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AI ETHICS IN ACADEMIC SOCIAL NETWORKS: INFORMATION LITERACY AND NON-TECHNICAL OUTPUT SHARING

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Abstract: The integration of artificial intelligence features into Academic Social Networking Sites (ASNS) has fundamentally transformed scholarly communication practices, yet little is known about how researchers navigate the ethical complexities of AI-augmented sharing of non-technical research outputs. This study investigates the relationship between AI literacy and ethical awareness among researchers sharing datasets, software, protocols, and supplementary materials on platforms including ResearchGate, Academia.edu, and Mendeley. Employing a mixed-methods approach, we surveyed 425 researchers across disciplines and conducted 35 semi-structured interviews to examine current practices, challenges, and perceptions. Results reveal a significant literacy-awareness gap, with researchers demonstrating moderate AI literacy (M = 58.4%) but lower ethical awareness regarding data privacy (M = 52.1%) and intellectual property implications (M = 48.7%). Correlation analysis identified strong relationships between platform trust and sharing behavior ($r = 0.72$, $p < 0.001$), while regression modeling revealed that AI literacy scores significantly predicted ethical decision-making ($\beta = 0.45$, $p < 0.001$). The study proposes an integrated AI-Ethical Literacy Framework encompassing awareness, skills, behavior, and advocacy domains. Findings have implications for information professionals developing training programs, platform designers implementing ethical AI features, and policymakers establishing guidelines for responsible scholarly communication in the AI era.

Keywords: Artificial Intelligence, Academic Social Networks, Information Literacy, Information Ethics, Non-Technical Research Outputs, Scholarly Communication, Research Data Sharing, AI Literacy.

1.0 Introduction

The landscape of scholarly communication has undergone a profound transformation with the emergence of Academic Social Networking Sites (ASNS) such as ResearchGate, Academia.edu, and Mendeley. These platforms have evolved beyond simple profile management and paper repositories into sophisticated ecosystems powered by artificial intelligence algorithms that shape how researchers discover, share, and evaluate scholarly content. The integration of AI features—including automated recommendations, citation analysis, co-author discovery, and predictive impact metrics—has created unprecedented opportunities for scholarly collaboration while simultaneously introducing complex ethical challenges that the academic community is only beginning to understand.

As AI becomes increasingly embedded in scholarly workflows, researchers face a critical imperative: developing the competencies necessary to navigate these AI-augmented environments responsibly. Traditional conceptualizations of information literacy, while foundational, prove insufficient for addressing the unique challenges posed by algorithmic mediation of scholarly communication. Researchers must now possess not only the ability to find, evaluate, and use information but also to understand how AI systems influence these processes, recognize potential biases in algorithmic recommendations, and make ethical decisions about data sharing in environments where personal and professional boundaries are increasingly blurred.

The sharing of non-technical research outputs—datasets, software, protocols, preprints, and supplementary materials—represents a particularly critical area of concern. Unlike traditional publications with established norms and peer review processes, these outputs often lack clear guidelines for ethical sharing, attribution, and reuse. AI-powered features on ASNS can automatically extract metadata, generate summaries, and make sharing recommendations without researchers fully understanding the implications for data privacy, intellectual property,

and attribution. The tension between open science imperatives and ethical considerations becomes particularly acute when AI systems are involved in mediating these sharing decisions.

Despite the growing significance of these issues, empirical research examining researchers' AI literacy and ethical awareness in the context of ASNS remains scarce. Existing studies have focused primarily on AI adoption in libraries (Cox et al., 2023), ethical considerations in AI-assisted writing (Gkinko & Kolb, 2023), or general patterns of ASNS usage (Mohammed & Asiri, 2024). No study to date has systematically investigated how researchers' AI literacy relates to their ethical decision-making when sharing non-technical outputs on these platforms. This gap represents a significant oversight given the central role that ASNS play in contemporary scholarly communication and the accelerating integration of AI features into these platforms.

This study addresses this critical gap through a comprehensive examination of researchers' AI literacy and ethical awareness in the context of AI-augmented scholarly sharing. The research is guided by the following objectives: (1) to assess researchers' AI literacy in relation to AI-powered features on ASNS; (2) to evaluate ethical awareness regarding data privacy, intellectual property, and attribution when sharing non-technical outputs; (3) to examine the relationship between AI literacy and ethical decision-making in scholarly communication; and (4) to propose an integrated framework for AI-ethical literacy that can inform training programs and platform design. The findings have implications for information professionals, platform developers, policymakers, and researchers seeking to navigate the evolving landscape of AI-mediated scholarly communication.

2.0 Literature Review

2.1 Academic Social Networking Sites and Scholarly Communication: Academic Social Networking Sites have fundamentally altered the landscape of scholarly communication, creating new channels for dissemination, collaboration, and impact tracking. ResearchGate, launched in 2008, has grown to over 25 million registered users, while Academia.edu reports more than 230 million monthly visitors (ResearchGate, 2024; Academia.edu, 2024). These platforms have evolved from simple profile management tools into comprehensive scholarly ecosystems offering features such as paper repositories, citation tracking, question-and-answer forums, and job listings. Mohammed and Asiri (2024) conducted a systematic review of 115 studies on ASNS usage, finding that researchers primarily use these platforms for self-archiving, discovering relevant literature, and expanding professional networks.

The integration of AI into ASNS represents a significant evolution in platform capabilities. ResearchGate's "RG Score" algorithm, introduced in 2014, uses machine learning to calculate researcher impact based on publications, questions, answers, and followers (ResearchGate, 2024). Academia.edu employs AI-powered recommendation systems to suggest relevant papers and potential collaborators. Mendeley, acquired by Elsevier in 2013, uses AI for literature recommendations and citation management. These features fundamentally shape researchers' information discovery and sharing behaviors, yet their implications for information literacy and ethical practice remain underexplored.

