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AI-Assisted Communication Dependency and Its Relationship With Expressive Cognitive Confidence and Communication Apprehension Among Young Adults (18–35 Years)

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Abstract: Young adults are increasingly delegating written communication to artificial intelligence tools, yet the psychological consequences of this habit have received limited empirical attention. This study tested whether habitual AI-assisted communication dependency erodes expressive cognitive confidence, which refers to an individual's belief in their capacity to think, formulate, and express ideas without assistance, and whether that erosion elevates communication apprehension. A theoretically grounded mediation model, termed the Crutch Effect, was tested using a quantitative cross-sectional correlational design with 105 young adults aged 18–35 years (Female n = 60, 57.1%; Male n = 44, 41.9%; M = 25.7 years, SD = 4.9) recruited through an online survey in urban India. Three validated instruments were administered: an adapted AI Communication Dependency Scale (AI-CDS; α = .936), the General Self-Efficacy Scale (GSE; Schwarzer & Jerusalem, 1995; α = .884), and the Personal Report of Communication Apprehension (PRCA-24; McCroskey, 1982; α = .964). All four hypotheses were supported. AI dependency correlated negatively with self-efficacy ($r = -.257$, $p = .008$) and positively with communication apprehension ($r = +.427$, $p < .001$); self-efficacy correlated negatively with apprehension ($r = -.442$, $p < .001$). Self-efficacy significantly mediated the dependency–apprehension relationship, confirming the Crutch Effect (indirect B = 0.211, 95% CI [0.020, 0.443], $p = .022$), accounting for 21.4% of the total effect. Participants using AI for more than three hours daily reported apprehension scores above McCroskey's (1982) high-apprehension threshold (M = 81.6, SD = 23.08). These findings offer empirical evidence for a mediated pathway from AI communication dependency through eroded self-efficacy to elevated communication apprehension.

Keywords: AI communication dependency, expressive cognitive confidence, communication apprehension, Crutch Effect, self-efficacy, cognitive offloading, young adults

I. INTRODUCTION

Artificial intelligence tools have become embedded fixtures of written communication in young adult life. Writing constitutes one of the three most common ChatGPT task types and dominates work-related conversations on the platform (Chatterji et al., 2025). By July 2025, ChatGPT had been adopted by approximately 10% of the global adult population, with 700 million weekly active users; among U.S. adults under 30, 58% reported having used the platform, which is nearly double the 33% recorded in 2023 (Pew Research Center, 2025). In urban India, platforms including ChatGPT, Google Gemini, Microsoft Copilot, and Grammarly have moved from novelty to routine in both academic and professional contexts.

What distinguishes generative AI from earlier writing tools is the depth of its contribution. Grammar checkers and spell-checkers assisted the writer while leaving expressive work to the person. Generative AI can produce the entire communicative act: drafting, selecting words, calibrating tone, and structuring arguments. This shifts the individual's role from author to editor, and that shift carries psychological significance. Each independent act of written expression constitutes a small trial of communicative self-belief. When AI routinely takes over that act, these trials cease to occur.

Communication apprehension, defined as the level of fear or anxiety associated with real or anticipated communication with others (McCroskey, 1982), is disproportionately prevalent in the 18–35 age group. This period, characterised by Arnett (2000) as a critical window for adult identity and professional competence formation, consistently yields the highest levels of communicative anxiety, particularly in interpersonal, group discussion, and meeting contexts (McCroskey, 2005). The downstream consequences are well documented: reduced academic achievement, constrained career progression, and diminished psychological wellbeing (McCroskey & Richmond, 1987).

This study proposes that widening AI communication dependency and elevated communication apprehension are linked through a third variable: expressive cognitive confidence. The Crutch Effect model tested here predicts that habitual AI communication dependency erodes the individual's belief in their capacity to formulate and express ideas independently, and that this erosion in turn elevates apprehension. Two theoretical frameworks converge on this prediction: Bandura's (1977) self-efficacy theory, which grounds communicative confidence in mastery experiences, and Risko and Gilbert's (2016) cognitive offloading framework, which identifies how habitual tool use erodes metacognitive confidence in independent performance.

