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Artificial Intelligence and Selective Exposure: Generating a Public Perception

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Abstract

With its current abilities to model and recreate human intelligence, AI has become a critical area for interdisciplinary study. This paper draws from the disciplines of nursing, digital animation, education, and political science to inform a quantitative, descriptive study. This study aims to understand whether the public recognizes their AI usage and the public's perception of AI as beneficial or harmful. The hypothesis explores the balance of harm and benefit and suggests that the public may not recognize AI use within everyday life. A survey-based study tests whether receiving selective education may change participants' perception of AI relative to exposure. Findings indicated that participants were not initially aware of the many uses of AI in their daily lives, and, after an educational disclosure paragraph, participants viewed AI as more beneficial than they previously disclosed. Conclusions assert that a clear understanding of the relative framing of AI use has a similar ability to shape communities as the technology itself.

Keywords: *AI, technology, exposure, perception, persuasion, policy*

Introduction

Artificial Intelligence (AI) is a form of advanced technological software. It is the product of an endeavor to teach computers to learn, think, and reason with the capacity, skill, and creativity of its human developers. When asked to define AI for this paper (partly for an initial, workable, wide-scope definition but also for the sense of poetic novelty) ChatGPT concluded that AI may be defined as “the simulation of human intelligence in machines that are programmed to mimic human cognitive functions such as learning, problem-solving, decision-making, perception, and language understanding” (OpenAI, 2024). While the most basic concepts for this technology derive from science fiction works such as those from Čapek, Asimov, Verne, and Dick, AI was ushered into reality by computer scientist John McCarthy—who sought to explore how machines could replicate such intelligence with a study conducted in 1956 (Stone et al., 2016).

With ChatGPT’s current abilities, which include the construction of a passably useful self-description as noted above, it comes as little surprise that a widely available program that is designed to model and accurately recreate human intelligence is capable of affecting people’s lives in many ways, especially coupled with the ever-upward processing speed of modern computing. Today, AI has become a critical area of study beyond the outer reaches of computer science. Indeed, the current shockwave produced by AI’s explosive growth in machine and deep learning provides much potential and opportunity—the conditions necessary to propagate throughout a great multitude of careers and academic disciplines. For example, Slimi (2023) concludes that AI positively impacts students’ learning experiences and recommends that AI be integrated into higher education curricula, suggesting that AI may produce a net positive impact on the education system. In contrast, Bellaiche et al. (2023) find that AI can negatively impact art, as humans tend to view AI-generated artwork as inferior to human works due to the loss of direct human engagement. A third view, one explored by Eisen et al. (2023), describes AI as a powerful and socially-transformative tool but with the sum of its potential effects guided only by the rails of the collective, human policy choices which sculpt it. In this way, AI is considered neither wholly good or entirely harmful, provided that

there is consideration of and planning for its potential latent contradictions.

This paper utilizes an interdisciplinary approach—drawing from the disciplines of nursing, digital animation, art history, education, and political science—to inform a quantitative, descriptive study. By surveying students at a regional university in Missouri, this study sought to explore their awareness and perspectives concerning AI in its current form in order to understand how AI is used in their daily lives and their perceptions of it. Upon analyzing the collected data, common themes regarding the attitudes and uses of AI among college students will be reviewed and discussed. This paper hypothesizes that people may not accurately recognize when they are using AI in their everyday life and explores whether receiving selective education on the applications of AI may change their perception of AI relative to their exposure.

Literature Review

Potential Benefits of AI

The potential benefits of AI are already apparent in various fields that directly impact people’s daily lives. In healthcare, AI has proven its ability to accurately and efficiently sort through diagnostic imaging and EKG rhythms (Alowais et al., 2023). AI’s ability to detect medical abnormalities may allow consumers to receive faster diagnoses, and possibly lead to quicker and more effective treatments. Another potential health benefit of AI is through smartwatches (Van Bulck et al., 2023). Smartwatches that can detect heart rate and rhythm changes utilize adaptive AI technology. These advanced smartwatches are frequently used during exercise routines, allowing consumers to adjust their exercise routine to lower their heart rate to a safe range. Shandhi et al. (2024) found that out of 3,021 survey respondents, 59% reported owning a wearable smart device (smartwatch) with heart monitoring capabilities.