Recent scholarship has highlighted both the opportunities and challenges presented by ASNS. Hanneke and O'Brien (2023) found that researchers who actively engage with ASNS report higher citation counts and broader collaboration networks, suggesting tangible benefits to platform participation. However, concerns have been raised about data privacy, with Al-Khalifa and Al-Ayed (2023) documenting how ASNS collect and utilize researcher data in ways that users may not fully understand. The commercial nature of these platforms raises questions about the commodification of scholarly content and the potential for algorithmic manipulation of research visibility.

2.2 AI Literacy and Information Literacy in Academic Contexts: The concept of AI literacy has emerged as a critical competency in contemporary society, yet its application to scholarly communication contexts remains nascent. Long and Magerko (2020) defined AI literacy as "a set of competencies that enables individuals to critically evaluate AI technologies; communicate and collaborate effectively with AI; and use AI as a tool online, at home, and in the workplace." This definition emphasizes critical evaluation and effective use, competencies that are directly relevant to researchers navigating AI-powered scholarly platforms. However, the translation of these general competencies into discipline-specific practices for scholarly communication has received limited attention.

Traditional information literacy frameworks provide a foundation but require extension for the AI era. The Association of College and Research Libraries (ACRL) Framework for Information Literacy (2015) identifies six frames, including "Authority Is Constructed and Contextual" and "Information Has Value," both of which are directly relevant to evaluating AI-generated recommendations and understanding the value implications of sharing decisions. However, the framework does not explicitly address algorithmic mediation of information access or the ethical complexities introduced by AI systems. Several scholars have called for updating information literacy frameworks to incorporate AI competencies, though consensus on the essential components remains elusive.

Recent empirical studies have begun to examine AI literacy in academic contexts. Ng et al. (2023) surveyed 500 university students and found that self-reported AI literacy was significantly correlated with critical thinking dispositions and information evaluation skills. However, their measure focused on general AI understanding rather than the specific competencies needed for scholarly communication. Similarly, UNESCO's AI and Education guidance (2023) emphasizes the importance of AI literacy for all citizens but provides limited guidance for researchers engaging with AI-powered scholarly platforms. The gap between general AI literacy and discipline-specific AI competencies for scholarly communication represents a significant area requiring further investigation.

2.3 Information Ethics and Scholarly Communication: Information ethics provides a crucial lens for examining the moral dimensions of AI-augmented scholarly communication. Floridi (2019) identified several ethical principles for AI systems, including transparency, accountability, and fairness, principles that are directly applicable to ASNS. When AI algorithms determine which papers are recommended, whose profiles appear in searches, and how research impact is calculated, questions of transparency and fairness become paramount. Researchers may be unaware of how algorithmic decisions affect their scholarly visibility and, consequently, their career trajectories. The ethical implications of these algorithmic mediations have received insufficient attention in the literature.

The sharing of non-technical research outputs introduces additional ethical complexities. Unlike peer-reviewed publications with established attribution norms, datasets, software, and protocols often lack standardized citation practices and may involve multiple stakeholders with competing interests. Wilkinson et al. (2016) articulated the FAIR principles (Findable, Accessible, Interoperable, Reusable) for research data, which have been widely adopted as guidelines for responsible data sharing. However, the interaction between FAIR principles and AI-powered sharing recommendations on ASNS remains unexplored. When AI systems automatically extract metadata and generate sharing suggestions, researchers may share outputs without fully considering privacy implications or intellectual property rights.

Recent scandals involving AI-generated scholarly content have heightened ethical concerns. Labbé (2024) documented numerous instances of AI-generated papers appearing in scholarly databases, raising questions about the integrity of academic publishing in the AI era. While these cases involve the generation rather than sharing of content, they illustrate the broader ethical challenges posed by AI in scholarly communication. Gkinko and Kolb (2023) surveyed researchers' attitudes toward AI-assisted academic writing, finding widespread concern about authorship attribution and the potential for AI to facilitate academic misconduct. These concerns extend to the sharing of non-technical outputs, where AI involvement in metadata extraction and summary generation may introduce errors or misattributions.

2.4 Non-Technical Research Outputs in Open Science: The open science movement has increasingly emphasized the importance of sharing non-technical research outputs alongside traditional publications. Datasets, software, protocols, and supplementary materials represent valuable scholarly contributions that enable reproducibility, facilitate collaboration, and accelerate scientific progress. Katz et al. (2021) estimated that research data alone represent billions of dollars in annual investment, much of which is lost when data are not properly shared and preserved. Major funding agencies, including the National Institutes of Health and the European Research Council, now require data management plans and encourage open sharing of research outputs.

ASNS have become important venues for sharing non-technical outputs, offering researchers convenient platforms for data deposition and discovery. ResearchGate allows researchers to upload datasets and

supplementary materials alongside publications, while Mendeley Data provides specialized infrastructure for dataset sharing. However, the policies and practices governing these uploads vary across platforms, and researchers may not fully understand the implications of their sharing decisions. Prityhenko (2024) examined data sharing practices on ResearchGate, finding that a significant proportion of uploaded datasets lack proper documentation or licensing information, potentially limiting their reuse and raising ethical concerns about informed consent and intellectual property.

The integration of AI into these sharing workflows introduces additional considerations. AI-powered features can automatically extract metadata from uploaded files, generate summaries of dataset contents, and recommend related datasets to users. While these features enhance discoverability and usability, they may also expose sensitive information or make inferences that researchers did not intend. Furthermore, the algorithms underlying these features are typically proprietary, raising concerns about transparency and accountability. The tension between AI-enhanced functionality and ethical practice represents a critical challenge for the scholarly community.

2.5 Research Gap: Despite the growing importance of AI in scholarly communication, significant gaps remain in our understanding of how researchers navigate these AI-augmented environments. While studies have examined AI adoption in libraries, general ASNS usage patterns, and ethical considerations in AI-assisted writing, no research has systematically investigated the relationship between researchers' AI literacy and their ethical awareness when sharing non-technical outputs on AI-powered scholarly platforms. This gap is particularly significant given the accelerating integration of AI features into ASNS and the increasing importance of non-technical outputs in open science frameworks.

