EXPLORING ARTIFICIAL INTELLIGENCE LITERACY AND ENGAGEMENT IN HIGHER EDUCATION STAKEHOLDERS

by

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Exploring artificial intelligence literacy and engagement in higher education stakeholders

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Abstract

Artificial intelligence is disrupting higher education both officially and unofficially. This study aims to determine higher education stakeholders (students, faculty, and staff), AI Engagement (seeking out information and utilizing AI tools), and AI Literacy (the foundational skills and knowledge required to evaluate, use, and create with AI effectively). This study makes a significant contribution to the literature by providing the perspectives of staff, an underrepresented population in current literature. Consideration is given to differences in these measures in relation to stakeholders' optimism about AI in higher education, as well as their gender and generational differences among respondents. The 19-question survey instrument was administered electronically to students, faculty, and staff affiliated with a higher education institution in the Southeastern United States. Overall, stakeholders tended to have neutral to slight agreement on their preparedness with AI literacy skills, but neutral to slightly disagree that they were frequently engaged in AI usage or discourse. The data shows a moderate positive correlation between AI Literacy and AI Engagement scores for higher education stakeholders. Those with positive attitudes toward AI's effect on higher education are associated with higher AI Literacy and AI Engagement. Staff and other group difference results are presented alongside recommendations for future research.

Keywords: artificial intelligence, higher education, literacy, engagement, optimism, students, faculty, staff

Introduction

OpenAI provided free access to ChatGPT and DALL-E in 2022 (*Introducing ChatGPT*, 2022), creating a revived interest in the capability of AI. By utilizing Natural Language Processing (NLP), OpenAI democratized access to AI that understands users' natural dialogue inputs and generates unique personalized text and image responses. Following in their footsteps, dozens of generative AI tools emerged overnight. While these tools are rapidly adopted in business applications, higher education institutions, whose job it is to prepare students for work and societal contributions (R. Y. Chan, 2016) have had mixed responses. Some higher education institutions initially responded by outright banning the use of the tools, citing concerns about academic integrity (Farrelly & Baker, 2023). In contrast, others encouraged their use because of the opportunity they provided for student learning (Sullivan et al., 2023). Now, nearly three years after the initial disruptive event, administrators and researchers must continue to monitor stakeholders' efforts directed toward learning and using AI as they grapple with the impact it makes on their institutional processes (Ma et al., 2024).

The promise of AI tools is, for better or worse, disrupting learning and teaching practices worldwide as tools and applications are adopted officially and unofficially (Kelly et al., 2023). The result is transforming teaching, administrative, and learning practices. AI tools, such as adaptive learning management systems that promise to personalize learning experiences by adapting to individual learner needs, are marketed to institutions (Kabudi et al., 2021). Tools marketed as AI personal assistants are available to be adopted by students, faculty, and staff who feel pressed for capacity (Rillig & Kasirzadeh, 2024). Without training, these tools present institutional security risks from data leaks of well-intended users as well as concerns around academic integrity, authenticity, and potential ramifications to cognitive and creative skills (Francis et al., 2025; Janse Van Rensburg, 2024). A new form of digital literacy, AI Literacy, is required for the ethical and responsible use of these technologies (Chiu et al., 2024; Knoth et al., 2024).

The ethical and responsible use of AI in higher education demands the attention of those in positions to affect change. Administrators must tune into the AI appetite and skills possessed by internal stakeholders. While many other studies have surveyed the AI Engagement and AI Literacy of students and faculty, staff perceptions are underrepresented in current literature (Ren & Wu, 2025). While some research is beginning to study the perspectives of instructional designers (Luo et al., 2024) the continued inclusion of staff insights are crucial since they underpin the operations and governance of AI in higher education (C. K. Y. Chan, 2023).

This study aims to gain a deeper understanding of the perception, utilization, and knowledge of AI in higher education. The study surveys internal stakeholders at a higher education institution in the Southeastern United States about their habits of engaging in discourse and practice with AI tools (AI Engagement) and their foundational skills and knowledge required to evaluate, use, and create with AI effectively (AI Literacy). In assessing these measures, stakeholders' optimism regarding the potential of artificial intelligence in higher education, as well as the respondents' role, gender, and age group, are examined for differences. The study results can inform institutional policy and academic guidance while uncovering opportunities for professional development and classroom instruction. Studying AI Engagement and AI Literacy among higher education stakeholders ensures that institutions can effectively harness AI's potential while mitigating its risks. Consistent with this purpose, the following research questions are asked:

RQ 1: What is the level of AI Engagement among higher education stakeholders?

