

Research Paper

Metacognition and AI: Self-awareness Inventory (MAISI)- A Study on the Relationship between Metacognition and AI Usage

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ABSTRACT

AI has become an integral part of our lives, influencing our metacognition and behaviour. This study aims to develop the Metacognition & AI: Self-awareness Inventory (MAISI) for modern AI-integrated behaviours. Previous scales are limited to the student population and lack generalizability to India. A purposive sampling method was employed. In total, 205 Indian residents (95 Males, 110 Females) participated in this study. Items were validated through expert reviews, and internal consistency was assessed using Cronbach's alpha (≈ 0.88). EFA revealed 6 factors that collectively explain 58.9% of the variance. There were no significant differences between age ($p = 0.152$) or gender ($p = 0.701$) and metacognition, reinforcing our inventory's validity and reliability to assess metacognition and awareness in AI-reinforced environments.

Keywords: *Metacognition, Artificial Intelligence, Cognitive Psychology, Psychometrics, Qualitative Study*

Artificial Intelligence (AI) has emerged as an essential component of modern life, which affects how people think, learn and make decisions. AI has spread into daily settings, from educational platforms like Grammarly to personal assistants like Siri and Alexa (Russell & Norvig, 2021). These technologies not only increase human productivity and efficiency but also fundamentally alter how individuals engage with their own cognitive and metacognitive processes (Holmes et al., 2019).

The term metacognition was first used by Flavell (1985), who defined metacognition as “knowledge of cognitive and cognitive phenomena” and one's own knowledge of self-cognitive processes. It's the awareness of one's own thought processes and how the mechanisms by which they behave. It reinforces the concept of problem-solving and explains learning processes by enabling us to monitor, examine, and reflect on ourselves. This construct was first introduced in developmental and cognitive psychology and has long been recognized as a central determinant of effective learning. An individual with high

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metacognitive awareness can easily choose efficient strategies, monitor comprehension and detect errors whilst adjusting their efforts when needed, which eventually helps them become better learners across different domains (Noushad, 2008). Metacognition can be further divided into two domains: metacognitive regulation and metacognitive knowledge. The former is associated with monitoring, planning, and evaluation of information, whereas the latter is the understanding of what we know about our internal mental processes and can be separated into three types of knowledge: procedural, semantic, and declarative (Stephanou & Mpiontini, 2017).

The use of AI as a tool for metacognition reflection has been discussed for decades, beginning with Papert's early collaboration with Piaget and his subsequent development of the Logo programming language as a medium for children to think about thinking through constructing artificial minds (Papert, 1993). Further researchers emphasised the integration of AI and how it enhances the overall approach of engaging in reflection on cognition and self-regulation.

Although various instruments have been developed to measure metacognition, such as the metacognitive Awareness Inventory (Schraw & Dennison, 1994) and the metacognition self-assessment scale (MSAS) by Pedone et al. (2017), these tools were developed without integration of AI. Traditional measures primarily capture metacognitive processes in conventional academic settings and do not account for the unique integration that occurs when learners engage with adaptive, intelligent or cognitive AI technologies. However, these tools have been evaluated primarily using student samples, with limited representation of broader demographic groups. Additionally, most existing research has originated from European and North American populations, limiting generalizability of findings to the Indian context. The present study addresses these gaps by developing a holistic, AI-integrated scale to examine the metacognitive awareness in a diverse Indian population.

Our study will assess the metacognitive abilities and their relationship with AI use by distributing across eight sub-domains. Henceforth, we propose the following research question: To what extent can an AI-integrated metacognition inventory assess metacognitive self-awareness in Indian adults? Accordingly, we have developed the following objectives and hypotheses:

Objectives of the study

To develop a novel, standardized and validated inventory (MAISI) that can be used to assess an individual's metacognitive awareness in Indian adults who regularly use AI tools (aged 18-40) and to evaluate internal consistency, reliability and construct validity.

To compare the mean MAISI score of male and female participants to examine whether any gender related differences exist in AI-related metacognitive awareness among the Indian population.

To compare the mean MAISI score across different age groups to examine whether any age-related differences exist in AI-related metacognitive awareness among the Indian population.

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Hypotheses

- H1: The newly developed Metacognition & AI: Self-awareness Inventory (MAISI) will demonstrate strong internal consistency, structural validity and reliability, suggesting that it is a suitable tool to measure AI-related metacognitive awareness among the Indian population.
- H0a: There will be no statistically significant difference between the mean MAISI scores of male and female participants, indicating that AI-related metacognitive awareness does not vary by gender within the Indian population.
- H0b: There will be no statistically significant difference between mean MAISI scores among the various age groups of the participants, showcasing that AI-related metacognitive awareness remains constant across age groups in the Indian population.

