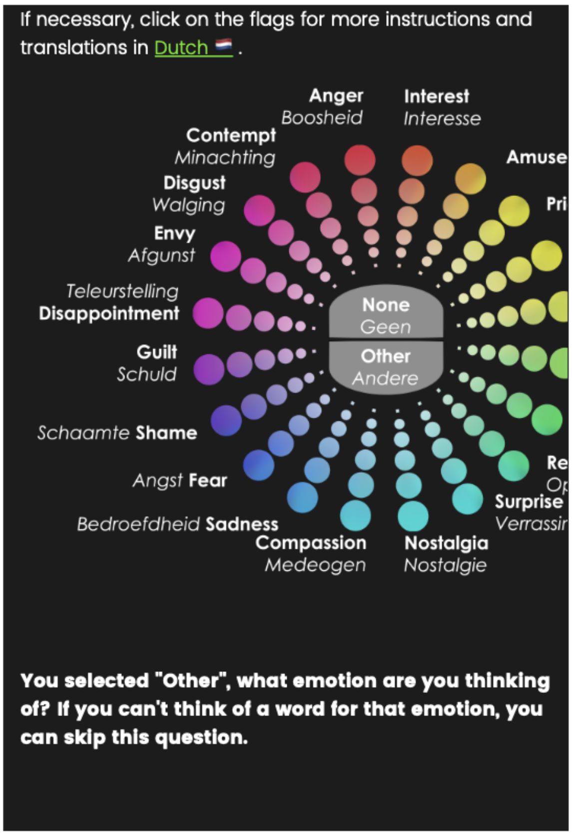
In order to give you access to the second part, we need your email address. This is only used for the current study. This will be deleted after the study has ended.

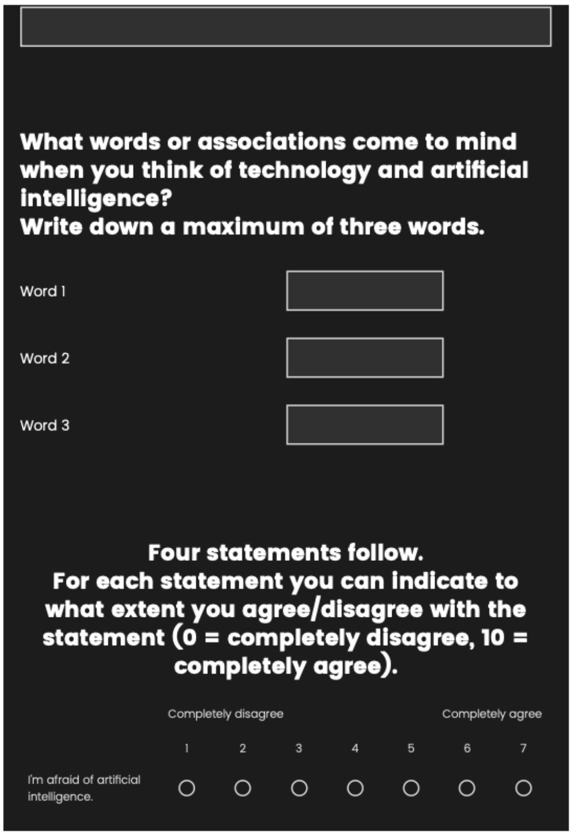
What is your email address?