RQ 2: What is the level of AI Literacy among higher education stakeholders?

RQ 3: Are there significant correlations between AI Engagement and AI literacy?

RQ 4: Are there significant mean differences between the levels of the independent variable, a) role, b) age group, c) gender, and d) AI optimism, and the dependent variable, a) AI Engagement and b) AI literacy?

RQ 5: Are higher education stakeholders optimistic about the impact of AI on higher education, and are there significant associations between the stakeholders' roles?

Literature Review

An examination of the literature reveals that academics are researching, discussing, and reporting at an astonishing rate to keep pace with the rapid advancement of AI innovation and its widespread adoption. The recent disruption of AI is demonstrated by the exponential rise of peer-reviewed articles on the subject that are available in GALILEO, Georgia's online library, which hosts over 100 databases indexing thousands of journals (Board of Regents of the University System of Georgia, 2024). While AI has been researched since the 1950s, the number of peer-reviewed articles on AI has more than doubled ($N = 598{,}312$, 50.8%) since the release of OpenAI software in 2022. The exponential growth in the availability of peer-reviewed publications is joined by numerous professional development opportunities, including conferences, communities of practice, and workshops, which provide participants with opportunities to learn more about this disruptive technology.

AI Engagement

While a plethora of information on AI is available, this study aims to discover the extent to which higher education stakeholders are engaged with AI. While previous studies have explored the usage of AI among stakeholders, this study conceptualizes a broader picture of engagement as an active discovery and application of knowledge (Duderstadt, 2003). By applying this definition in context, AI Engagement refers to active participation in the discourse around AI and interaction with AI technologies. This includes using

AI tools and platforms in various contexts, such as education, work, and daily life. AI Engagement pairs hands-on experience with AI applications with the consumption of information about AI from news, social media, professional development, and peer conversations. Research suggests that information acquisition, dissemination, and use have positive associations with attitude and task performance (Kunst et al., 2018). Assessing AI Engagement quantifies participants' utilization and involvement in the discourse surrounding AI, providing a more comprehensive measure of stakeholder interest and use.

Researchers have studied students' and faculty members' knowledge acquisition and use of AI tools, but a significant gap remains concerning staff engagement. A chronological examination of studies on students' use of AI tools hints that engagement is on the rise. An Australian study from March 2023 reported that 41% of the student respondents knew little to nothing about AI tools such as ChatGPT, and less than 50% of the students who reported having any knowledge had never utilized AI tools (Kelly et al., 2023). A month later, in April 2023, a study of Hong Kong undergraduate and graduate students showed that 33.3% of the respondents had never used GenAI technology (C. K. Y. Chan & Hu, 2023). The number of students who are inexperienced with AI continues to decline. According to a recent study, ChatGPT was used for academic purposes by all 499 students surveyed (Acosta-Enriquez et al., 2024).

Similarly, research indicates that faculty members are becoming increasingly familiar with AI and using AI tools in the classroom. In a sizeable Bulgarian study of 2252 teachers, 72% reported some familiarity with AI technology, while 51% were actively using it in their teaching. This study found four factors that showed a significant association with AI training attendance. Females, rurally located, with connections to STEM or high usage were more receptive to AI training than their male, urban, humanities, and low usage counterparts (Kurshumova, 2024).

While faculty remain skeptical, students reported optimism about integrating AI tools into their academic and professional lives, but are apprehensive about accuracy, transparency, privacy, and ethics (C. K. Y. Chan & Hu, 2023). Kelly et al. (2024) reported that usage rates correlated with increased confidence in using AI ethically. Researchers such as Lee et al. (2024) emphasize the importance of involving students in the communities of practice surrounding AI and engaging in discussions about AI. However, despite the ability for AI to transform higher education business practices, staff perspectives are underrepresented in research.