METHODOLOGY

Inventory description

We developed the Metacognition and AI: Self-awareness inventory to measure the level of awareness individuals have regarding their ability to evaluate and monitor their own thinking processes while using AI tools. Our inventory consists of eight sub-domains, which all contribute to assessing an individual's metacognitive processes. These subdomains are: knowledge, monitoring, regulation and control, AI literacy, trust/ skepticism, ethical consideration, self-efficacy, and behavioral use. Our finalized inventory (Appendix II) contains a total of 24 items, in which all the sub-domains contain three items each, along with an additional optional open-ended question at the end to assess the individual's subjective insight into their experience with AI usage.

The instrument is scored using a 5-point Likert scale, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree. This was for all items except item 12, which is reverse-scored to prevent a high risk of straight-lining, a specific form of response bias that involves participants repeatedly choosing the same option.

Instrument Development

We constructed the Metacognition and AI: Self-awareness Inventory using a systematic and rigorous standard of psychometric development. We began the procedure by conducting a well-structured and detailed review of existing literature, in which we reviewed research studies published within the last ten years. Based on this literature review, our researchers then developed foundational theoretical knowledge, identified research gaps, as well as conceptual ambiguities within the domain of AI and metacognition. The researchers subsequently developed eight core sub-domains of this inventory using a systematic methodological approach to ensure conceptual clarity and comprehensive coverage of all the relevant aspects. For the construction of items in the Monitoring sub-domain, the items were chosen and modified from previous instruments research by Sidra & Mason (2025) and Ayasrah & Khasawneh (2025), who similarly examined the intersection of metacognition and AI. Furthermore, the items in the Self-efficacy sub-domain were adapted from Morales-García et al. (2024) and Acosta-Enriquez et al. (2025). The items in the Trust domain were designed by summarizing findings from the studies proposing new item lists, which are Zhou et al. (2021), Pareek et al. (2024), and Liehner et al. (2023). Similarly, for the Behavioral domain, our assigned researcher constructed the items by identifying and synthesizing key findings from Arthur et al. (2025) and Fakhri et al. (2024). The items for Ethical Awareness were chosen and modified from earlier instrument research by Stahl

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(2021), Carolus et al. (2013) and Saatci, E. Y. (2025). Furthermore, the items in the Knowledge domain were extracted and revised from Sidra, S., & Mason, C. (2025). Existing instruments such as the AI Literacy Test, MAIS (Carolus et al., 2023), SNAIL (Laupichler et al., 2023), and AISES (Wang & Chuang, 2023) served as references during item development for the AI Literacy domain, while the final items were adapted and expanded to capture metacognitive processes specific to AI-supported thinking. The items from Regulation and Control were developed taking reference and inspiration from Son (2025). Following this, we took expert validation from two experts from the field of psychology and one from neuroscience for reviewing the initial version of the inventory, which included 57 items. They evaluated the items based on content relevance, clarity, construct alignment and informed revision to improve item clarity, relevance and overall scale coherence.

We further revised and refined our inventory on the basis of the feedback given by the experts, which led us to reduce the items from 57 to 46 in the revised version. After this, we conducted a pilot study using the revised version of the inventory on a sample of 71 participants to assess the reliability, respondents' understanding and feedback on the wording of the items as well as the length of the inventory. Findings from the pilot phase guided the final optimization of the scale, culminating in a 24 item inventory comprising three items per sub domain and an open-ended question at the end about the impact AI tools have had on the respondents' thinking and understanding.

Study Design

An exploratory mixed-methods design (qualitative-quantitative) approach was adopted using a questionnaire based inventory, which was administered to Indian participants to explore associations between participants features and their metacognitive strength (based on how they use AI). This study design has been praised for its utility in studies that hope to propose a novel or developed psychometric tool (Creswell & Clark, 2007). Our design was chosen to ensure that the findings would not be entirely subjective and would have a quantifiable, objective perspective that provides numerical insights. Hence, using a questionnaire provided a convenient, timely and broader scope of sample reach to represent the Indian population and different age groups. Similarly, our incorporation of statistical measures is equally relevant because it provides a more specific view of how the data behaves and is indicative of a trend. Additionally, it allows us to establish some relationship, although not causal, between our variables, which can be investigated in future studies.