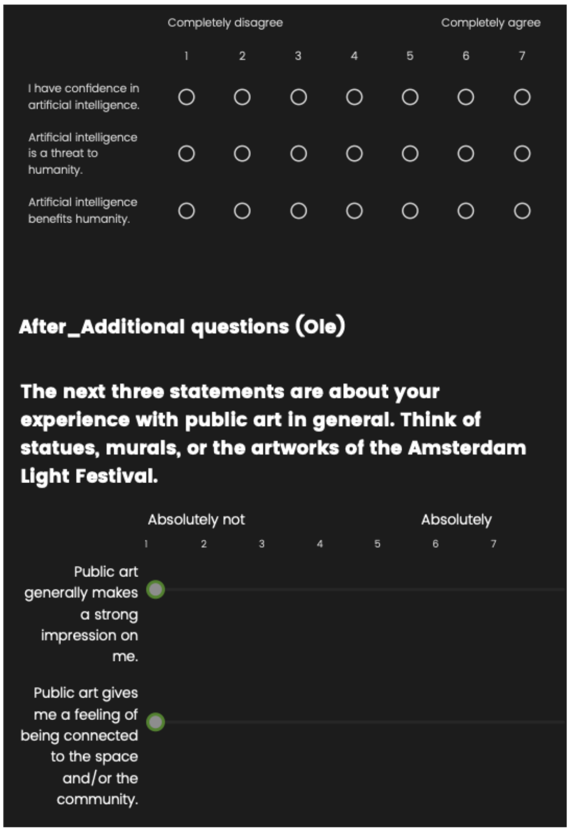
Thank you very much for your time!
Have fun during Amsterdam Light Festival.


You can now close this window.
After
Welcome!
You are about to participate in the second part of the research in the context of the Amsterdam Light Festival in collaboration with the University of Groningen.
Please read the Information Form carefully for more details about the study. You can download and save this form. For questions, please contact the research team at r.f.a.cox@rug.nl.
You can stop the survey at any time without any consequences.
No later than a month after Amsterdam Light Festival has come to an end, we will remove all personal data. Only an anonimised overview will remain, that you as a participant can receive. We will inform you about this at the end of this survey.
The survey will take a maximum of 10 minutes and will be about the theme of Amsterdam Light Festival - Edition 12


(artificial intelligence and technology in art), your experiences with art, and your experiences with Amsterdam Light Festival.
The questions in this second part will partly overlap with the questions of the first part, but some new questions are included as well.
If, after answering a question, you are not redirected to the next question, please make use of the arrows on the bottom of your screen.
Would you like to participate in our research? You should be at least 16 years old.
I am at least 16 years old and I consent to participate. I also consent to the processing of my personal data as mentioned in the research information.
I do NOT consent to participate and do NOT consent to the processing of my personal data.
What emotion(s) do you feel when you think about technology and artificial intelligence?
Below we show you a wheel full of emotions.
More info


If necessary, click on the flags for more instructions and translations in Dutch.
Anger
Boosheid
Interest
Interesse
Contempt
Minachting
Amuse
Disgust
Walging
Envy
Afgunst
Teleurstelling
Disappointment
None
Geen
Other
Andere
Guilt
Schuld
Schaamte Shame
Angst Fear
Surprise
Bedroefdheid Sadness
Compassion
Medeogen
Nostalgia
Nostalgie
You selected "Other", what emotion are you thinking of? If you can't think of a word for that emotion, you can skip this question.


What words or associations come to mind when you think of technology and artificial intelligence?
Write down a maximum of three words.
Word 1
Word 2
Word 3
Four statements follow.
For each statement you can indicate to what extent you agree/disagree with the statement (0 = completely disagree, 10 = completely agree).
Completely disagree
Completely agree
1 2 3 4 5 6 7
I'm afraid of artificial intelligence.



	Completely disagree 1	2	3	4	5	6	Completely agree 7
I have confidence in artificial intelligence.	O	O	O	O	O	O	O
Artificial intelligence is a threat to humanity.	O	O	O	O	O	O	O
Artificial intelligence benefits humanity.	O	O	O	O	O	O	O