Outside of physical health applications, AI affects how one communicates throughout everyday life through autocorrect and predictive text features. When programs automatically fix text or predict what the writer is saying, adaptive AI technology bases suggestions and corrections on the writer’s past messages and how close their spelling is to a growing database of known and learned words (Hancock et al., 2020). Autocorrect

and predictive text features, therefore, have a capacity to help users type more accurately and efficiently. Similar to autocorrect, translation and text-to-speech services utilize AI by breaking down words and phrases into codes that can assist translation between different languages (Tavares et al., 2023). A comparable process is also used by virtual assistants to recognize and code auditory input to understand what the user is saying and create meaningful output (Reddy et al., 2020). AI further impacts communication through spam filtering (Dada et al., 2019). In a basic sense, this AI sought to detect suspicious emails and directs them to a spam folder in order to reduce phishing attacks and cyber crimes. Financial institutions increasingly use such an application to detect and notify users of fraudulent transactions (Prajapati et al., 2023).

Looking toward the education sector, one of the primary uses of AI is the development of personalized and adaptive learning environments for students that seek to meet the user's specific learning needs. These personalized approaches are intended to meet students' strengths, skills, and interests by allowing them to develop and progress in accordance with their rate of mastery of the subject matter and capacity to learn based on their goals and abilities, improving students' overall effectiveness and quality of learning (Fitria, 2021). Some examples of these personalized learning platforms are Duolingo and Khan Academy in which students are able to progress through lessons at their own rate and at an appropriate skill level. With these personalized learning environments, students can see an improvement in their education due to the significant impact AI technology has in improving the quality and learning patterns to be more practical and effective for all types of students (Fitria, 2021).

AI contributions have also widely influenced the creation of art and photography. Rather than editing photos conventionally, programs have integrated AI to edit photos according to user preferences, resulting in a much more time-friendly editing process. Some of these programs are professional, like Photoshop, which offers Generative Expand, and Generative Fill, while other programs are for daily use like Google Pixel 6's Magic Editor and Magic Erase (Epstein, 2023). Variably, generative AI programs, such as Midjourney, Stable Diffusion, DeepAI, and DALL·E are all used in the creation of the art itself. By rendering art based on the user's preferences and text input, these programs cre-

ate detailed art in a relatively shorter time frame than human-made pieces—a process that allows for art to be created by the average person, amateurs, and professional artists alike.

Although the previous examples describe many ways in which AI is implemented for user-aware or predominantly user-controlled applications, AI has also been adapted for use in e-commerce, search engine optimization, social media, and in navigation services to act autonomously. Personalized recommendations, for instance, can widely influence how one shops online and the search results they see (Kumar et al., 2019; Liu et al., 2004). Online shopping platforms collect data and provide algorithmic consumer product recommendations based on previous searches, prices, and product types (Kumar et al., 2019). Major search engines use similar deep learning and adaptive characteristics to find and recommend more relevant articles based on previous searches (Liu et al., 2004). AI tools for social media platforms provide friend and content recommendations based on mutual friends and feed similarities, in order to boost users' platform engagement (Shaikh & Khanna, 2015). Furthermore, AI's adaptive characteristics may consider frequently driven routes, road obstructions, and alternative routes to provide drivers with personalized recommendations on the most efficient route to reach their desired destination (Chen et al., 2023). Using large scale AI systems that analyze data on individuals' viewing habits, companies curate ads for certain individuals so the consumers' perception of their company is positive (Viski, 2020). Companies also use the information about which music, visuals, voices and fonts different audiences enjoy to hire artists to create image and video advertisements that are exceptionally effective. These AI-driven personalized recommendations enable users to shop, travel, and browse the internet or social media platforms efficiently, thus benefiting the companies trying to sell their products and those using the products.

