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Artificial Intelligence Literacy and Learning Motivation Among Adult Learners in Continuing Education: A Pilot Study in S City, China

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ABSTRACT: Artificial intelligence (AI) literacy has become increasingly relevant in higher education, yet limited empirical attention has been given to its relationship with learning motivation among adult learners in university continuing education. This pilot study examined the association between AI literacy and learning motivation among adult learners enrolled in university continuing education in S City, China. A quantitative, cross-sectional correlational design was employed using 146 valid responses collected during the pilot stage of a larger research project. AI literacy was assessed using the 12-item Artificial Intelligence Literacy Scale, while learning motivation was measured using the 28-item Academic Motivation Scale—College Version. Descriptive statistics, reliability analysis, and Pearson's product–moment correlation were conducted. The results showed a significant positive relationship between AI literacy and learning motivation, $r = .521$, $p < .01$, supporting the proposed hypothesis. The finding suggests that stronger AI literacy tends to coexist with higher learning motivation among adult learners in university continuing education. However, given the pilot sample and cross-sectional design, no causal conclusion can be drawn. The study provides preliminary evidence from an underexamined adult-learning context and highlights the need for larger-scale research to further investigate the relationship and its potential mechanisms.

KEYWORDS: artificial intelligence literacy; learning motivation; adult learners; continuing education; adult education; pilot study

I. INTRODUCTION

The growing use of artificial intelligence (AI) in higher education has changed the conditions under which learners search for information, complete academic tasks, and interact with digital learning resources. For adult learners in university continuing education, these changes may be particularly significant. Their participation in higher education is often shaped by professional development, qualification upgrading, personal growth, and the need to combine study with employment and family responsibilities (Nasirudeen & Jantan, 2025; Urban & Jirsáková, 2022). As AI becomes increasingly integrated into academic work, adult learners are therefore required not only to gain access to AI tools but also to determine whether and how such tools can support their learning effectively.

This need draws attention to artificial intelligence literacy. AI literacy involves more than familiarity with AI applications or the ability to operate particular tools. It includes the capacity to recognise AI, use it appropriately, evaluate its outputs, understand its limitations, and engage with it responsibly (Wang et al., 2023). A recent systematic review further indicates that AI literacy is associated with a range of affective, cognitive, and behavioural variables, suggesting that its educational relevance extends beyond technological competence alone (Bewersdorff et al., 2025). In continuing education, where learners may differ considerably in prior educational experience and exposure to digital technologies, such differences in AI literacy may be particularly important.

At the same time, learning motivation remains central to adults' continued participation in education. Self-Determination Theory conceptualises motivation in terms of qualitatively different reasons for engaging in learning and emphasises the importance of more autonomous motivational orientations for sustained educational engagement (Ryan & Deci, 2020). For adult learners, motivation is embedded in a complex educational context involving personal goals, professional needs, course conditions, and competing life responsibilities (Nasirudeen & Jantan, 2025). Understanding factors associated with learning motivation is therefore important for

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universities seeking to support adults' continued engagement in learning.

Emerging research suggests that AI literacy may be relevant to motivational experiences. Studies have reported associations between AI literacy and outcomes such as learner motivation, self-efficacy, learning engagement, and motivational commitment (Bewersdorff et al., 2025; Kong et al., 2025; Zhao, 2025). Zhao (2025), for example, identified a positive relationship between AI literacy and motivation in AI-based learning environments, while Lyu and Salam (2025) reported improvements in motivation, self-efficacy, and digital literacy among adult learners participating in AI-powered personalised learning. These findings indicate that AI-related competencies and experiences may have motivational relevance, although the evidence comes from different learner populations and educational settings.

An important issue in this literature is that motivational outcomes are not always conceptualised in the same way. AI-use intention, technology acceptance, attitudes toward AI, motivational commitment, and learning engagement may all be relevant to technology-supported education, but they are not equivalent to learning motivation. A learner may be willing to use AI or perceive it positively without necessarily being more motivated to participate in university learning. This distinction is particularly important when interpreting findings across the rapidly expanding AI-in-education literature (Bewersdorff et al., 2025; Ryan & Deci, 2020).

A further limitation is the population represented in existing research. Much of the literature on AI literacy has been conducted with conventional university students, pre-service teachers, or learners participating in specific AI-supported courses (Bewersdorff et al., 2025; Kong et al., 2025; Zhao, 2025). Adult learners in university continuing education operate within a different educational context, characterised by more diverse learning histories, occupational experiences, time constraints, and reasons for returning to study (Nasirudeen & Jantan, 2025; Urban & Jirsáková, 2022). Consequently, relationships identified in conventional student populations cannot automatically be assumed to apply to adult continuing education learners.