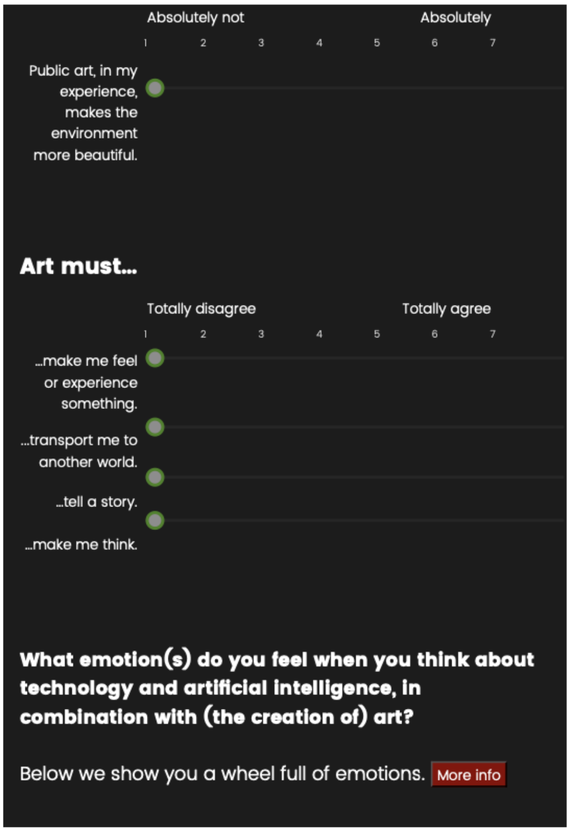
After_Additional questions (Ole)

The next three statements are about your experience with public art in general. Think of statues, murals, or the artworks of the Amsterdam Light Festival.

Absolutely not 1 2 3 4 5 6 7 Absolutely

Public art generally makes a strong impression on me.

Public art gives me a feeling of being connected to the space and/or the community.



Absolutely not 1 2 3 4 5 6 7 Absolutely

Public art, in my experience, makes the environment more beautiful.

Art must...

Totally disagree 1 2 3 4 5 6 7 Totally agree

...make me feel or experience something.

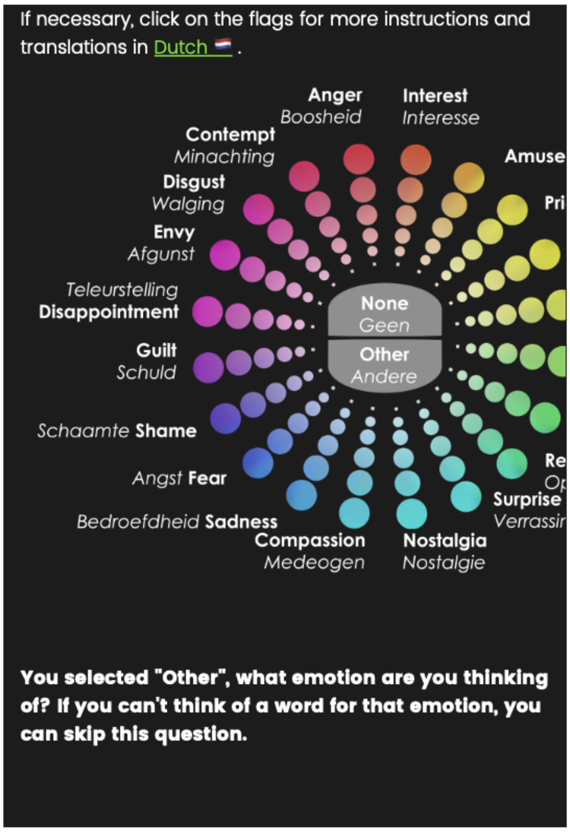
...transport me to another world.

...tell a story.

...make me think.

What emotion(s) do you feel when you think about technology and artificial intelligence, in combination with (the creation of) art?

Below we show you a wheel full of emotions. More info



If necessary, click on the flags for more instructions and translations in Dutch.

You selected "Other", what emotion are you thinking of? If you can't think of a word for that emotion, you can skip this question.

Artificial intelligence could impact art in several ways in the future.
How positively do you view the following future scenarios?

Extremely negative 1 2 3 4 5 6 7 Extremely positive

Artificial intelligence invents and creates art on its own

Artificial intelligence invents and creates art in collaboration with people

What words or associations come to mind when you think of art created by artificial intelligence? Write down a maximum of three words.

Word 1

Word 2

Word 3

Tinder

The following are six images of works of art. Click on the **left side** of the image if you think this is **not a good example** of the use of technology and/or artificial intelligence in art. Click on the **right** if you think this **is a good example** of the use of technology and/or artificial intelligence in art.