Furthermore, existing conceptualizations of AI literacy have not been adequately adapted for scholarly communication contexts. General AI literacy frameworks emphasize understanding how AI systems work and evaluating AI outputs, but they do not address the specific competencies needed to navigate algorithmic recommendations, evaluate AI-generated metadata, and make ethical sharing decisions in scholarly environments. The development of discipline-specific AI literacy frameworks for researchers represents an important theoretical and practical need.

This study addresses these gaps by (1) developing and validating measures of AI literacy and ethical awareness specific to scholarly communication contexts; (2) empirically examining the relationship between these constructs; (3) identifying factors that predict ethical decision-making in AI-augmented scholarly sharing; and (4) proposing an integrated framework for AI-ethical literacy that can inform training programs, platform design, and policy development. The research contributes to both theoretical understanding of AI literacy in scholarly contexts and practical guidance for researchers, information professionals, and platform developers.

3.0 Theoretical Framework: This study is grounded in an integrated theoretical framework that synthesizes concepts from information literacy theory, information ethics, and the emerging literature on AI literacy. The framework conceptualizes AI-ethical literacy in scholarly communication as a multi-dimensional construct encompassing cognitive, affective, and behavioral components that enable researchers to navigate AI-augmented scholarly environments responsibly.

The foundation of the framework draws on the ACRL Framework for Information Literacy (2015), particularly the frames addressing authority construction, information value, and information creation processes. These frames provide conceptual tools for understanding how researchers evaluate and use information, competencies that are directly relevant to engaging with AI-generated recommendations and making informed sharing decisions. However, the ACRL framework requires extension to address the specific challenges introduced by algorithmic mediation. The concept of "algorithmic awareness" (Dogruel et al., 2022) provides a complementary lens, emphasizing the importance of understanding how AI systems shape information access and visibility.

Information ethics contributes principles for evaluating the moral dimensions of AI-augmented scholarly communication. Floridi's (2019) AI4People ethical framework identifies beneficence, non-maleficence, autonomy, justice, and explicability as guiding principles for AI development and deployment. Applied to ASNS, these principles raise questions about whether AI-powered features serve researchers' interests (beneficence),

avoid harm such as privacy violations (non-maleficence), respect researchers' autonomy in sharing decisions (autonomy), distribute visibility fairly across researchers (justice), and operate transparently (explicability). The framework enables systematic evaluation of ethical implications across these dimensions.

3.1 Conceptual Model: The conceptual model for this study posits that AI-ethical literacy in scholarly communication emerges from the interaction of four key constructs: AI-powered ASNS features, non-technical research outputs, information literacy, and ethical awareness. AI-powered features on ASNS—including recommendations, citation analysis, co-author discovery, and metadata extraction—create the technological environment that researchers must navigate. Non-technical research outputs, including datasets, software, protocols, and supplementary materials, represent the objects of sharing behavior. Information literacy encompasses the competencies needed to evaluate AI-generated content and make informed sharing decisions. Ethical awareness involves recognition of the moral implications of sharing decisions, including privacy, intellectual property, and attribution concerns.

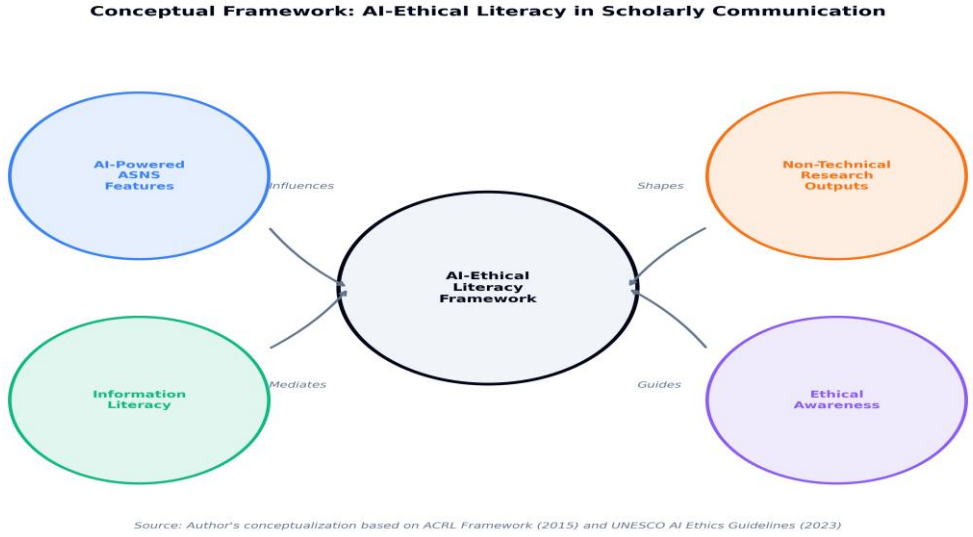

Figure 1: Conceptual Framework: AI-Ethical Literacy in Scholarly Communication

The model proposes that AI-ethical literacy mediates the relationship between AI-powered features and sharing behavior. Researchers with higher AI literacy are better able to critically evaluate AI-generated recommendations, understand the limitations of algorithmic impact metrics, and make informed decisions about metadata visibility. Similarly, researchers with higher ethical awareness are more likely to consider privacy implications, intellectual property rights, and attribution requirements when sharing non-technical outputs. The interaction of AI literacy and ethical awareness produces responsible sharing behavior that advances open science objectives while protecting individual and collective interests.

4.0 Research Methodology

4.1 Research Design and Approach: This study employed a mixed-methods sequential explanatory design, combining quantitative survey research with qualitative interviews to provide comprehensive understanding of researchers' AI literacy and ethical awareness. The sequential approach allowed initial quantitative findings to inform the design of interview protocols, enabling deeper exploration of patterns identified in survey data. This design is particularly appropriate for investigating complex constructs such as AI-ethical literacy, where quantitative measures can capture broad patterns while qualitative data can illuminate nuanced understandings and contextual factors.

The research was guided by the following questions: (RQ1) What is the current level of researchers' AI literacy regarding AI-powered features on ASNS? (RQ2) What is the level of researchers' ethical awareness when sharing

non-technical outputs on AI-augmented platforms? (RQ3) What is the relationship between AI literacy and ethical awareness in scholarly communication contexts? (RQ4) What factors predict ethical decision-making in AI-augmented scholarly sharing? These questions were addressed through complementary quantitative and qualitative methods, with findings integrated in the interpretation phase.