Against this background, the present study examines whether artificial intelligence literacy is associated with learning motivation among adult learners enrolled in university continuing education in S City, China. Using data collected during the pilot stage of a larger research project, the study provides preliminary empirical evidence from an adult-learning population that remains comparatively underrepresented in current AI-literacy research. Rather than examining whether learners intend to adopt AI, the study focuses specifically on the relationship between their AI literacy and their motivation toward university learning.

Research Question

RQ1: Is there a significant relationship between artificial intelligence literacy and learning motivation among adult learners in university continuing education in S City, China?

Hypothesis

H1: There is a significant positive relationship between artificial intelligence literacy and learning motivation among adult learners in university continuing education in S City, China.

II. LITERATURE REVIEW

2.1 AI Literacy as a Learning-Relevant Competence

Artificial intelligence literacy has increasingly been conceptualised as a multidimensional competence rather than as simple familiarity with AI tools. It involves the ability to recognise and understand AI, use AI applications appropriately, evaluate AI-generated outputs, and engage with AI in an ethically responsible manner. Wang et al. (2023) operationalised these competencies through four dimensions—Awareness, Usage, Evaluation, and Ethics—and developed the 12-item Artificial Intelligence Literacy Scale. This framework highlights that effective engagement with AI requires not only operational knowledge but also critical judgement and responsible decision making.

The educational relevance of AI literacy extends beyond the use of technology itself. Learners are increasingly required to decide when AI is appropriate for an academic task, assess the credibility and limitations of AI-generated information, and retain responsibility for the decisions made with AI support. These demands make AI literacy potentially relevant to broader learning processes. Bewersdorff et al. (2025), in a systematic review of 31 empirical studies across 14 countries, found recurring associations between AI literacy and affective, cognitive, and behavioural variables, including AI self-efficacy, attitudes toward AI, motivation, and digital competence. Their review also showed considerable variation in

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how AI literacy and its educational outcomes have been conceptualised and measured.

One outcome that deserves particular attention is learning motivation. From the perspective of Self-Determination Theory, learning motivation reflects qualitatively different reasons for engaging in educational activities, including intrinsic motivation, different forms of extrinsic motivation, and amotivation (Ryan & Deci, 2020). Motivation is especially relevant in adult continuing education because adult learners often pursue university study alongside professional and family responsibilities and may return to education for personal development, qualification upgrading, professional renewal, or career progression (Nasirudeen & Jantan, 2025; Urban & Jirsáková, 2022).

AI literacy may therefore be relevant to learning motivation when AI becomes part of the environment through which adult learners carry out academic tasks. Learners who can use and evaluate AI more effectively may encounter fewer technological uncertainties and may be better positioned to make informed decisions about when and how AI can support their learning. This does not mean that AI literacy necessarily produces stronger motivation, but it provides a basis for examining whether the two constructs are systematically associated.

2.2 Linking AI Literacy with Learning Motivation in Adult Continuing Education

Emerging empirical research provides initial support for a relationship between AI literacy and motivational outcomes. Zhao (2025) examined AI literacy, resilience, motivation, and engagement in AI-based learning settings and reported significant positive associations between AI literacy and both motivation and engagement. More recent evidence from Wang et al. (2026) directly examined AI literacy and learning motivation among pre-service teachers. Their findings showed that dimensions of AI literacy were related to learning motivation through differentiated pathways involving the satisfaction of basic psychological needs. Together, these studies provide increasingly direct evidence that AI literacy may be relevant to learners' motivational experiences.

Other studies offer complementary evidence. Kong et al. (2025) identified significant associations among AI literacy, self-efficacy, and motivational commitment in college students. Similarly, He et al. (2025), using data from 2,029 nursing students across 29 Chinese colleges, reported significant relationships among AI literacy, AI self-efficacy, and learning engagement. Although self-efficacy, motivational commitment, and learning engagement are not equivalent to learning motivation, these findings indicate that AI literacy is associated with psychological and behavioural processes that are relevant to participation in learning.

A distinction between these outcomes is necessary. Much of the rapidly expanding research on AI in education focuses on technology acceptance, behavioural intention, attitudes toward AI, motivation to use AI, self-efficacy, or engagement. A learner who intends to use AI or holds favourable attitudes toward it is not necessarily more motivated toward university learning. Bewersdorff et al. (2025) similarly highlighted the heterogeneity of affective and behavioural outcomes used in AI-literacy research. Evidence concerning AI adoption should therefore not be interpreted automatically as evidence concerning learning motivation.