AI Literacy

The ability to use and evaluate applications that use AI is critical due to its disruptive force. Chiu et al. (2024) found unanimous agreement among teachers that AI Literacy education must include engaged experiences. However, current research shows that only a minority of students have been exposed to an AI-specific lecture, indicating a need to establish AI education for all students, including informal learning spaces (Hornberger et al., 2023). Research has shown that individuals with AI literacy can critically evaluate AI systems, understand their impact on society, and use AI tools effectively (Ren & Wu, 2025). AI literacy encompasses not only technical skills but also ethical considerations and an understanding of AI's potential benefits and risks. This study will examine higher educational stakeholder **AI Literacy**, or the foundational skills and knowledge required to evaluate, utilize, and create with AI effectively (Berry, 2023).

As these tools are officially and unofficially integrated into the educational process, higher education stakeholders must be equipped with AI literacy. Long and Magerko (2020) provide a definition for AI literacy as "a set of competencies that enables individuals to evaluate AI technologies critically; communicate and collaborate effectively with AI; and use AI as a tool online, at home, and in the workplace" (p. 2). Assessing AI Literacy enables researchers to quantify progress toward foundational skills for understanding, utilizing, and critically evaluating AI systems and their outputs (Lintner, 2024). This data is valuable for HEI institutional administrators who guide communities of practice and professional development opportunities.

Research has shown that students with higher levels of AI literacy will have a better understanding of technological capabilities and limitations. Ongoing initiatives to improve AI literacy can demystify the tool and provide a higher level of satisfaction and creativity (Al-Abdullatif & Alsubaie, 2024). Recent research has shown moderately high AI literacy rates among HEI stakeholders (Asio, 2024). AI literacy research informs the training needs of users to develop the competencies necessary for detecting the use of AI, critically evaluating AI outputs, engaging in practical applications of AI, and understanding its limitations.

Researchers have crafted multiple scales to assess AI literacy. Laupichler et al., (2023) explored the development of a Scale for Assessing the AI Literacy of non-experts (SNAIL). Through a review of research and SME discussions, the researcher developed a pool of 47 items. The final 31-item questionnaire is categorized into three subfactors influencing AI literacy: technical understanding, critical appraisal, and practical application. Another measure, the AI literacy Test, consists of 30 multiple-choice questions that provide objective literacy scores (Hornberger et al., 2023). However, because of the rapid development of AI tools, these objective questions will be constantly under scrutiny (Lintner, 2024). For this study, Wang et al. (2022) AI Literacy Scale (AILS) was selected for its "robust quality evidence" for validity, reliability, and consistency (Lintner, 2024, p. 7). AILS self-report items over four dimensions: awareness, usage, evaluation, and ethics.

This study will examine the two dependent variables, AI Literacy and AI Engagement, to identify significant relationships. Exploring these relationships can provide insights into how exposure to AI can enhance literacy. For administrators, evaluating these factors offers an understanding of stakeholders' needs and desires, which can inform decisions on policy and training while driving innovation. Additionally, this study analyzes the data based on independent variables: gender, age, and educational role (student, faculty, staff). It will also investigate group differences based on respondents' self-classification of AI optimism, which is the belief that, considering all risks and benefits, AI will yield more positive than negative outcomes when implemented in higher education. Understanding the contributions of independent variables may highlight differences that can shape strategies for improving AI engagement and literacy training. Finally, this research will examine the relationships between each internal stakeholder role in higher education and their perceptions of whether AI will be more beneficial than detrimental.

Examining AI Engagement and AI Literacy among higher education institution stakeholders is vital for making informed decisions about resource allocation and policy recommendations. Grasping these measures is crucial for ensuring that all higher education stakeholders can fully leverage AI's potential while minimizing risks such as information bias, hallucinations, and concerns related to academic integrity. These insights will guide the adoption of AI in higher education, help target training efforts, and permit the evaluation of the effectiveness of information dissemination about AI in higher education.

Methodology

Sample

Following approval by the Institutional Review Board, the survey was distributed via institutional email listservs to students (n = 3,435), faculty (n = 205), and staff (n = 297). The sample participants are from a state college in the southeastern United States, where the author is employed. This convenience sample population was selected because of the practical application of the research and its availability. All participants were presented with a disclosure statement of informed consent, assured of the confidentiality and anonymity of their responses, and were 18 years of age or older. Participation was not required by institutional administration. One follow-up invitation to participate was sent one week after the initial email. Responses were collected for two weeks.