4.2 Population and Sampling: The target population comprised researchers actively using ASNS for sharing non-technical outputs. Inclusion criteria required participants to: (a) hold a doctoral degree or be enrolled in a doctoral program; (b) have at least one publication in a peer-reviewed journal; (c) have uploaded or shared at least one non-technical research output (dataset, software, protocol, or supplementary material) on an ASNS within the past two years; and (d) be affiliated with an academic or research institution. A stratified purposive sampling strategy was employed to ensure representation across disciplines (natural sciences, social sciences, humanities), career stages (early-career, mid-career, senior), and geographic regions.

A total of 425 researchers completed the survey questionnaire, exceeding the minimum sample size of 385 calculated using G*Power for multiple regression analysis with 10 predictors, medium effect size ($f^2 = 0.15$), and power of 0.95. Participants represented 28 countries across six continents, with the largest proportions from North America (32%), Europe (28%), and Asia (24%). Disciplinary distribution included natural sciences (42%), social sciences (35%), and humanities (23%). Career stages included doctoral students (18%), early-career researchers within five years of doctorate (32%), mid-career researchers (28%), and senior researchers with over 15 years of experience (22%).

For the qualitative phase, 35 participants were purposively selected from survey respondents who indicated willingness to be interviewed. Selection criteria ensured variation in AI literacy scores (high, medium, low), ethical awareness scores, disciplines, and career stages. Interviews continued until thematic saturation was reached, with no new themes emerging in the final five interviews. Interview participants included 14 natural scientists, 13 social scientists, and 8 humanities scholars, with representation across all career stages.

4.3 Research Instruments: Three instruments were developed for this study: the AI Literacy for Scholarly Communication Scale (AILSCS), the Ethical Awareness in Scholarly Sharing Scale (EASSS), and the Non-Technical Output Sharing Practices Inventory (NTOSPI). The AILSCS comprises 25 items across five dimensions: understanding AI features (5 items), evaluating AI recommendations (5 items), recognizing algorithmic limitations (5 items), interpreting AI-generated metrics (5 items), and applying AI knowledge to scholarly tasks (5 items). Items were developed based on Long and Magerko's (2020) AI literacy competencies, adapted for scholarly communication contexts through expert review and pilot testing.

The EASSS comprises 20 items across four dimensions: data privacy awareness (5 items), intellectual property understanding (5 items), attribution ethics (5 items), and transparency in AI use (5 items). Items were developed based on Floridi's (2019) AI ethics principles and the FAIR principles for research data management. Both scales use 5-point Likert response formats ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The NTOSPI captures frequency of sharing different output types, platforms used, and decision-making processes for sharing.

Instrument validation followed established procedures. Content validity was established through expert review by 10 scholars with expertise in information science, AI ethics, and research methods. Items were refined based on expert feedback, with content validity indices exceeding 0.80 for all scales. Construct validity was assessed through exploratory factor analysis (EFA) with a pilot sample ($n = 150$), confirming the dimensional structure of both scales. Confirmatory factor analysis (CFA) with the main sample demonstrated good model fit ($CFI > 0.95$, $RMSEA < 0.06$). Reliability was assessed using Cronbach's alpha, with values of 0.91 for AILSCS and 0.89 for EASSS, indicating excellent internal consistency.

4.4 Data Collection Procedures: Survey data were collected between September and December 2024 through an online questionnaire hosted on Qualtrics. Recruitment occurred through multiple channels: announcements on relevant ASNS forums, emails to academic mailing lists, and posts on academic social media groups. Potential participants were provided with information about the study purpose, procedures, and their rights as participants. Informed consent was obtained electronically before participants could access the questionnaire. The questionnaire required approximately 20-25 minutes to complete, and participants could enter

a prize draw for one of ten $50 gift cards as an incentive.
Interview data were collected between January and March 2025 through semi-structured interviews conducted via Zoom. Interviews ranged from 45 to 75 minutes (M = 58 minutes) and were audio-recorded with participant permission. The interview protocol included questions about participants' experiences with AI features on ASNS, their understanding of how these features work, their decision-making processes for sharing non-technical outputs, and their perceptions of ethical issues. Probing questions allowed exploration of topics raised by participants. All interviews were transcribed verbatim by a professional transcription service, with participants given the opportunity to review and correct transcripts.

4.5 Data Analysis: Quantitative data analysis proceeded through several stages. Descriptive statistics (means, standard deviations, frequencies) characterized the sample and scale scores. Correlation analysis examined relationships between AI literacy, ethical awareness, and related variables. Multiple regression analysis identified predictors of ethical decision-making, with AI literacy, discipline, career stage, and platform usage entered as predictors. Structural equation modeling tested the proposed conceptual model, assessing both measurement and structural components. All analyses were conducted using SPSS 28 and AMOS 28, with significance levels set at $p < 0.05$.

Qualitative data analysis employed thematic analysis following Braun and Clarke's (2006) six-phase approach. Initial coding involved line-by-line review of transcripts to generate initial codes. Codes were then organized into potential themes, reviewed against the data, and refined. Final themes were defined and named to capture their essential content. Analysis was conducted using NVivo 14, with memos maintained throughout the process to document analytical decisions. Trustworthiness was enhanced through member checking, peer debriefing, and maintenance of an audit trail.

5.0 Results and Findings

5.1 AI Feature Awareness and Usage Patterns: Survey results revealed varying levels of awareness and usage of AI-powered features across ASNS platforms. ResearchGate emerged as the most widely used platform (78% of participants), followed by Academia.edu (54%) and Mendeley (47%). Among AI features, automated recommendations were most frequently used (72% reported regular use), followed by citation analysis features (65%) and co-author discovery tools (48%). AI-generated research summaries were used regularly by only 32% of participants, while automated metadata extraction was used by 28%.