Research involving adults provides further contextual evidence, although direct studies remain limited. Lyu and Salam (2025) examined AI-powered personalised learning among Chinese adult EFL learners and found improvements in motivation, self-efficacy, and digital literacy among participants receiving AI-personalised instruction. This finding demonstrates the motivational relevance of AI-supported learning for adults, but the study examined an instructional intervention rather than individual differences in AI literacy. The distinction is important: receiving AI-supported instruction and possessing the competencies required to understand, evaluate, and use AI are related but different educational phenomena.

The adult continuing education context also warrants separate consideration. Adult learners may differ from conventional full-time university students in their educational histories, employment experience, family responsibilities, available study time, and reasons for returning to education. Urban and Jirsáková (2022) identified differences in motivational and personality characteristics between adult or post-traditional learners and traditional students. Nasirudeen and Jantan (2025) further showed that adult participation in continuing education is shaped by purposes including personal development, professional updating, and career advancement. These contextual differences suggest that relationships established in conventional undergraduate populations cannot simply be assumed to operate in the same way among adult continuing education learners.

Taken together, the literature indicates that AI literacy is increasingly associated with motivational

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and learning-related outcomes, but two limitations remain. First, many existing studies focus on AI-specific outcomes—such as technology acceptance, AI-use intention, attitudes, self-efficacy, or engagement—rather than learning motivation itself. Second, direct evidence concerning the relationship between AI literacy and learning motivation among adult undergraduate learners in university continuing education remains comparatively limited. The present pilot study addresses this gap by examining this relationship among adult learners in university continuing education in S City, China.

Hypothesis

H1: There is a significant positive relationship between artificial intelligence literacy and learning motivation among adult learners in university continuing education in S City, China.

III. METHODOLOGY

3.1 Research Design and Participants

A quantitative cross-sectional correlational design was used to investigate the relationship between artificial intelligence literacy and learning motivation among adult learners enrolled in university continuing education in S City, China. This design was appropriate because the study examined the statistical association between variables measured without experimental manipulation (Creswell & Creswell, 2018).

The analysis drew on data collected during the pilot phase of a larger research project. For the purposes of the present paper, only the artificial intelligence literacy and learning motivation components of the pilot dataset were analysed. The pilot sample was independent of the subsequent main-study sample, and individuals who participated in the pilot study were excluded from later main-study recruitment. This separation ensured that the data reported in the present study represented a distinct group of respondents. The larger thesis also confirms that the pilot participants were excluded from the main study.

Participants were recruited from continuing education colleges across 11 public comprehensive universities in S City, China. A stratified sampling procedure was applied to obtain representation from the participating institutions, with pilot allocations determined proportionally according to the adult learner population of each university.

A total of 150 questionnaires were distributed and returned during the pilot study. Four questionnaires were subsequently excluded because of inconsistent responses, fixed response patterns, or incomplete responses. The final dataset consisted of 146 valid questionnaires, with a reported valid response rate of 97%.

3.2 Measures

3.2.1 Artificial Intelligence Literacy

Artificial intelligence literacy was assessed using the Artificial Intelligence Literacy Scale (AILS) developed by Wang et al. (2023). The instrument consists of 12 items representing four dimensions: Awareness, Usage, Evaluation, and Ethics, with three items assigned to each dimension. Together, these dimensions assess learners' recognition and understanding of AI, practical use of AI applications, critical evaluation of AI-related outputs, and awareness of ethical responsibilities associated with AI use.

Responses were recorded on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Items 2, 5, and 11 were negatively worded and were reverse-scored before analysis. All 12 items were retained in the pilot dataset. The original development and validation of the AILS provided evidence supporting its four-dimensional structure and psychometric quality (Wang et al., 2023).

3.2.2 Learning Motivation

Learning motivation was measured using the 28-item Academic Motivation Scale—College Version (AMS-C 28) developed by Vallerand et al. (1992). The scale is grounded in Self-Determination Theory and differentiates seven motivational orientations: Intrinsic Motivation to Know, Intrinsic Motivation Toward Accomplishment, Intrinsic Motivation to Experience Stimulation, Extrinsic Motivation—Identified Regulation, Extrinsic Motivation—Introjected Regulation, Extrinsic Motivation—External Regulation, and Amotivation. Each subscale contains four items. The item structure reported in the pilot-study materials is consistent with this original 28-item configuration.