Artwork: "Is It Really You?"

(left: not a good example of the use of technology and/or artificial intelligence within art, right: a good example)

Artwork: "Cell-Phone"

(left: not a good example of the use of technology and/or artificial intelligence within art, right: a good example)

Artwork: "Artificial Humans"

(left: not a good example of the use of technology and/or artificial intelligence within art, right: a good example)

Artwork: "Modern Guru"

(left: not a good example of the use of technology and/or artificial intelligence within art, right: a good example)

Artwork: "Invisible Vision"

(left: not a good example of the use of technology and/or artificial intelligence within art, right: a good example)

Artwork: "Future You"

(left: not a good example of the use of technology and/or artificial intelligence within art, right: a good example)

Artwork specific (Ole)

Amsterdam Light Festival wants to use the universal language of light art in the public space of Amsterdam to connect and enrich people. By choosing an accessible cultural form - the experience of light art in public space - we believe that we can make a positive contribution to facets of the contemporary challenges of residents and visitors to the city. Precisely at the time of year when people most need support to drive away the darkness, we offer opportunities for reflection and new insights.

Following are the same six works of art as you saw before. Indicate for each work of art how many stars (1 to 5) you give it in the areas of ' **enriching** ' and ' **connecting** '.

Artwork: "Is It Really You?"

Enriching ★ ★★ ★★
Connecting ★ ★★ ★★

Artwork: "Cell-Phone"

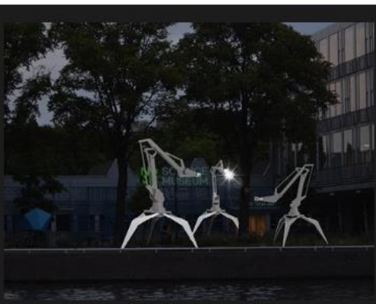
Enriching ★★ ★★ ★
Connecting ★★ ★★ ★

Artwork: "Artificial Humans"

Enriching ★ ★★ ★★
Connecting ★ ★★ ★★

Artwork: "Modern Guru"

Enriching ★ ★★ ★★
Connecting ★ ★★ ★★



Artwork: "Invisible Vision"

Enriching ★★ ★★ ★

Connecting ★★ ★★ ★

Artwork: "Future You"

Enriching ★ ★★ ★★

Connecting ★ ★★ ★★

After (Questions from ALF)

What was the main reason for you to visit Amsterdam Light Festival?

- ○ I am interested in light art
- ○ It was a (family) outing
- ○ To soak up culture
- ○ Beautiful route through the city (combined with sightseeing)
- ○ Just a nice activity
- ○ [ ] Other, namely:

Who did you visit Amsterdam Light Festival with?

[▾]

In what way did you experience the festival?

- ☐ I walked
- ☐ I sailed
- ☐ [ ] Other, namely:

To what extent did you use the Amsterdam Light Festival app?

- ☐ I did not walk
- ☐ I did walk, but have not used the app
- ☐ To follow the route
- ☐ I have read up on the works of art or artists
- ☐ I have listened to the audio about the artworks
- ☐ [ ] I have used other features of the app, namely:

Did you listen to the audio tour while sailing?

- ○ Yes
- ○ No
- ○ I did not sail

How did you travel to the festival from your place of residence?

- ○ By foot
- ○ By bike
- ○ By (electric) scooter
- ○ By public transport
- ○ By car
- ○ By boat
- ○ [ ] Other, namely:

How did you hear about edition 12 of Amsterdam Light Festival?

- ☐ I saw an artwork
- ☐ Via friends or family (word of mouth)
- ☐ Via the newsletter
- ☐ Via a poster
- ☐ Via offline media (newspaper, radio, television, magazine)
- ☐ Via online media (social media, blog, article)
- ☐ [ ] Other, namely:

If you found us via an offline medium, what medium was this?

- ☐ Newspaper
- ☐ Radio
- ☐ Television