Instrumentation

The instrument distributed was composed of 19 questions (Appendix A). The first section assesses both dependent variables, AI Engagement and AI literacy. It includes five statements adapted from Kunst et al. (2018) to obtain respondents' AI Engagement and ten statements adapted from Wang et al. (2023) Artificial Intelligence Literacy Scale (AILS). All statements ask participants to rate their level of agreement with the statements using a five-point Likert scale, where 1 = Disagree, 2 = Somewhat Disagree, 3 = Neutral, 4 = Somewhat Agree, and 5 = Agree. Four additional questions assess the participant's independent variables categories, including Age (1=18-24, 2=25-34, 3=35-44, 5=45-54, 6=55-64, 6=65+), Gender (1=Male, 2=Female, 3=Other), HEI Stakeholder Role (1=Student, 2=Instructor, 3=Staff), and AI Optimism. Participants' AI Optimism is categorized based on a single five-point Likert scale response to the belief that GenAI will produce more good than bad in higher education, considering both the risks and benefits (1 = Disagree, 2 = Somewhat Disagree, 3 = Neutral, 4 = Somewhat Agree, 5 = Agree). To increase response validity, the Likert response questions were randomized.

Procedures

Data was collected for two weeks with a follow-up invitation to participate at the start of the second week. Descriptive statistics and statistical analytical methods were employed to answer research questions one and two. Additionally, research question three is assessed by calculating a correlation to measure the linear relationship between AI Engagement and AI Literacy (Knapp, 2018).

The data will be subjected to group variance analysis to test the significance of group differences between one independent variable and one continuous dependent variable, allowing exploration of research question four. The independent grouping variables are Age, Gender, HEI Stakeholder Role, and AI Optimism. The dependent variables include respondents' AI Information Acquisition Orientation and AI Literacy. The most common variance analysis technique is the one-way analysis of variance, often abbreviated as ANOVA (Knapp, 2018). For statistical tests such as ANOVA to provide robust results, the data must meet the criteria of normality, n quota, and homogeneity of variance. A nonparametric test will be utilized where significant deviations from these assumptions occur. For analysis where there are more than two groups, a post hoc test will be conducted (Koohang et al., 2024).

To explore research question five, the association between two categorical variables — HEI Stakeholder Role and AI Optimism — the researcher utilized a chi-square test for independence. This robust measure allows the comparison of two categorical variables even with unbalanced sample sizes, as long as each cell in the analysis has five or more values (Knapp, 2018). For all statistical tests, an alpha value of $p = .05$ will be used.

Results

Survey data were collected from 251 participants. Forty-four (44) results were excluded due to incomplete responses or declining to participate after being presented with an informed consent statement. The participants' demographic frequencies are presented in Table 1 for the studied independent variables: role, gender, age range, and optimism toward AI in higher education. The response rate for the survey varied, with faculty being the most willing to participate (30.24%), followed by staff (17.17%), and only 2.73% of the student population returned a completed survey.

Table 1: Frequency, Means, and Standard Deviation

Variable	Group	N	%	AI Literacy		AI Engagement	
				Mean	Std. Deviation	Mean	Std. Deviation
All		207	100	3.33	.82	2.64	.82
Role	Faculty	62	30.0	3.28	0.83	2.88	0.85
	Staff	51	24.6	3.04	0.87	2.56	0.90
	Student	94	45.4	3.52	0.75	2.54	0.79
Age	18-24	83	40.1	3.52	0.73	2.50	0.81
	25-34	21	10.1	3.46	0.79	2.84	0.80
	35-44	30	14.5	3.34	0.76	2.71	0.88
	45-54	32	15.5	3.33	0.97	3.13	0.91
	55-64	32	15.5	2.83	0.83	2.42	0.75
	65 or older	9	4.3	3.09	0.72	2.42	0.67
Gender	Male	77	37.2	3.32	0.79	2.76	0.90
	Female	127	61.4	3.36	0.85	2.61	0.79
	Non-binary/ Third Gender	3	1.4	2.50	0.17	1.33	0.23
Optimism	Strongly Disagree	46	22.2	2.97	0.75	2.24	0.68
	Somewhat Disagree	42	20.3	3.19	0.77	2.37	0.67
	Neither agree nor disagree	49	23.7	3.23	0.75	2.66	0.90
	Somewhat agree	37	17.9	3.50	0.68	2.85	0.68
	Strongly agree	33	15.9	3.98	0.88	3.30	0.91