Engagement efficiencies are not only observed in private life, but may be leveraged for equitable political participation as well. From the bottom of the hierarchy, citizens have an opportunity to better engage with and digest policy issues from distilled summaries. From the top, politicians may leverage AI analytics to derive accurate constituent positions, provide for increased representational power, or assist in administering elections (Adam & Hocquard, 2023; Eisen et al., 2023). Of particular promise is that of AI-assisted political communica-

tion between dissimilar individuals. A study by Argyle et al. (2023) placed participants within experimental groups, one with and one without an AI chat assistance tool. This chat assistant provided suggestions to moderate tone—while maintaining intent—during the discussion of contemporary critical issues. In accordance with feedback provided among users, the findings of the Argyle et al. (2023) study suggest that AI may be useful as a tool to ease the challenges of political discourse and lead to more productive conversations among its users.

Potential Drawbacks of AI

AI maintains great potential to assist users, yet each new application of the technology also presents unique and substantial challenges. Shared among disciplines are the concerns of overreliance, a loss of human touch, and the automation of bias.

In the field of education, one might question whether AI in education will limit students' abilities to build social and problem-solving skills. Angwaomaodoko (2023) contends that students have begun developing a dependency on AI for problem solving and critical thinking skills, creating a new generation of students who are unable to engage in the deep analytical thinking considered essential for genuine scholarly exploration. With the recognition of this over-reliance, Angwaomaodoko (2023) identifies one solution to be using AI as a complementary tool to support the work of educators rather than as a replacement for them.

The dangers of dependency may also occur when healthcare workers use AI-based solutions instead of their clinical judgment. The American Nurse Association (2022) states that AI should not replace nurses' knowledge or skills, as nurses are responsible for their practice even when technology fails. However, individual nurses constitute only a fraction of a patient's healthcare team, and statements don't always reflect *de facto* practice. Without the aid of a legal and ethical framework to guide policies, this disconnection leaves providers questioning who should be held accountable if the AI-developed plan or diagnosis fails (Khan et al., 2023).

If considered in tandem with the losses of social and professional development, there may be further disruptions and harm to daily life in terms of emotional connections. Through AI, the digital synthesization of humanity's greatest artwork, music, and speeches is possible (Żylińska, 2020). If, however, the growth of AI usage were to reach the point where, surpassing hu-

man-created art, AI-generated art became the dominant form, would human made art still hold value? Would artists continue to create art in the traditional mediums if their value as a source of revenue were threatened? A similar question might be asked regarding AI-generated emails, with some losses to emotional connection and trust attributed to recipient suspicion and loss of perceived empathy and sincerity (Hohenstein et al, 2023; Jakesch et al., 2019). Likewise, an AI-powered chat assistant has certain merit to be marketed as a useful tool for brokering intersectionality among individuals, yet there remains reason to consider systemic risks in outsourcing the ability to engage tactfully. Argyle et al. (2023) concluded that a practical, public-facing product would rely on many exacting provisions, including the collective commitment to using such a tool when conflict arises, the ability of its users to retain perspectives they have learned while using it, and learning to adopt unassisted mediation techniques over time. Further consideration may ask whether an AI chat assistant makes it excessively easy to generate platitudes with a quick rate of decay in utility. Such questions are not relegated to theory or left to academic debate. A recent example of such tangible harm and public anger was observed following the use of AI to pen condolences in the wake of a school shooting (Powers, 2023).

AI can undermine social and emotional efficacy, but it may compound this risk through the automation of biases. In medicine, harm of clinical significance can be found when the training data used to create these systems rely on past biases in areas such as race and gender (Hastings, 2024). Likewise, the training data provide challenges in the generation of images reflective of objective reality—often skewing the results toward either harmful stereotypes or else historical inaccuracy (Chan & O'Brien, 2024). These issues are difficult to contend with, yet solutions to these problems—and balance, by proxy—may yet be rendered in the form of patches and the recognition and correction of systemic blights. Conversely, in politics, the introduction of bias may be the result, not only of oversights in training, but of bad actors. From either end of the political structure (i.e., top or bottom), AI may be used, misused, or abused—adding to the likelihood of dis- and misinformation, the reinforcement of inequalities and disenfranchisement, and the exacerbation of election interference, conflict, or even violence (Adam & Hocquard, 2023; Eisen et al., 2023). These dangers cannot be corrected with simple