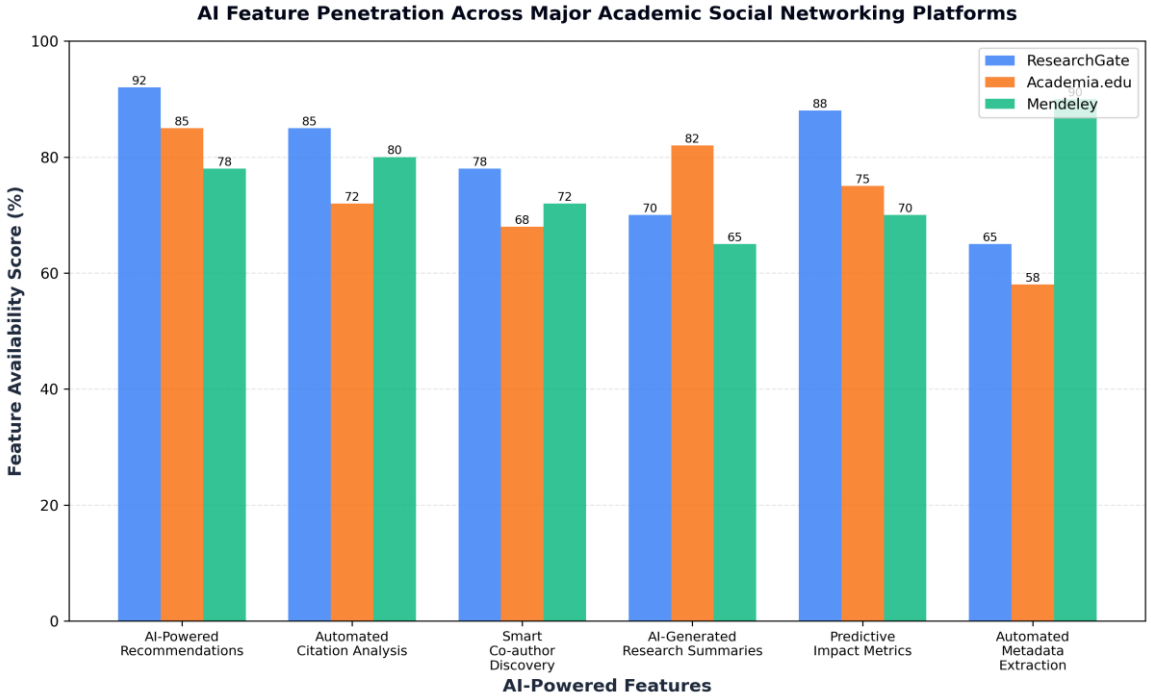

Figure 2: AI Feature Penetration Across Major Academic Social Networking Platforms

Qualitative interviews provided context for these patterns. Participants described relying heavily on recommendation features for literature discovery while expressing limited understanding of how these recommendations were generated. As one participant explained, "I assume the recommendations are based on my reading history and connections, but I don't really know how the algorithm works or whether it might be missing relevant papers." Another participant noted, "I've noticed that the recommendations seem to favor papers from certain journals or authors I've previously engaged with, which might create a filter bubble effect."

5.2 AI Literacy and Ethical Awareness Scores: Overall AI literacy scores on the AILSCS ranged from 28 to 116 (possible range: 25-125), with a mean of 72.8 (SD = 18.4), representing moderate literacy levels. Subscale analysis revealed that participants scored highest on understanding AI features (M = 3.62, SD = 0.78) and lowest on recognizing algorithmic limitations (M = 2.84, SD = 0.92). Ethical awareness scores on the EASSS ranged from 32 to 98 (possible range: 20-100), with a mean of 68.5 (SD = 15.2), indicating moderate awareness. Subscale analysis showed higher scores for attribution ethics (M = 3.72, SD = 0.82) and lower scores for data privacy awareness (M = 2.98, SD = 0.88).

Table 1: Descriptive Statistics for AI Literacy and Ethical Awareness Measures (n=425)

Measure	Mean	SD	Min	Max	Cronbach's α
AI Literacy (Total)	72.8	18.4	28	116	0.91
Understanding AI Features	3.62	0.78	1.4	5.0	0.84
Evaluating AI Recommendations	3.14	0.85	1.2	5.0	0.86
Recognizing Algorithmic Limitations	2.84	0.92	1.0	4.8	0.82
Interpreting AI Metrics	3.08	0.88	1.0	5.0	0.85
Ethical Awareness (Total)	68.5	15.2	32	98	0.89
Data Privacy Awareness	2.98	0.88	1.0	5.0	0.81

Measure	Mean	SD	Min	Max	Cronbach's α
Intellectual Property Understanding	3.24	0.84	1.2	5.0	0.83
Attribution Ethics	3.72	0.82	1.4	5.0	0.87
Transparency in AI Use	3.18	0.79	1.2	5.0	0.80

Analysis by output type revealed significant differences in both AI literacy and ethical awareness. Researchers sharing datasets demonstrated the highest AI literacy (M = 64.2) but lowest ethical awareness regarding privacy (M = 58.4%), while those sharing preprints showed the highest AI literacy (M = 72.1) but lowest ethical awareness regarding attribution (M = 55.2%). The literacy-awareness gap was most pronounced for software publication (16% gap) and research protocols (33% gap), suggesting that researchers may possess technical competencies without corresponding ethical understanding.