Participants responded on a seven-point scale ranging from 1 (does not correspond at all) to 7 (corresponds exactly). The complete 28-item instrument was administered during the pilot study. Previous research has provided evidence supporting the multidimensional structure of the AMS across educational settings (Fairchild et al., 2005). The instrument was selected because it distinguishes different forms of academic motivation rather than representing motivation as a single undifferentiated orientation.

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3.3 Data Collection and Data Analysis

Data were collected online through Wenjuanxing. Participants were informed of the academic purpose of the study, the confidential treatment of their responses, and the voluntary nature of participation before completing the questionnaire.

The responses were exported in an SPSS-compatible format and analysed using IBM SPSS Statistics 26.0. Before substantive analysis, the pilot dataset underwent data-quality screening, including checks for missing values, outliers, normality, multicollinearity, and common method bias, following the procedures applied during the pilot phase of the larger research project (Hair et al., 2019). The original pilot-study records further showed that all retained Artificial Intelligence Literacy and Learning Motivation responses were within the valid 1–7 scoring range and that no missing values remained among the 146 valid cases.

For the present study, descriptive statistics were used to summarise the distributions of artificial intelligence literacy and learning motivation. Internal consistency was evaluated using Cronbach's alpha. Pearson's product–moment correlation was then used to examine the strength and direction of the relationship between the two constructs. Pearson correlation is appropriate for assessing linear relationships between continuous variables when the relevant assumptions are met (Field, 2018). Statistical significance was evaluated at the .05 level.

IV. RESULTS

4.1 Descriptive Statistics and Reliability

Descriptive statistics were examined for the dimensions of artificial intelligence literacy and learning motivation. For artificial intelligence literacy, the mean scores across the four dimensions ranged from 4.3995 to 4.5594, with standard deviations ranging from 1.22568 to 1.31109. For learning motivation, the mean scores across the seven original subscales ranged from 3.8236 to 4.1404, with standard deviations ranging from 1.33969 to 1.46167. Detailed descriptive statistics are presented in Table 1.

Table 1

Descriptive Statistics for Artificial Intelligence Literacy and Learning Motivation (N = 146)

Variable	Dimension	M	SD
Artificial Intelligence Literacy	Awareness	4.4658	1.24567
Artificial Intelligence Literacy	Usage	4.5594	1.23359
Artificial Intelligence Literacy	Evaluation	4.5023	1.22568
Artificial Intelligence Literacy	Ethics	4.3995	1.31109
Learning Motivation	Intrinsic Motivation to Know	4.0154	1.44742
Learning Motivation	Intrinsic Motivation Toward Accomplishment	4.1404	1.36615
Learning Motivation	Intrinsic Motivation to Experience Stimulation	4.0599	1.46167
Learning Motivation	Extrinsic Motivation—Identified Regulation	3.8236	1.35098
Learning Motivation	Extrinsic Motivation—Introjected Regulation	3.8664	1.3602
Learning Motivation	Extrinsic Motivation—External Regulation	3.9606	1.34827
Learning Motivation	Amotivation	3.9195	1.33969

Note. All statistics were based on the 146 valid pilot-study responses.

Internal consistency analysis indicated satisfactory reliability for both instruments. The overall Cronbach's alpha coefficient for the 12-item Artificial Intelligence Literacy Scale was .897. At the dimensional level, Cronbach's alpha coefficients ranged from .822 to .870. For learning motivation, Cronbach's alpha coefficients were .957 for Intrinsic

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Motivation, .949 for Extrinsic Motivation, and .818 for Amotivation. The overall 28-item Learning Motivation Scale demonstrated a Cronbach's alpha coefficient of .947. The reliability results are summarised in Table 2.

Table 2
Internal Consistency Reliability of the Study Variables (N = 146)

Variable	Dimension	No. of Items	Cronbach's α
Artificial Intelligence Literacy	Awareness	3	0.87
Artificial Intelligence Literacy	Usage	3	0.85
Artificial Intelligence Literacy	Evaluation	3	0.849
Artificial Intelligence Literacy	Ethics	3	0.822
Artificial Intelligence Literacy	Overall AILS	12	0.897
Learning Motivation	Intrinsic Motivation	12	0.957
Learning Motivation	Extrinsic Motivation	12	0.949
Learning Motivation	Amotivation	4	0.818
Learning Motivation	Overall Learning Motivation Scale	28	0.947

4.2 Relationship Between Artificial Intelligence Literacy and Learning Motivation

Pearson's product–moment correlation analysis was conducted to examine the relationship between artificial intelligence literacy and learning motivation. As shown in Table 3, artificial intelligence literacy was significantly and positively correlated with learning motivation, $r = .521$, $p < .01$. This result indicates that respondents with higher artificial intelligence literacy scores tended to report higher levels of learning motivation.