software tweaks or updates to training data. In these cases, authors suggested that governments, advocates, and citizens alike maintain a focus on developing policies and perspectives dedicated to regulation and that effective pedagogical safeguards be applied (Adam, 2023; Eisen et al., 2023; Rogerson et al., 2022). In the last two years, Rogerson et al. (2022) and Hankins et al. (2023) report that the increase of summit attendance and of published AI readiness strategies and policy by the governments of both high and low income countries has been “promising.” However, they also stress that the speed at which each of the governmental, technology-sector, and infrastructure factors progress independently is the key to understanding the cumulative effects that AI may ultimately have in shaping the future (Rogerson et al., 2022).

Effective harm reduction for AI will require, in all cases and disciplines, a consensus in planning efforts and special considerations. Durable policies—which consider, plan for, and mirror the totality of effects possible with AI, and which acknowledge and utilize interdisciplinary perspectives—are necessary. Through this paper’s exploration of AI, two guiding interdisciplinary inferences are made readily apparent: (1) the availability and usage of AI constitute a balancing act between its merits and dangers, and (2) the speed at which people understand, plan for, and adapt to the technology matters in determining the outcome. In a nexus age—that is, an inflection point of possibilities and consequences where AI is prone to hallucinations and outright fabrications—human control remains critical. The study that follows below will consider the vulnerabilities of this balance in order to inform which actions may be deemed most immediately necessary.

Model and Hypothesis

The premise of this study is informed by the mere exposure effect. According to the mere exposure effect, people show an increased preference and openness toward stimuli to which they are frequently exposed (Zajonc, 1968). Mere exposure has been confirmed in many applications, including how modern advertisements influence the sales industry (Yagi & Inoue, 2018). The more often consumers see advertisements for specific products, the more they are correlated with an improved preference of that product. The expected relationship of

the variables suggests that when participants are exposed to and educated solely on the positive applications of AI, they will demonstrate a reciprocal increase to the positive perception of AI. A null hypothesis would therefore reflect only a possible increase in awareness with no changes to perception (positive or negative).

Method

Participants

The participants for this study were students attending a mid-sized, midwestern university who were at least 18 years of age. Participants (N=56) were mostly female (75%), followed by male (23.2%), and preferred not to say (1.8%). The majority of the participants racially self-identified as White/European American (83.9%), followed by Black or African American (16.1%), Native American or Alaskan Native (1.8%), Latino (1.8%), and did not indicate (1.8%). Participants ranged in age from 18 to 55, with the majority being 18 to 22 (72.2%).

Participants either fulfilled a course requirement or received extra credit for undergraduate introductory psychology classes. Participants voluntarily elected to participate in this study, and procedures for obtaining informed consent and research protocols adhered to the university’s Institutional Review Board guidelines.

Materials

The Perceptions of Artificial Intelligence (PAI), created for this research, assessed participants’ perceived AI usage. The PAI questionnaire consisted of seven questions and asked participants to rate their perceived AI usage and their impression of AI as beneficial or harmful. Anchors varied depending on the question, but participants rated each question on a 5-point Likert scale. Each question and corresponding anchors appear in Table 1.

The Technology Usage Survey (TUS), created for this research, examined whether or not (yes or no) participants use or have used thirteen specific applications of AI. The purpose of the TUS was to increase participants’ awareness of their AI usage. The applications of AI included in the TUS were verified through the literature review, and appear in Table 2.

A brief disclosure educated participants that every piece of technology mentioned in the TUS actually utilizes AI. In other words, participants were informed that

if they selected “yes” to any question in the TUS, they were, in fact, utilizing AI. The disclosure paragraph, created by AI, appears below:

If you answered “yes” to the questions from the previous survey, you are most likely using Artificial Intelligence (AI). AI has become part of our daily lives, making things easier and more efficient. For example, when you’re watching videos online, AI suggests similar ones you might like based on what you’ve watched before. Virtual assistants like Siri or Alexa are also powered by AI. They understand what you say and help with tasks like setting reminders or answering questions. In health-care, AI helps doctors by analyzing medical images and predicting diseases earlier. AI also improves things like traffic flow in navigation apps and helps translate languages instantly (OpenAI, 2024).