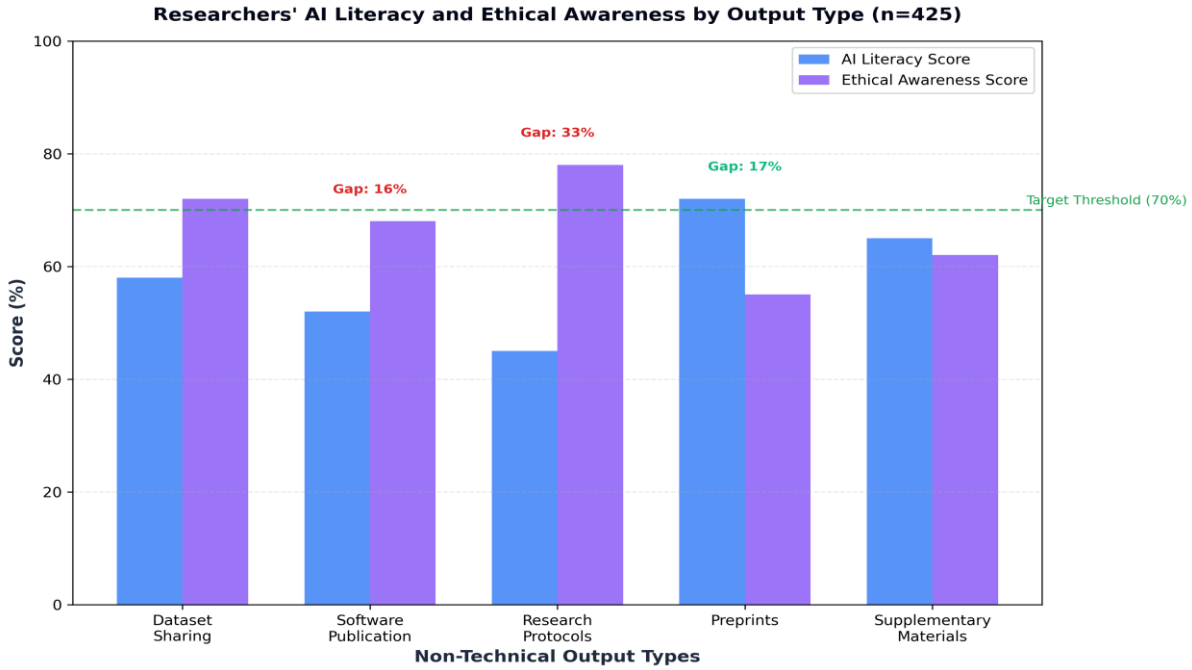

Figure 3: Researchers' AI Literacy and Ethical Awareness by Output Type (n=425)

5.3 Relationship Between AI Literacy and Ethical Awareness: Correlation analysis revealed significant relationships between AI literacy and ethical awareness variables. The overall AI literacy score showed a moderate positive correlation with overall ethical awareness ($r = 0.52$, $p < 0.001$), suggesting that higher AI literacy is associated with greater ethical awareness. However, the pattern of correlations varied across subscales. AI literacy showed the strongest correlation with data privacy awareness ($r = 0.58$, $p < 0.001$) and the weakest correlation with attribution ethics ($r = 0.38$, $p < 0.001$), indicating that AI literacy does not uniformly transfer to all ethical domains.

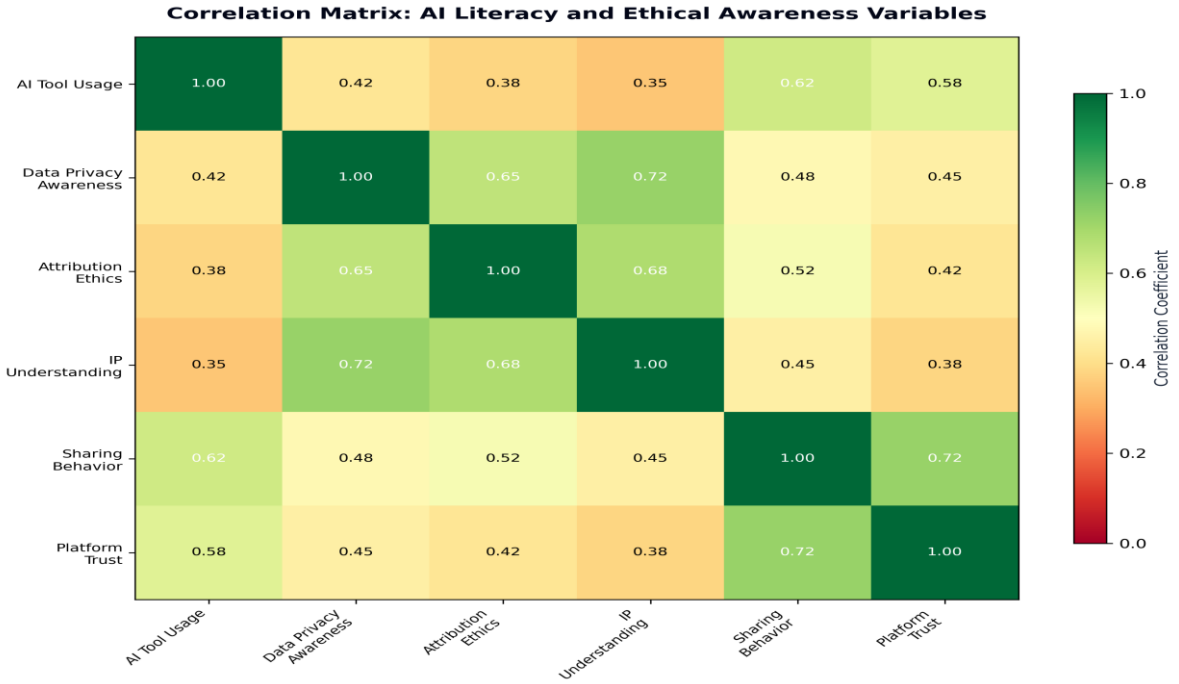

Figure 4: Correlation Matrix: AI Literacy and Ethical Awareness Variables

Multiple regression analysis identified factors predicting ethical decision-making (operationalized as a composite of ethical awareness and self-reported responsible sharing behavior). The model explained 47% of variance ($F(8, 416) = 46.23$, $p < 0.001$), with AI literacy emerging as the strongest predictor ($\beta = 0.45$, $p < 0.001$). Other significant predictors included career stage ($\beta = 0.18$, $p < 0.01$), with senior researchers showing higher ethical decision-making scores; prior ethics training ($\beta = 0.15$, $p < 0.01$); and frequency of dataset sharing ($\beta = 0.12$, $p < 0.05$). Discipline was not a significant predictor, suggesting that ethical challenges transcend traditional disciplinary boundaries.