II. REVIEW OF LITERATURE

A. Cognitive Consequences of AI Overreliance

The cognitive costs of habitual AI dependency have moved from theoretical speculation to empirical documentation. A systematic review in Smart Learning Environments found that overreliance on AI dialogue systems significantly impairs decision-making, critical thinking, and analytical reasoning, with effects most pronounced when users accept AI outputs without independent evaluation (Zhai et al., 2024). A survey of 666 participants confirmed a significant negative correlation between AI usage and critical thinking skills, mediated by cognitive offloading (Gerlich, 2025). Among knowledge workers, higher confidence in AI tools was associated with reduced critical thinking effort, while higher self-confidence was associated with more critical thinking. This suggests that when users outsource expressive labour to AI, they simultaneously withdraw the cognitive engagement through which self-confidence is built and maintained (Lee et al., 2025).

B. Cognitive Offloading and the Offloading–Confidence Asymmetry

Risko and Gilbert (2016) identified a consequence of habitual tool use that is easy to overlook: while offloading reduces the immediate cost of performance, it simultaneously erodes the metacognitive belief in one's capacity to perform independently. The underlying competence may be unchanged; offloading can preserve functional outcomes, but the belief in that competence tracks the practice of it. Sparrow et al. (2011) provided foundational experimental evidence: when individuals anticipated future access to an external information system, they invested less cognitive effort in processing and subsequently rated their independent recall as less reliable. AI extends this transactive relationship from information storage to the cognitive labour of thinking and expressing, which are the very acts through which communicative self-efficacy is built.

C. Self-Efficacy Theory and Communication Apprehension

Bandura (1977) established that self-efficacy, which is an individual's belief in their capacity to execute a behaviour required to produce a specific outcome, is built primarily through mastery experiences: direct, successful acts of independent performance that the person can attribute to their own capability. In communicative contexts, composing a message without assistance, contributing spontaneously to a discussion, and delivering an unrehearsed opinion constitute such experiences. AI dependency interrupts this accumulation: outcomes are communicated successfully, but attributional credit accrues to the AI rather than the person. Over many such interactions, communicative self-efficacy erodes not because the person has become less capable, but because they have accumulated fewer reasons to believe in their own capability.

The self-efficacy–communication apprehension relationship is among the most consistently documented findings in communication psychology. Higher communicative self-efficacy is a significant and robust predictor of lower communication apprehension, as demonstrated across undergraduate and professional populations (Dwyer & Fus, 2002; Cong & Li, 2022; Schulenberg et al., 2024). Critically, self-efficacy is modifiable: interventions that build mastery experiences reliably reduce apprehension (McCroskey & Beatty, 1985). If AI dependency erodes self-efficacy, the apprehension consequences are not permanent. They are potentially reversible through targeted behavioural change.

D. Research Gap and Rationale

Despite convergent evidence from these three literatures, no published study reviewed for this investigation has tested a mediation model in which AI communication dependency is the independent variable, generalised self-efficacy the mediator, and communication apprehension the dependent variable. This gap is significant given the documented prevalence of both AI dependency and communication apprehension in the target age group, and given the practical consequences of elevated apprehension for academic success, professional performance, and psychological wellbeing. The developmental significance of the target population amplifies urgency: young adulthood is the period during which communication habits, self-efficacy beliefs, and professional identity stabilise (Bandura, 1977; Arnett, 2000). Studying this relationship in an urban Indian sample provides a culturally specific test of a model with broader theoretical ambitions.

III. METHODOLOGY

A. Research Design and Hypotheses

A quantitative cross-sectional correlational design was employed, appropriate for examining the direction, strength, and significance of relationships between psychological variables without experimental manipulation (Creswell, 2014). Both communication apprehension and self-efficacy are trait-level constructs, making cross-sectional measurement defensible for an initial exploratory investigation. Mediation was tested using the General Linear Model framework with bootstrapped confidence intervals, following Hayes (2018).