Sampling

Our study had a total of 224 participants, after which 19 were eliminated because of their anomalous choices (e.g., repeatedly choosing one level of agreement for all items) resulting in a final sample of 205 participants across India. Participants were grouped into the following age ranges: 18-25, 26-30, 31-35 and 36-40. This age demographic was selected because these cohorts have had substantial exposure to ongoing technological advancements, particularly in AI. Restricting the sample to these age groups helped minimize potential confounding effects related to limited familiarity with AI, thereby supporting the validity of the study findings.

The inclusion criteria for participation required individuals to be Indian residents aged between 18 to 40 years, able to read and write in English and regular users of AI tools in their daily life. Exclusion criteria included individuals with reported neurological or psychological disorders, those who have previously completed a similar inventory, or those

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already engaged in research within the field of neuropsychology, as prior exposure could influence response validity and data quality.

Data were collected using a structured questionnaire administered online via Google Forms and distributed through email. Purposive random sampling was adopted to identify and recruit individuals who satisfied the inclusion criteria specified for the study, thereby ensuring the relevance of the sampled population.

Procedure

Participants were recruited through social media platforms where the survey link was shared. Data collection was conducted between the 16th of October 2025 and the 11th of November 2025. Prior to participation, individuals were provided with an informed consent form (Appendix I) outlining the purpose of the study, their right to voluntary participation and withdrawal and assurance of anonymity and confidentiality. Upon providing consent, participants received access to the Google Forms questionnaire and completed the inventory online. After submission, participants were debriefed through an automated email reminder reiterating their rights.

RESULTS

Descriptive Statistics

The final sample consisted of 205 participants who responded for all items of the inventory. All items were scored on a 5-point Likert scale with observed minimum and maximum values ranging from 1 to 5, confirming that the full response range was utilized. The mean item scores ranged roughly from 3.2 to 4.4. Scores between 3.0 and 3.5 reflect moderate levels of agreement, whereas means between 4.0 and 4.4 signify stronger agreement. Overall, the distribution exhibited a slight positive skew, suggesting a tendency toward higher levels of metacognitive awareness among participants.

Measures of variability indicated adequate dispersion across time. Standard deviation values ranged from approximately 0.9 – 1.2. This demonstrates sufficient variability, indicating that items are neither overly homogeneous nor insufficiently discriminative. Similarly, item variances ranged from 0.82 to 1.28, further accepting there are no flat or weak items. Collectively, these findings indicate that the inventory demonstrates good distribution and adequate item variability, supporting its suitability for subsequent factor analysis.

Exploratory Factor Analysis (EFA)

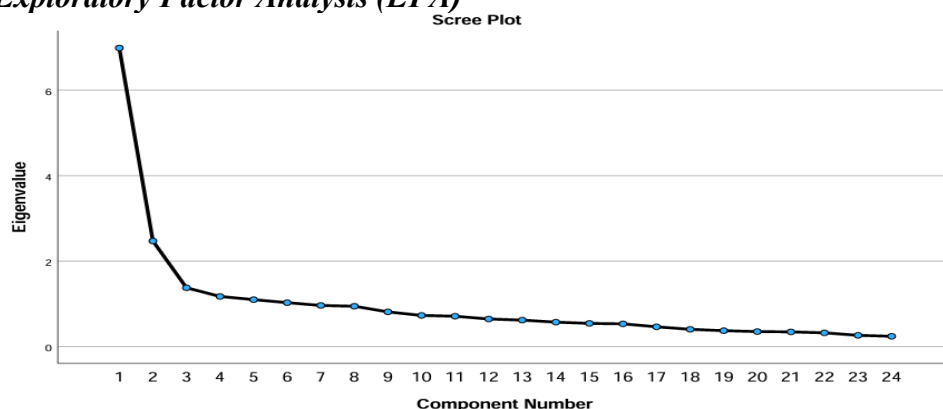


Fig. 1- Scree plot showing the distribution and incrementation of eigenvalues for each item in our inventory.

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The Kaiser- Meyer- Olkin (KMO) measure of sampling adequacy was high Fig. 1 (KMO = 0.866) confirming that the sample size was insufficient for factor analysis. Moreover, Bartlett's Test of Sphericity was statistically significant ($\chi^2 = 1722.951$, $p < 0.001$), signifying that the correlation matrix was suitable for factor extraction. Subsequently, when analyzing the factor structure of the MAISI, we discovered that two sub-domains, out of the eight used, had an eigenvalue below 1.0 (i.e., factors 7 and 8). Therefore, the final structure of the inventory consisted of six sub-domains rather than the initial eight. The results from the Rotation Sums of Squared Loadings demonstrated that these six factors explain approximately 58.9% of the variance, which exceeds the recommended minimum (i.e., 50%) for psychometric instruments and is acceptable for the 24-item inventory.