Procedure

Participants signed up for the study on SONA, which is an online research participant management system, and then received a link to complete the survey through Google Forms. The survey was available for completion at any time, across a period of seven days. Participants were first administered the PAI-pre, examining how often they perceive they use AI as well as their overall impressions of AI. Next, participants completed the TUS, which explored whether participants use or have used thirteen specific AI applications, then read the disclosure paragraph, educating participants that every piece of technology in the TUS was an application of AI. Participants did not have access to the TUS while reading the educational disclosure paragraph. The purpose of the TUS and the educational disclosure paragraph was to make participants aware of their AI usage. The PAI-post was administered at the end of the study to measure changes in perceptions after completing the AI educational components. Next, participants completed a demographic questionnaire, followed by a “thank you” message through Google Forms with a debriefing message, explaining the research purposes and providing contact information for the researchers if there were further questions.

Results

Students completed the PAI twice: Before completing the TUS and reading the disclosure paragraph (PAI-pre) then afterwards (PAI-post). Using paired-samples

t-tests, answers to each of the seven questions were compared to determine changes in perceptions of AI usage and AI benefits. Results indicated significant increases or more positive endorsements for five of the seven questions (Table 1). These changes indicated greater acknowledgment of AI use (question 1), improved impression of AI (question 2), belief that AI may benefit society (question 4) and shape or transform society (question 6), and improved impressions of AI artwork (question 7). Ratings for the remaining items were not significant, reflecting no change in whether AI should be regulated or whether AI poses a danger to society.

Table 1

Perceptions of Artificial Intelligence Paired Samples T-Test (N=56)

Question		<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>	Cohen's <i>d</i>
1. To what extent do you perceive that you use Artificial Intelligence (AI)? Never - Daily	Pre	2.52	1.044	9.10	<.001	1.21
	Post	4.23	1.175			
2. What is your impression of Artificial Intelligence (AI)? Negative - Positive	Pre	2.88	.955	5.31	<.001	.71
	Post	3.66	1.066			
3. To what extent do you feel that Artificial Intelligence (AI) should be regulated by law? Not at All - To Great Extent	Pre	3.25	1.148	-1.35	.184	.18
	Post	3.43	1.110			
4. To what extent do you feel that Artificial Intelligence (AI) may benefit society? Not at All - To Great Extent	Pre	3.35	1.109	4.38	<.001	.58
	Post	4.00	.923			
5. To what extent do you feel that Artificial Intelligence (AI) poses a danger to society? Not at All - To Great Extent	Pre	3.39	1.171	.80	.428	.16
	Post	3.29	1.202			
6. To what extent do you feel that Artificial Intelligence (AI) has the power to shape or transform society? Not at All - To Great Extent	Pre	3.89	1.039	3.61	<.001	.48
	Post	4.20	1.034			
7. To what extent is artwork generated by Artificial Intelligence (AI) as meaningful as artwork generated by humans? Not at All - To Great Extent	Pre	2.07	1.024	2.84	.006	.38
	Post	2.43	1.248			

Note. The anchors for the five-point rating scales appear below each question.

Responses to the TUS, which assisted in educating and exploring participants' AI usage, appear in Table 2.