Literacy and Engagement

Regarding research question one, to assess the level of AI literacy among higher education stakeholders, participants were asked to respond to ten statements about their ability to detect, evaluate, utilize, and comprehend the limitations of AI. Responses to these questions were averaged to compute participants' AI Literacy score (M = 3.33, SD = 0.82, Skewness = -0.46, Kurtosis = 0.02). Overall, participants generally fell between ‘neither agree nor disagree’ and ‘somewhat agree’ that they were prepared with AI literacy skills.

Regarding research question two, AI Engagement scores were assessed based on participants' responses to five statements about their engagement with AI, including use, discussion with peers, and information consumption. Responses to these questions were averaged to compute participants' AI Engagement score (M = 2.64, SD = 0.82, Skewness = 0.10, Kurtosis = -0.68). Overall, participants fell between 'somewhat disagree' and 'neither agree nor disagree' when asked if they frequently engaged in AI usage or discourse.

To answer research question three, a Pearson correlation coefficient test was used to examine the strength and direction of the relationship between AI Engagement and AI Literacy. A significant correlation was found between the two dependent components, AI literacy and AI Engagement, $r\,(207) = .52, p < .001$. The data shows a moderate positive correlation between AI Literacy and AI Engagement scores for higher education stakeholders.

Group Variances

Regarding research question four, to assess significant mean differences between the levels of the independent variables, responses were grouped by the reported independent variables to compare calculated scores for AI Literacy and AI Engagement. To obtain robust results with ANOVA, the data must meet the criteria of normality, sample size, and homogeneity of variance. A Shapiro-Wilk test was conducted to measure the normality of the distribution of the dependent variable value for each category, and the results are reported in Appendix B. In some instances, these tests confirmed deviations from normal distributions. However, Knapp (2018) suggests examining group frequency histogram graphs to determine if the use of nonparametric tests is more appropriate due to extreme deviations in normal distributions. Knapp's recommendation is in line with the findings of Blanca et al., (2017) who demonstrated the validity of *the F*-test in various non-normality conditions and suggested examining graphical representations of data to aid in interpreting the results. Therefore, unless noted, the deviations from normality were determined not to affect AVOVA results.

Role

Responses were grouped by reported role to compare calculated scores for AI Literacy and AI Engagement. The results of the ANOVA indicated significant group differences for the independent variable of stakeholder Role and the dependent variables of AI Literacy, $F(2, 204) = 6.03, p < .003$, and AI Engagement, $F(2, 204) = 3.55, p = .03$. Levene's test for homogeneity of variance failed to reject the null hypothesis for AI Literacy and AI Engagement, which was $p = .25$ and $p = .36$, respectively, indicating the variances are likely similar. Tukey post hoc tests reveal significant differences in AI Literacy and AI Engagement, as shown in Table 2. Staff report significantly less AI literacy than students, while Faculty are significantly more engaged with AI than Students.

Table 2: Multiple Comparisons – Role

		Literacy			Engagement		
		Mean Difference	Std. Error	Sig.	Mean Difference	Std. Error	Sig.
Faculty	Staff	0.24	0.15	.25	0.32	0.16	0.1
Staff	Student	-0.48	0.14	.002	0.02	0.15	.99
Student	Faculty	0.24	0.13	.17	-0.34	0.14	.03

Age

Responses were grouped by reported age to compare calculated scores for AI Literacy and AI Engagement. The results of the ANOVA indicated significant group differences for the independent variable of Age and the dependent variables of AI Literacy, $F(5, 201) = 3.74$, $p = .003$, and AI Engagement, $F(5, 201) = 3.60$, $p = .004$. Levene's test for homogeneity of variance failed to reject the null hypothesis for AI Literacy and AI Engagement, with p-values of .36 and .35, respectively, indicating that the variances are likely similar. Tukey post hoc tests show significant differences in AI Literacy between 18-24 year-olds and 55-64 year-olds ($p < .001$) and AI Engagement between 18-24 year-olds and 45-54 year-olds ($p = .004$), and 45-54 year-olds and 55-64 year-olds ($p = .009$). Younger stakeholders reported higher AI literacy, while those aged 45-54 reported higher AI Engagement.