Reliability

The reliability of the inventory was evaluated using Cronbach's alpha. The overall internal consistency of our inventory was 0.879, indicating very good reliability according to standard psychometric guidelines. This suggests that the items are working together to measure the underlying construct in a consistent way. Furthermore, the "Cronbach's Alpha if Item Deleted" values ranged from 0.871 to 0.883, showing that removing any single item would not lead to a meaningful improvement in reliability. Although the reverse-coded item produced a slightly higher alpha if deleted ($\alpha = 0.883$), the difference was minimal. Therefore, the items were retained to preserve the theoretical structure and content balance of the inventory.

Inferential Statistics

To test the study hypotheses was a Chi-square test, specifically the test of independence was used to examine the association between variables. This was because the data was analyzed in categorized (nominal) form. In addition, Fisher's exact test was also applied as a supporting analysis due to the relatively small sample size. This also provided a second-view analysis of any potential associations with gender and age, which came out as inconclusive because an equalized association is observed. Likewise, our p-values were 0.701 for gender and 0.152 for age, thereby indicating no significance in our data. This analysis was done in the Statistical Package for the Social Sciences (SPSS) version 28. Moreover, ANOVA revealed no significant effect of age group on total score, $F(3, 193) = 0.90$, $p = 0.44$, indicating that participants across different age ranges scored similarly on the inventory. Additionally, Levene's test confirmed homogeneity of variances ($p = 0.85$).

Based on these results, both null hypotheses (H0a and H0b) were accepted, as no significant correlation or relationship were found between these variables and metacognitive strength and either gender or age in the presence of AI tools. This indicates the metacognitive awareness inventory does a good job at measuring how well an individual identifies their metacognitive abilities without the inherent role of gender or age affecting their responses. The data show that there should ideally be no differences between age groups or genders in metacognition in AI-enhanced environments. This result is consistent with the findings of Jaleel & Premachandran (2016), who also reported no significant gender or age based differences in metacognitive awareness while validating a similar scale in their study. Overall, the absence of sociodemographic effects supports the validity of the inventory and confirms that it measures the intended construct accurately.

DISCUSSION

The study demonstrated overall high metacognitive AI competence in the majority of the participants, with no significant differences regarding age, aligning with H1, which shows that there is a technological equalization in the Indian population across these parameters. No significant difference in metacognitive awareness, in reference to gender and age groups, refutes our H0a and H0b. Synthesizing our findings, research questions can be answered. We observed that, thanks to existing research and in the discovery of their gaps, the MAISI can assess metacognition in AI-enforced environments to a reasonable extent. This is because our inventory's internal consistency was well within the good range for Cronbach's alpha, and the EFA revealed that six out of the eight sub-domains we assessed explain over half the variance. Moreover, it was seen that gender and age group did not independently affect the participants' scores, which suggests that the inventory accurately focuses on metacognitive ability. Additionally, all three of the initial objectives have been met.

The high metacognitive scores observed in the sample suggest that participants perceive themselves as capable of monitoring, regulating, and evaluating their thinking while using AI tools. This is also noticed in prior research, where strong metacognitive knowledge has been associated with better academic achievement and problem solving (Veenman et al., 2006).

The results also provide insight into the usefulness of the new inventory. The scores suggest that traditional metacognition scales, which were developed for non-AI contexts, may overlook AI-specific aspects, like monitoring and regulation. By integrating eight different dimensions, the present inventory offers a more holistic framework to interpret metacognition in AI-integrated tasks. Moreover, the high internal consistency from Cronbach's alpha and the standardized nature of the inventory give the study high reliability for potential researcher triangulation.