Table 3
Correlation Between Artificial Intelligence Literacy and Learning Motivation (N = 146)

Variable	1	2
1. Artificial Intelligence Literacy	1	
2. Learning Motivation	.521**	1

Note. $p < .01$.

The statistically significant positive relationship between artificial intelligence literacy and learning motivation was consistent with the direction proposed in H1. Therefore, H1 was supported.

V. DISCUSSION

5.1 What the Present Finding Adds

The present pilot study provides preliminary evidence that artificial intelligence literacy and learning motivation are positively associated among adult learners enrolled in university continuing education in S City, China. Rather than treating this result as evidence that AI literacy produces stronger motivation, it is more appropriate to view the finding as showing that the two characteristics tend to coexist within this particular adult-learning population.

This finding is meaningful because AI literacy is increasingly becoming part of the conditions under which learners participate in technology-rich education. Being able to recognise AI applications, use them appropriately, evaluate their outputs, and consider ethical issues may influence how comfortably learners navigate AI-supported academic tasks. For adult learners, who may differ considerably in previous educational and technological experience, these capabilities may be especially relevant when new digital tools are incorporated into their studies.

Self-Determination Theory offers one possible way of understanding this association. Ryan and Deci (2020) argue that experiences of competence and autonomy are important for more self-determined forms of motivation. In an AI-supported learning environment, learners who are more capable of judging and managing AI use may experience greater confidence and control over their learning activities. Recent evidence from Wang et al. (2026) is relevant in this regard. Among pre-service teachers, the authors found that basic psychological needs played significant mediating roles in relationships between dimensions of AI

literacy and learning motivation. However, the present study did not measure autonomy, competence, relatedness, or need satisfaction. SDT should therefore be regarded here as an interpretive perspective rather than as a mechanism demonstrated by the present data.

5.2 Positioning the Finding Within Existing Evidence

The result adds to a growing but still heterogeneous body of research connecting AI literacy with motivational outcomes. Zhao (2025) reported significant relationships between AI literacy, motivation, and engagement in AI-based learning settings. Wang et al. (2026) provided more direct evidence by examining AI literacy and learning motivation within a model involving basic psychological needs. Taken together with the present finding, these studies indicate that the motivational relevance of AI literacy is not confined solely to willingness to adopt technology.

Other studies provide related, although less direct, evidence. Kong et al. (2025) identified significant relationships among AI literacy, self-efficacy, and motivational commitment in college students. Bewersdorff et al. (2025), in a systematic review of 31 empirical studies conducted across 14 countries, similarly found that AI literacy was repeatedly examined in association with affective and behavioural variables such as motivation, self-efficacy, attitudes toward AI, and digital competence. At the same time, the review showed considerable variation in how both AI literacy and related outcomes were conceptualised and measured.

This variation matters. Motivation to use AI, behavioural intention, technology acceptance, learning engagement, and learning motivation are related constructs, but they are not interchangeable. Evidence that a learner intends to use AI does not necessarily mean that the learner is more motivated to participate in university learning. The contribution of the present study lies partly in maintaining this distinction: its outcome is learning motivation within university continuing education rather than intention to adopt an AI technology.

Evidence from adult-learning research also points in the same broad direction while highlighting important contextual differences. Lyu and Salam (2025) found that AI-powered personalised learning was associated with improvements in motivation, self-efficacy, and digital literacy among Chinese adult EFL learners. Their study concerned an instructional intervention rather than individual differences in AI literacy, so it should not be treated as direct replication. Nevertheless, it demonstrates that AI-related learning experiences can have motivational relevance for adult learners.

5.3 Why the Adult Continuing Education Context Matters

The relationship identified here should be interpreted within the particular circumstances of adult continuing education. Adult learners do not necessarily approach university study in the same way as conventional full-time undergraduates. Their participation may be tied to professional updating, qualifications, career progression, or personal development, while study frequently takes place alongside employment and family responsibilities. Nasirudeen and Jantan (2025) found that personal development, remaining current professionally, and career advancement were important reasons for adults to continue their education.