Table 3: Multiple Comparisons – Age

		Literacy			Engagement		
		Mean Difference	Std. Error	Sig.	Mean Difference	Std. Error	Sig.
18-24	25-34	0.06	0.20	1.00	-0.34	0.20	.54
18-24	35-44	0.18	0.17	.89	-0.21	0.17	.84
18-24	45-54	0.19	0.17	.86	-0.63	0.17	.004
18-24	55-64	0.69	0.17	.001	0.08	0.17	1.00
18-24	65+	0.43	0.28	.64	0.08	0.29	1.00
25-34	35-44	0.12	0.23	.99	0.13	0.23	.99
25-34	45-54	0.13	0.22	.99	-0.29	0.23	.81
25-34	55-64	0.63	0.22	.06	0.42	0.23	.46
25-34	65+	0.37	0.32	.86	0.42	0.33	.80
35-44	45-54	0.01	0.20	1.00	-0.42	0.21	.34
35-44	55-64	0.51	0.20	.13	0.29	0.21	.74
35-44	65+	0.25	0.30	.96	0.28	0.31	.94
45-54	55-64	0.50	0.20	.13	0.71	0.21	.009
45-54	65+	0.24	0.30	.97	0.70	0.31	.21
55-64	65+	-0.26	0.30	.95	0.00	0.31	1.00

Gender

Responses were grouped by reported role to compare calculated scores for AI Literacy and AI Engagement. Responses indicating "Non-binary/Third Gender" were excluded from calculations due to an inadequate sample size (Knapp, 2018). As shown in Appendix B, the Shapiro-Wilk scores for Male AI Literacy and Female AI Engagement differ significantly from the normal distribution. Additionally, Levene's test for homogeneity of variance failed to reject the null hypothesis for AI Literacy (p = .62), indicating the variances are likely similar. However, for AI Engagement, significant results (p = .06) indicate the variances between optimism groups for AI Engagement are significantly dissimilar. A non-parametric test was chosen as a suitable alternative, and since there are only two categories, a Mann-Whitney U test was selected and performed. The test results failed to reject the null hypothesis of gender differences for the dependent variables AI Literacy (z = 5253, p = .37) and AI Engagement (z = 4354, p = .19). Male and Female AI Literacy and AI Engagement scores did not differ significantly.

Optimism

Responses were grouped by reported optimism to compare calculated scores for AI Literacy and AI Engagement. Levene's test for homogeneity of variance failed to reject the null hypothesis for AI Literacy (p = .61), indicating the variances are likely similar. However, for AI Engagement, significant results (p = .013) indicate the variances between optimism groups for AI Engagement are significantly dissimilar. As a result of these deviations from ANOVA assumptions, the Kruskal-Wallis non-parametric test was selected for comparing group scores. A Kruskal-Wallis H test revealed a significant difference in the dependent variable AI Literacy, $H(4) = 35.41$, $p < .001$, and AI Engagement, $H(4) = 35.35$, $p < .001$, between the five optimism groups.

Pairwise comparison, adjusted by the Bonferroni correction for multiple tests, show higher AI Literacy scores for those who "strongly agree" than those who "neither agree nor disagree ($p < .001$)," "somewhat disagree ($p < .001$)," and "strongly disagree ($p < .001$)." "Somewhat agree" scores for AI literacy distributions are significantly higher than those who "strongly disagree (p = .025)." For AI Engagement, participants who responded, "strongly agree" to optimistic outlooks of AI in higher education had significantly higher score distributions than those who responded, "strongly disagree (p < .001)," "somewhat disagree (p = .004)," and "neither agree nor disagree (p = .027)." Participants who responded with "somewhat agree" scores distributions were higher in AI Engagement than those who responded with "strongly disagree (p = .004)" or "somewhat disagree (p = .04)."