Beyond this, the EFA offers some additional insight into how the inventory operates, i.e., despite the scale being originally developed with eight subdomains, the EFA reveals a 6-factor structure. This could infer that several of the dimensions overlap when applied in practice, which is typical during early-scale development and is seen in other AI-related measures such as MAIS (Carolus et al., 2023), SNAIL (Laupichler et al., 2023), and the AI Self-Efficacy Scale (Wang & Chuang, 2023). The 6 factors, determined by the EFA, explained 58.9% of total variance, highlighting that the inventory captures a significant portion of the construct. Synthesizing our convergent validity, these results indicate that MAISI meets the minimum foundational psychometric criteria and proves to be a valid AI-related metacognitive awareness in the Indian adult population. However, it is important to acknowledge that this simultaneously indicates refinement of the inventory to make it more accurate in assessing metacognition. The reliability of the MAISI is also confirmed since similar studies, such as Sidra and Mason (2025), report obtaining Cronbach alpha scores within the same range as ours. Furthermore, the novel inventory demonstrates convergent validity with Ayasrah and Kasawneh (2025) in providing stable measurements of metacognition regardless of gender.

The inclusion of ethical awareness is important considering the limited research in this area. Although Chiu et al. (2024) identify ethical awareness as a component of AI literacy, few studies examine how ethical considerations affect users' decisions while interacting with AI systems. In our results, including ethical awareness as one of the measured dimensions helps

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address this gap and provides insight into how users interpret and evaluate AI recommendations.

The findings demonstrate that AI tools may be a basic digital skill among educated Indian users aged 18–40. This shows the need to focus on the ethical use of AI (i.e., knowing when LLMs help or harm cognitive processes). This inventory helps advance theoretical and practical evaluation of human-AI interaction by including trust/skepticism, ethics, and behavioural use. The MAISI could prove useful in educational, organizational, and psychometric environments to formulate optimal policies in AI-reinforced task environments.

Nevertheless, some limitations need to be addressed before the inventory is put into practice. This includes a lack of generalizability due to the use of purposive sampling, which restricted the diversity of the sample and the sample size, relative to the Indian population, was small, which warrants our use of Fisher's test. The study also had a limited sample size of 205 participants, which limits the population validity of our findings. Additionally, this inventory currently relies on self-reported scores, where social desirability may have affected the overall high score on awareness. These variables, plus confounding variables that could not be controlled in the unique environment of each respondent, could have impacted our internal validity. Therefore, we recommend that future studies use real-time experiments to assess metacognition and the efficacy of such instruments.

Future research must also aim for a larger sample size in India and/or other underrepresented populations and consider translating the scale into the local languages of those participants to reach a wider and more diverse population. Moreover, there is a lack of research concerning specifically how the prolonged use of AI affects metacognition over time. A longitudinal study might be an important area to investigate this, paired with semi-structured interviews, where detailed subjective insights can be thematically analyzed for common patterns.

CONCLUSION

The study offers a valuable foundation for evaluating metacognition within the context of artificial intelligence. Although the MAISI has real-world application potential in environments involving policymakers, educational efficiency in AI-supported classrooms and workplaces, methodological limitations suggest future work to expand the tool's application and examine alternative explanations, including sociocultural influence, to strengthen its validity.

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Conflict of Interest

We declare that there are no conflicts of interest.

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APPENDICES

Appendix I

Informed Consent Form

Metacognition and AI: Self Awareness Inventory

Brain and AI Research Group (BAIRG)

Purpose of the study:

This study aims to investigate the correlation between metacognition and use of artificial intelligence (AI) among Indian adults by proposing a novel inventory designed to assess the following metacognitive sub-domains: knowledge, monitoring, regulation and control, AI literacy, trust/skepticism, self-efficacy, ethical consideration, and behavioural use. By addressing existing research gaps in the relationship between metacognition and AI, we believe this inventory seeks to provide a reliable measure for identifying metacognitive strength and deficiencies among individuals who use AI tools, such as chatbots, in workplace and educational settings. This research will also provide insights into how AI tools can be optimally integrated to complement human cognition.

Procedure:

If you agree to participate in the study, you will be asked to complete an inventory consisting of standardized questions related to AI and metacognition. Please select the responses that most accurately represent your opinions or experiences; there are no right or wrong answers.

Participation in this study is entirely voluntary. You may skip any question that makes you uncomfortable or withdraw from the study at any point without any negative consequences. No personally identifiable information, such as your name or contact details will be collected.

Participation Details:

The study population comprised individuals from across India, representing diverse states and regions to ensure national representation.

Inclusion criteria: Participants should be Indian residents aged between 18 to 40 years, able to read and write in English and regular users of AI tools in their daily life.

Exclusion criteria: Individuals with known neurological or psychological disorder, those who have previously completed a similar inventory or those already engaged in research within the field of neuropsychology are excluded from participation.

Duration: Approximately 10 minutes.