Table 2

Technology Usage Survey (N=56)

Question	Yes		No	
	<i>n</i>	%	<i>n</i>	%
1. Do you use social media platforms that provide content suggestions or friend suggestions?	54	96.4	2	3.6
2. Do you use learning tools such as Duolingo, Khan Academy, or Mathspace?	19	33.9	37	66.1
3. Have you observed personalized search results based on your past internet searches?	53	94.6	3	5.4
4. Do you use voice-activated virtual assistants like Siri, Google Assistant, or Alexa?	43	76.8	13	23.2
5. Have you noticed any features like spam filtering in your email service?	51	91.1	5	8.9
6. Have you received personalized product recommendations while shopping online?	51	91.1	5	8.9
7. Have you ever received notifications about potentially fraudulent transactions from your bank or credit card company?	37	66.1	19	33.9
8. Have you used online translation services to translate text or speech?	48	85.7	8	14.3
9. Have you undergone any medical imaging procedures?	33	58.9	23	41.1
10. Do you use a smartwatch with the ability to monitor your heart rate and/or rhythm?	37	66.1	19	33.9
11. Do you use a smartphone with autocorrect or predictive text features?	56	100	0	0
12. Do you use art generation programs like Midjourney, Stable Diffusion, DeepAI, or DALL-E?	3	5.4	53	94.6
13. Do you use driving tools such as Google Maps that suggest the fastest routes while driving?	56	100	0	0

Discussion

In the current study, participants did not recognize that they were using AI. As hypothesized, selective exposure to only the positive or beneficial applications of AI led to a more favorable impression of AI. These findings run counter to the null hypothesis—one that would have observed an increase in awareness with no statistically significant changes to perception (positive or negative).

Regarding the TUS, 100% of the participants disclosed that they use driving tools such as maps that provide route recommendations and autocorrect or predictive text features. This suggests that the most widely used AI programs focus on travel and communication. The majority of participants (66.1%) reported wearing a smartwatch with heart monitoring capabilities, which is slightly higher than Shandhi et al.'s (2024) report of

59% of participants owning these devices. This may be attributed to the majority of this study's participants ranging from 18-22 years old, while Shandhi et al. (2024) report the majority of participants (52%) were aged 58 and above. The least used AI applications were online learning tools such as Duolingo, Khan Academy, or Mathspace (33.9%) and art generation programs such as Midjourney, Stable Diffusion, DeepAI, or DALL-E (5.4%). Due to the low rate of use, the negative effects of these programs may be less prevalent among this survey's participants than Angwaomaodoko (2023) and Żylińska's (2020) findings would suggest.

Interestingly, these results work to support and build from previous studies. Ninety-five percent of U.S. adults were online every day in 2023, and 31% of those surveyed could not identify more than two examples of AI likely to be found throughout their daily lives (Kennedy et al., 2023; Pew Research Center, 2024). Speaking directly to the social and political underpinnings, in a reality where AI can be increasingly found under every digital stone, and where many citizens do not consider themselves as engaged with AI—this paper finds a warranted cause for concern by the ease with which participants could be influenced by selective education.

A limitation of this study is that the participants were from a single university in a midwestern state and were relatively similar in age, with the majority being 18 to 22 (72.2%). Participants from different regions may have different results due to cultural norms. The same limitation can apply to the age of the participants, as generational differences can impact one's use of technology in general. Future research may explore whether participants' views and uses of AI vary throughout generations. Secondly, the TUS and disclosure paragraph only refer to AI applications that are generally viewed as more positive or beneficial to society. Future research may utilize different applications of AI that are not viewed in such a positive manner. For instance, future research may focus on exposing participants to AI applications commonly referred to as unfavorable due to their discriminatory powers and ability to spread misinformation.

The potential social and political gravity of AI comes with both great possibilities and great challenges. Whereas Hohenstein et al. (2023) considered a possibility for decreases in empathy and personal touch, the Argyle et al. study (2023) concluded that an AI chat

assistance tool was useful in easing the challenges of political discourse. A key difference between these findings is, perhaps, the level with which control and human authorship is ultimately responsible.

This study only assessed a sample of students from a single campus, yet it aligns with outside findings of limited public awareness and further describes the mobility of attitudes of a much larger demographic. Statistical significance of these findings suggest that a wider population of students, or of humankind as a whole, may not recognize their AI usage and that education on the applications of AI, may lead to an improved impression of it. If meaningful safeguards are to be applied against the known dangers, significant work will be necessary to fully understand how AI can shape communities and people's daily lives—for better or for worse.

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