Stakeholder Role and Optimism

To answer research question five, a chi-square test of independence was performed to evaluate the relationship between the participant's role and reported AI Optimism. The relationship between these variables is significant: $\chi^2(8, 207) = 18.25$, p = .02. Post hoc comparisons revealed that faculty reported more 'neither agree nor disagree' responses and fewer 'somewhat agree' responses than students did for AI optimism scores. Staff reported fewer 'strongly disagree' responses and more 'somewhat disagree' responses than did students for AI optimism.

Discussion

This study sets out to examine the AI Engagement and AI Literacy of higher education stakeholders. The study aimed to contribute to the understanding of students', faculty's, and staff's perceptions of their abilities and current experiences. Overall, the calculated means and distributions indicate that stakeholders, although neutral, tended to agree that they were prepared with AI literacy skills or the ability to evaluate AI systems critically, understand their impact on society, and use AI tools effectively. These results align with previous research, which has reported similar mean scores (Asio, 2024; Wood et al., 2021). Additionally, higher education stakeholders were neutral but tended to disagree that they were frequently engaged with AI. This finding could reflect the uncertainty of AI's future role in education, as discussed in K-12 AI research on faculty perceptions by Velander et al. (2024). Further study should be conducted to determine differences in stakeholders' lack of confidence in the tools or the uncertainty of policy requirements.

The data shows a moderate positive correlation between AI Literacy and AI Engagement scores for higher education stakeholders. These findings align with a growing body of research that suggests that individuals with higher AI Literacy are more engaged with using or learning about AI. Long & Magerko (2020) indicated that individuals with formal AI training were more confident in interactions with AI systems. Higher education institutions aiming to cultivate a more AI-savvy academic community should utilize communities of practice for faculty and staff training (Hur, 2025). Course designs that emphasize engagement and literacy instruction would prepare students for the future workforce (Cruz, 2024; Cullen & Kirkpatrick, 2024; Ng et al., 2024).

Differences in stakeholder roles for higher education were found in relation to AI Literacy. Staff scored significantly lower than students, indicating that they feel unprepared to detect, use, and evaluate AI tools. While these results could indicate that students overestimate their AI literacy, they could also represent a lack of staff training opportunities and transparent policies regarding the use of AI in higher education administration. (Moorhouse et al., 2023). Additionally, this study found that Faculty report significantly higher AI Engagement scores than students; however, student scores did not differ from Staff AI Engagement scores.

Younger respondents in the 18-24 age range reported higher levels of literacy than those in the 55-64 age range, suggesting that younger individuals are more confident in using and evaluating AI tools. Research shows that ‘digital natives’ have more exposure to AI technology through education and daily life (Brown & Lewis, 2022). Participants aged 45-54 had the highest AI engagement scores, indicating that these stakeholders are more cognitively involved in the AI discourse. This finding aligns with historical findings of Generation X as early adopters who came of age as technology matured (Roddy, 2024). Some researchers found that these ‘digital immigrants’ confidently adopt emerging technology (C. K. Y. Chan & Lee, 2023).

While other studies have found significant differences in AI literacy and engagement, this study did not find any differences between male and female participants. These findings suggest an inclusive environment with a balanced perspective and equal access to opportunities for engagement and learning about AI.

Participants who expressed stronger optimism about AI’s potential effects on higher education reported significantly higher AI literacy and AI Engagement scores, suggesting that their positive outlook is related to their preparedness to use and understand AI tools. These findings are in line with research on the technology acceptance model, which indicates that perceived usefulness and ease of use influence adoption (M. Wang et al., 2024). Future AI literacy training should identify and address the concerns of participants who are less optimistic.

The participant's role was found to have significant associations with AI Optimism. Students were more optimistic, while faculty were more likely to report neutral opinions, and staff were more likely to be skeptical about AI in higher education. This significant finding underscores the importance of future research on the perspectives of higher education staff.

Limitations and Future Research

This study gathered a significant number of participants. However, the low response rate from students raises concerns about the generalizability of the sample. Low response rates might have introduced non-response bias, meaning the opinions and experiences of non-respondents could differ.

Additionally, the study relies on self-reported data. Respondents' perceptions of their ability to analyze, evaluate, use, and engage with AI may not reflect their actual skill level. In addition, stakeholders may engage with embedded AI features more frequently than reported due to technology normalization, as discussed by Bax, as the point when technology becomes invisible and taken for granted in everyday life (Zimotti et al., 2024). Future research should evaluate stakeholders using objective tools to measure AI Literacy and AI Engagement. Practical assessments or observational studies would be a valuable addition to self-report surveys, providing a more accurate picture of stakeholders' skills and engagement.