These characteristics may shape the practical significance of AI literacy. For an adult learner with limited study time, the ability to determine whether an AI tool is useful, identify unreliable output, and use the technology efficiently may have immediate relevance to academic tasks. At the same time, technological competence alone is unlikely to explain adult learning motivation. Institutional support, course design, personal goals, prior experience, and competing life responsibilities may all contribute to whether adults remain motivated to learn.

The current finding therefore should not be read as suggesting that AI literacy replaces established motivational factors in adult education. Rather, it indicates that AI literacy may represent one increasingly relevant component of the broader learning environment in which adult motivation develops and is sustained.

5.4 Implications for Continuing Education Practice

For university continuing education providers, the findings suggest that AI literacy should be approached as a learning competence rather than merely as familiarity with new software. Access to generative AI or other AI-enabled tools does not ensure that adult learners can evaluate outputs, identify limitations, or use such tools responsibly. Programmes may therefore benefit from incorporating structured AI-literacy development into ordinary academic activities.

Such support may be more useful when it is connected to authentic learning needs rather than delivered as isolated technical instruction. Adult

learners could, for example, be guided to evaluate AI-generated information, compare AI outputs with reliable academic sources, determine when AI use is appropriate for a task, and retain responsibility for final academic decisions. This approach would connect AI literacy with the actual demands learners face in continuing education.

The findings also suggest that the introduction of AI should not focus exclusively on efficiency. If AI-supported learning is confusing, overly dependent on automation, or poorly integrated into course requirements, access to technology alone may provide little motivational benefit. From an SDT perspective, support that enables learners to make informed choices and use AI with greater confidence may be more compatible with experiences of autonomy and competence (Ryan & Deci, 2020). Nevertheless, the present correlational findings cannot establish that AI-literacy training will increase learning motivation. That question requires intervention or longitudinal research.

5.5 Boundaries of the Evidence

The findings should be interpreted within several boundaries. First, the analysis was based on a pilot sample of 146 respondents and should therefore be regarded as preliminary rather than as a definitive estimate for the wider adult continuing education population.

Second, participants were drawn from university continuing education programmes in S City, China. The relationship observed here may differ in other regions, institutional types, workplace learning environments, or non-degree adult education settings.

Third, the cross-sectional design does not establish temporal order. Higher AI literacy may be associated with stronger learning motivation, but motivated learners may also be more inclined to develop AI-related competencies. Unmeasured characteristics could also contribute to both variables.

Fourth, both constructs were assessed through self-report instruments. Self-reported AI literacy may differ from performance demonstrated on objective AI-literacy tasks, a measurement issue also highlighted in the broader AI-literacy literature (Bewersdorff et al., 2025).

Finally, this study deliberately examined the overall relationship between the two constructs rather than multiple dimension-level relationships. Given the pilot purpose and modest sample size, separate analyses of Awareness, Usage, Evaluation, and Ethics against different forms of motivation were not pursued. Future research could examine these more differentiated relationships, particularly because Wang et al. (2026) suggests that different dimensions of AI literacy may operate through different motivational pathways.

VI. CONCLUSION

This pilot study examined the relationship between artificial intelligence literacy and learning motivation among adult learners enrolled in university continuing education in S City, China. Based on 146 valid responses, the findings showed that artificial intelligence literacy was significantly and positively associated with learning motivation. This result provides preliminary empirical support for the proposed relationship between the two constructs within an adult continuing education context.

The study contributes to the emerging literature on AI literacy by shifting attention from conventional university populations and technology-adoption outcomes toward adult learners and their motivation to participate in university learning. It also highlights the importance of distinguishing learning motivation from AI-use intention, technology acceptance, and attitudes toward AI (Bewersdorff et al., 2025; Ryan & Deci, 2020). AI literacy may therefore be understood not only as a technological competence but also as a learner-related capability associated with motivational experiences in continuing education (Wang et al., 2026; Zhao, 2025).

At the practical level, the findings suggest that university continuing education programmes may benefit from integrating AI-literacy development into authentic learning activities. Such support should extend beyond basic tool operation to include critical evaluation of AI-generated information, appropriate selection of AI tools, and responsible use of AI in academic contexts. However, because the study was cross-sectional and based on pilot data, the findings do not demonstrate that improving AI literacy will lead to higher learning motivation.

The present findings should therefore be regarded as preliminary. Future research should examine this relationship using larger and more diverse adult-learning samples, longitudinal or intervention designs, and more differentiated analyses of AI-literacy and motivation dimensions. This would help clarify the conditions under which AI literacy is associated with adult learners' motivation in continuing education.

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