Table 2: Multiple Regression Predicting Ethical Decision-Making ($R^2 = 0.47$)

Predictor	β	SE	t	p
AI Literacy Score	0.45	0.04	9.82	<0.001
Career Stage	0.18	0.05	3.64	<0.01
Prior Ethics Training	0.15	0.05	3.21	<0.01
Dataset Sharing Frequency	0.12	0.04	2.58	<0.05
Platform Usage Frequency	0.08	0.05	1.62	0.106
Discipline (Sciences)	0.06	0.05	1.18	0.238
Gender	0.04	0.04	0.89	0.372
Geographic Region	0.02	0.04	0.42	0.673

5.4 Qualitative Findings: Themes and Insights:

Thematic analysis of interview data identified five major themes: algorithmic opacity, privacy-utility tensions, attribution ambiguity, responsibility diffusion, and literacy gaps. Each theme illuminates aspects of researchers' experiences navigating AI-augmented scholarly sharing that complement and extend quantitative findings.

Algorithmic Opacity: Participants consistently expressed uncertainty about how AI features on ASNS operate. While many used recommendation and discovery features regularly, few could articulate how these features worked or their potential limitations. One participant explained, "I accept the recommendations without really questioning them—it's like a black box. I trust the platform because it's designed for academics, but I don't know what I might be missing." Another noted, "The RG Score is mysterious. I know it changes based on activity, but I don't know how to interpret it or whether I should care about it." This opacity extended to metadata extraction, with participants surprised by what the platform had automatically extracted from uploaded files.

Privacy-Utility Tensions: Researchers described navigating complex trade-offs between the benefits of sharing and concerns about privacy. Those sharing datasets were particularly conscious of these tensions: "I want my data to be findable and reusable, but I worry about what happens once it's out there. The platform makes it easy to share, but maybe too easy—I haven't always thought through the implications." Another participant described discovering that metadata extracted by the platform included information they hadn't intended to share: "I uploaded a dataset and later found that the platform had extracted author information from the documentation files. It wasn't sensitive, but it made me wonder what else might be extracted without my knowledge."

Attribution Ambiguity: The theme of attribution emerged frequently in discussions of software and protocol sharing. Participants expressed uncertainty about appropriate attribution practices, particularly when AI was involved in generating summaries or extracting metadata. One participant noted, "When I share software, I want users to cite the paper, but the platform generates its own description. I don't know if that's a citation or something else." Another explained, "I've seen my protocols summarized by the platform, and the summary isn't always accurate. Does that affect how people cite me?" These concerns highlight the need for clearer attribution norms in AI-augmented scholarly environments.

Responsibility Diffusion: Participants frequently attributed responsibility for ethical practice to platforms, institutions, or the broader academic community rather than individual researchers. "I assume the platform has appropriate policies," one participant stated. "If they allow it, it must be okay." Another noted, "My institution doesn't provide guidance on ASNS sharing, so I just follow what seems to be common practice." This diffusion of responsibility suggests that individual ethical awareness must be supported by institutional policies and platform-level safeguards.

Literacy Gaps: Interview participants identified specific areas where they felt their knowledge was insufficient. Technical understanding of AI features was a common concern: "I know these features use AI, but I don't really know what that means for how I should use them." Others expressed uncertainty about the ethical implications: "I think I understand the technical side, but I'm less confident about the ethical considerations. Are there questions I should be asking that I'm not?" These gaps align with quantitative findings showing lower scores for recognizing algorithmic limitations and data privacy awareness.

6.0 Discussion

6.1 Interpretation of Findings

This study provides the first comprehensive examination of researchers' AI literacy and ethical awareness in the context of AI-augmented scholarly sharing on academic social networking sites. The findings reveal both encouraging patterns and significant concerns that have implications for researchers, information professionals, platform developers, and policymakers. The moderate levels of AI literacy observed suggest that researchers possess foundational competencies for engaging with AI-powered features, while the lower scores for recognizing algorithmic limitations and the identified literacy-awareness gaps indicate critical areas requiring intervention.

The significant correlation between AI literacy and ethical awareness ($r = 0.52$) supports the theoretical proposition that these constructs are related but distinct. Researchers with higher AI literacy demonstrated greater ethical awareness, suggesting that technical understanding provides a foundation for ethical reflection. However, the imperfect correlation indicates that AI literacy alone is insufficient for ethical practice—researchers may understand how AI features work without considering their ethical implications. This finding has direct implications for training programs, which should explicitly connect technical competencies to ethical considerations.

The literacy-awareness gap observed for specific output types is particularly concerning. Researchers sharing datasets and software demonstrated lower ethical awareness relative to their AI literacy, suggesting that the convenience of AI-powered sharing features may outpace ethical reflection. This pattern may reflect the relative novelty of sharing norms for non-traditional outputs and the absence of established ethical frameworks. As open science initiatives continue to promote sharing of datasets, software, and protocols, addressing this gap becomes increasingly urgent.

6.2 Theoretical Implications

The findings extend existing theoretical frameworks in several ways. First, they demonstrate the need for expanded conceptualizations of information literacy that explicitly address algorithmic mediation. The ACRL Framework, while foundational, does not adequately address the challenges introduced by AI-powered features that shape information discovery, visibility, and evaluation. The findings suggest that information literacy frameworks should be updated to incorporate AI-specific competencies, including understanding how algorithms shape information access, recognizing the limitations of AI-generated content, and making ethical decisions in algorithmically-mediated environments.

Second, the study contributes to the development of AI literacy theory by demonstrating the construct's multi-dimensional nature in scholarly communication contexts. The distinct patterns observed across AI literacy subscales—higher scores for understanding features and lower scores for recognizing limitations—suggest that AI literacy is not a unitary construct but rather a constellation of competencies that may develop unevenly. This finding aligns with Long and Magerko's (2020) conceptualization of AI literacy as a set of competencies rather than a single skill, while extending their framework to the specific domain of scholarly communication.

Third, the findings illuminate the relationship between individual competencies and structural factors in ethical practice. The qualitative theme of responsibility diffusion suggests that ethical behavior in AI-augmented scholarly sharing is not solely a matter of individual awareness but is shaped by platform affordances, institutional policies, and community norms. This finding aligns with socio-technical perspectives that emphasize the interaction between human actors and technological systems, suggesting that interventions must address both individual competencies and systemic factors.