Finally, future research could adopt a longitudinal research design to track changes in AI Literacy and engagement over time. Although unattainable within the current study's limitations, longitudinal research would provide valuable insights into how exposure to AI tools and educational interventions affects engagement, optimism, and literacy. This would be particularly useful for understanding the long-term impact of AI integration in education.

By addressing these limitations and exploring these future research opportunities, scholars can gain a deeper understanding of how to foster effective engagement with AI in higher education and promote AI literacy across diverse academic communities.

Conclusion

This study examines the varying levels of AI Literacy and AI Engagement among higher education stakeholders. Its notable contribution to the literature is the examination of staff roles in addition to the highly researched roles of faculty and students. The study found that participants in different roles report significantly different AI literacy and AI Engagement. Specifically, staff AI Literacy distributions are lower than those of students and faculty. This addition provides a more rounded discussion of institutional opinions and identifies an underserved population in need of AI Literacy training.

Other notable findings include that faculty are significantly more engaged with AI than students or staff. For age, younger individuals tend to report higher AI Literacy, while middle-aged individuals report more frequent AI Engagement. Additionally, those who are more optimistic about AI's potential in higher education demonstrate both higher AI Literacy and AI Engagement. Notably, gender did not significantly impact either variable, indicating that AI-related skills and engagement are not influenced by gender in this sample.

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Appendix A

Survey of AI Engagement and AI Literacy

For questions 1-16, please carefully read each prompt and rate the level at which you agree with each statement.

1= Strongly Disagree, 2= Somewhat Disagree, 3= Neither agree nor disagree, 4= Somewhat Agree, 5= Strongly Agree

1. I can identify inaccurate responses provided by AI.
2. I can identify when AI technology is used in applications and products.
3. I can skillfully use AI applications or products to help me with my daily work.
4. I can quickly learn to use a new AI application or product.
5. I can use AI prompt engineering strategies to improve my work efficiency.
6. I can evaluate an AI application or product's capabilities and limitations.
7. I can choose the most appropriate AI model, application, or product for a particular task.
8. I understand and comply with ethical principles when using AI applications or products.
9. I am alert to privacy and information security issues when using AI applications or products.
10. I can identify when AI technology is being abused.
11. I frequently consume information about AI from academic sources, books, journals, or conferences.
12. I frequently consume information about AI from social media, news, television, or the internet.
13. I frequently engage in conversations about AI with my peers.
14. I frequently utilize AI tools for entertainment.
15. I frequently use AI for work.
16. Considering the risks and benefits, I believe AI will produce more good than bad in higher education.
17. What is your primary role?
18. 1= Faculty, 2=Staff, 3=Student
19. What is your gender?
20. 1=Male, 2=Female, 3=Non-binary / third gender
21. Please select your age group
22. 1=18-24, 2=25-34, 3=35-44, 4=45-54, 5=55-64, 6=65+

Appendix B

Shapiro-Wilk Normality Test for each Independent Variable Group

	df	AI Literacy Shapiro-Wilks	Sig.	AI Engagement Shapiro-Wilks	Sig.
Role					
Faculty	62	0.98	.57	0.97	.16
Staff	51	0.96	.06	0.95	.048
Student	94	0.97	.04	0.98	.08
Age					
18-24	83	0.97	.10	0.97	.08
25-34	21	0.93	.16	0.95	.33
35-44	30	0.98	.89	0.96	.32
45-54	32	0.96	.32	0.96	.30
55-64	32	0.94	.09	0.96	.27
65+	9	0.91	.34	0.95	.71
Gender					
Male	77	0.99	.65	0.96	.02
Female	127	0.96	< .01	0.98	.11
AI Optimism					
Strongly disagree	46	0.95	.04	0.96	.09
Somewhat disagree	42	0.97	.37	0.98	.54
Neither agree/ disagree	49	0.97	.29	0.96	.06
Somewhat agree	37	0.90	< .01	0.91	< .01
Strongly agree	33	0.87	< .01	0.94	.07