Confidentiality:

Your responses in this study will be kept completely confidential. Based on your participation, the following measures will be taken:

1. Each participant will be assigned a unique ID number. Your name and any other identifying information will be stored separately from your responses and will not appear in any research reports or publication.
2. Only members of the authorized research team will have access to the data. All data will be stored in password-protected computers or locked cabinets for physical records.

Limits of Confidentiality: Confidentiality will be maintained to the fullest extent possible, except in cases where disclosure is required by law.

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Risks and Benefits

Benefits:

1. Increased awareness of cognitive reliance on AI: Participation may help you reflect on the cognitive tasks for which you depend on AI tools and understand how this reliance influences your independent thinking skills.
2. Enhanced self-awareness and regulation of thinking processes: Completing this inventory may promote greater awareness of your thought patterns and strategies to use them more effectively.

Risks:

There are minimal anticipated risks in this study. However, there is a possibility of social desirability bias, where participants may respond in a manner, they believe it is more acceptable or favorable. This may affect the accuracy of their responses.

Signature and Date:

Appendix II

Section 1 of 4

Metacognition and AI: Self Awareness Inventory

This inventory is being conducted by members of the Brain and AI Research Group (BAIRG) as part of an academic research project exploring how individuals think, reflect, and make decisions while using AI-based tools (for example: ChatGPT, Grammarly, or other similar platforms).

The purpose of this study is to understand the ways people monitor and evaluate their thinking when interacting with AI tools.

For any questions about the study, you may contact the researcher at smanubha@gmail.com

This form is automatically collecting emails from all respondents. [Change settings](#)

By choosing to participate, you confirm that: *

- You are 18 years or older.
- You understand the purpose of this research.
- You voluntarily agree to take part in this study.
- Your responses will be used for academic research purposes only and will remain anonymous.

I have read the information above and agree to participate.

After section 1 Continue to next section

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Section 2 of 4

Participant Details



Description (optional)

Age *

Short-answer text

Gender *

- Male
- Female
- Prefer not to say

Education Level *

- Under Graduate
- Post Graduate
- Doctoral
- Other:

Occupation/ Field of study

Short-answer text

Familiarity with AI tools

- Beginner

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Intermediate

Advanced

AI tools you commonly use

Long-answer text

After section 2 Continue to next section

Section 3 of 4

Your Experience and Thinking While Using AI Tools

Below are statements about your thoughts and behaviors when using AI-based tools.
Please rate how much you agree or disagree with each statement using the scale below.

1. I am aware of how AI tools influence the way I think about problems. *

Strongly Disagree 1 2 3 4 5 Strongly Agree

2. I use AI tools to structure and organise my ideas. *

Strongly Disagree 1 2 3 4 5 Strongly Agree

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3. I am confident that I can efficiently answer unexpected questions by using AI tools. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

⋮

4. I reflect on ethical risks, such as potential violations of human rights, when using AI tools. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

5. I'm more likely to trust AI tools if they sound more human - like. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

6. I understand that AI tools learn from data. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

7. I am aware that inaccuracy may occur in data generated by AI tools. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

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8. I usually think carefully about suggestions given by AI tools before accepting or rejecting them. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

9. I know how to cross-check whether an AI generated answer is trustworthy or not. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

10. I use follow-up questions with AI tools to make sure the answers are valid. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

11. I trust AI tools more when they give step by step explanations for their responses. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

12. It would be difficult for me to achieve my goals without the help of AI tools. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

13. I use AI tools to break down new concepts for better understanding. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

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14. I am aware of how AI tools might track or store information about my activities. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

...

15. I can tell if content is AI generated. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

16. When I feel stuck while using AI tools, I analyse the effectiveness of other platforms. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

17. I know when I have to rely on my reasoning instead of using AI tools. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

18. I consider privacy risks before deciding how much personal data to share with AI tools. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

19. I can recognise when I am interacting with an AI tool instead of a human. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

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20. I trust AI tools to make fair and unbiased decisions. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

21. I know the potential risk of sharing sensitive information and personal data with AI tools. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

...

22. I can handle difficult situations with some help from AI tools. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

23. AI tools have reduced the level of attention I give to details in a task. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

24. If an AI tool gives a confusing answer, I re-check my understanding and its explanation. *

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

25. How has using AI tools impacted your way of thinking and understanding?

Long-answer text

Metacognition and AI: Self-awareness Inventory (MAISI)- A Study on the Relationship between Metacognition and AI Usage

Section 4 of 4

Thank You for Your Participation



Thank you for taking part in this study. Your responses are valuable and will contribute to understanding how people engage with AI tools in everyday life.