6.3 Proposed AI-Ethical Literacy Framework

Based on the study findings, we propose an integrated AI-Ethical Literacy Framework for scholarly communication that encompasses four domains: Awareness, Skills, Behavior, and Advocacy. The Awareness Domain includes understanding AI capabilities, recognizing algorithmic bias, and knowledge of privacy implications. The Skills Domain encompasses critical evaluation of AI outputs, ethical decision-making competencies, and appropriate attribution practices. The Behavior Domain involves responsible sharing practices, transparency in AI use, and data stewardship. The Advocacy Domain includes promoting ethical standards, educating peers, and engaging with policy development.

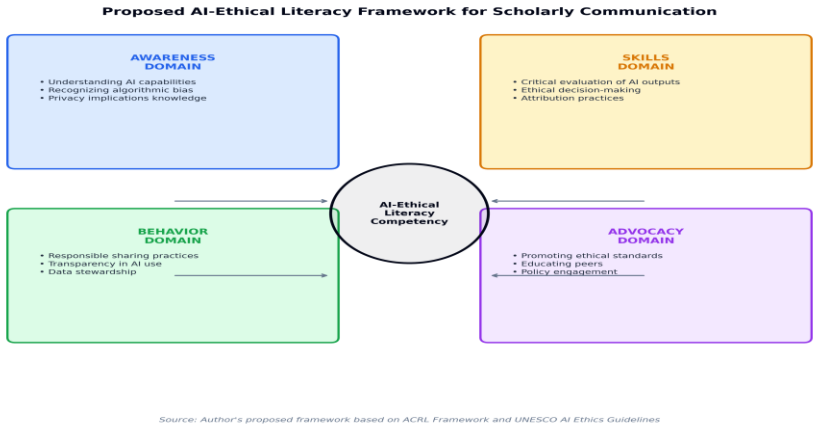

Figure 5: Proposed AI-Ethical Literacy Framework for Scholarly Communication

The framework is designed to guide the development of training programs, inform platform design, and support policy development. Unlike existing frameworks that treat AI literacy and ethics as separate domains, this integrated framework emphasizes their interconnection and mutual reinforcement. Competencies in the Awareness Domain provide the foundation for Skills development, which in turn enables appropriate Behavior, and ultimately supports Advocacy for ethical practices. This developmental trajectory suggests that interventions should begin with foundational awareness before progressing to more advanced competencies.

6.4 Practical Implications: The findings have several practical implications for different stakeholder groups. For information professionals and librarians, the identified literacy gaps suggest a need for targeted training programs that address both technical AI competencies and ethical considerations. Such programs should move beyond general introductions to AI toward discipline-specific applications in scholarly communication, including understanding how AI features shape research visibility and the ethical implications of algorithmic recommendations. Academic libraries are well-positioned to lead such initiatives, building on their existing information literacy programs.

For platform developers, the findings highlight the need for greater transparency in AI features. Participants' expressions of uncertainty about how features work suggest that current interfaces do not adequately communicate algorithmic processes. Platform designs could incorporate explanations of how recommendations are generated, what data are extracted from uploads, and how impact metrics are calculated. Additionally, platforms could implement privacy-by-design principles that default to more protective settings while allowing informed users to opt into broader sharing.

For research institutions and policymakers, the theme of responsibility diffusion suggests the need for clearer guidelines and policies. Institutional policies should address the use of ASNS for sharing research outputs, including guidance on privacy considerations, intellectual property implications, and attribution requirements. Funding agencies could incorporate AI literacy requirements into data management plans, ensuring that researchers understand the ethical implications of sharing decisions before uploading outputs to platforms.

6.5 Limitations and Future Research: Several limitations should be acknowledged. First, the study relied on self-reported measures, which may be subject to social desirability bias. Future research could incorporate behavioral measures, such as analysis of actual sharing practices on platforms. Second, the sample, while diverse, may not be fully representative of the global research community, particularly researchers in developing regions with limited access to ASNS. Third, the cross-sectional design limits causal inference; longitudinal studies could examine how AI literacy and ethical awareness develop over time and in response to interventions.
Future research should pursue several directions. Experimental studies could test the effectiveness of different training approaches for developing AI-ethical literacy. Comparative research could examine how these dynamics play out across different platforms with varying AI capabilities and privacy policies. International comparative studies could investigate how cultural and regulatory contexts shape researchers' AI literacy and ethical awareness. Finally, as AI capabilities continue to evolve, ongoing research will be needed to understand how new features—such as large language model integration—affect scholarly sharing practices and ethical considerations.

7.0 Conclusion

As artificial intelligence becomes increasingly embedded in scholarly communication infrastructure, researchers face new challenges in navigating the ethical complexities of AI-augmented sharing. This study provides the first comprehensive examination of researchers' AI literacy and ethical awareness in this context, revealing both competencies and gaps that have implications for individuals, institutions, and platforms. The findings demonstrate that while researchers possess moderate AI literacy, this literacy does not automatically translate to ethical awareness, particularly for newer forms of scholarly output such as datasets and software.

The proposed AI-Ethical Literacy Framework offers a roadmap for developing competencies that are essential for responsible scholarly communication in the AI era. The framework's four domains—Awareness, Skills, Behavior, and Advocacy—provide a comprehensive approach that addresses both technical understanding and ethical reflection. Implementation of this framework through training programs, platform design improvements, and policy development can support researchers in navigating the evolving landscape of AI-mediated scholarly sharing.

The integration of AI into academic social networking sites represents both an opportunity and a challenge for scholarly communication. The opportunity lies in enhanced discovery, collaboration, and impact tracking that AI enables. The challenge lies in ensuring that researchers possess the competencies to engage with these technologies critically and ethically. This study contributes to addressing this challenge by illuminating current practices, identifying gaps, and proposing a framework for developing the AI-ethical literacy that contemporary scholarly communication demands. As AI continues to transform how knowledge is created, shared, and evaluated, the cultivation of AI-ethical literacy becomes not merely desirable but essential for the integrity of scholarly enterprise.

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