Four directional hypotheses were tested. H1: There will be a significant negative relationship between AI-assisted communication dependency and expressive cognitive confidence. H2: There will be a significant positive relationship between AI-assisted communication dependency and communication apprehension. H3: There will be a significant negative relationship between expressive cognitive confidence and communication apprehension. H4: Expressive cognitive confidence will significantly mediate the AI dependency–communication apprehension relationship (the Crutch Effect).

B. Sample

Participants were N = 105 young adults (Female n = 60, 57.1%; Male n = 44, 41.9%; Prefer not to specify n = 1; age range 18–35 years, M = 25.7, SD = 4.9) residing in urban India, recruited via convenience and snowball sampling through WhatsApp, Instagram, and LinkedIn. Inclusion criteria required: age 18–35 years, urban Indian residence, sufficient English proficiency, and voluntary informed consent. A minimum sample of 80 was required

to detect medium correlations ($r \geq .30$) at $\alpha = .05$ with 80% power (Faul et al., 2007); the final N = 105 exceeded this threshold and provided sufficient power for bootstrapped mediation with 5,000 resamples. Occupationally, 50 were students (47.6%), 40 employed full-time (38.1%), 8 self-employed (7.6%), 5 part-time employed (4.8%), and 2 unemployed (1.9%). Daily AI usage: < 30 minutes (n = 32, 30.5%), > 3 hours (n = 31, 29.5%), 30 min–1 hour (n = 21, 20.0%), 1–3 hours (n = 12, 11.4%), no use (n = 9, 8.6%).

C. Instruments

Three validated instruments were used. The AI Communication Dependency Scale (AI-CDS) was adapted from the General Attitudes towards Artificial Intelligence Scale (Schepman & Rodway, 2023) and the Dependence on Generative AI subscale (Morales-García et al., 2024). The 8-item scale uses a 5-point Likert format (1 = Strongly Disagree to 5 = Strongly Agree; range 8–40; higher = greater dependency). Representative items: "I feel uncomfortable sending an important message without checking it with AI first" and "I find it difficult to write messages on my own without AI assistance." In this sample, Cronbach's $\alpha = .936$ (excellent), with all item-rest correlations exceeding .57.

The General Self-Efficacy Scale (GSE; Schwarzer & Jerusalem, 1995) is a 10-item measure of generalised belief in one's capacity to perform effectively across demanding situations (4-point format; range 10–40; higher = stronger self-efficacy). Validated across more than 25 countries with nearly 20,000 participants, Cronbach's alpha ranges consistently from .76 to .90 (Scholz et al., 2002). The GSE was deliberately selected to operationalise expressive cognitive confidence using a domain-general measure, thereby avoiding construct overlap with the PRCA-24 outcome. In this sample, $\alpha = .884$ (good).

The Personal Report of Communication Apprehension (PRCA-24; McCroskey, 1982) is the most widely used measure of trait communication apprehension, normed on more than 40,000 college students and 3,000 non-student adults (McCroskey, 2005). The 24-item scale assesses apprehension across four contexts: group discussion, meetings, interpersonal conversation, and public speaking (5-point Likert; range 24–120). Scores above 80 indicate high apprehension; 51–80 moderate; below 51 low. Internal consistency is consistently above .90; in this sample, $\alpha = .964$ (excellent).

D. Procedure and Statistical Analysis

A single Google Form survey incorporating informed consent, demographic items, and all three instruments was distributed in early 2026. Completion required approximately 10–12 minutes; only fully completed responses were retained. All analyses were conducted in Jamovi Version 2.6 (The jamovi project, 2024), which provides equivalent functionality to SPSS including integrated bootstrapped mediation via the jAMM module (Gallucci, 2020). The analytical sequence comprised: (1) descriptive statistics and Shapiro-Wilk normality assessment, (2) Cronbach's alpha reliability, (3) Pearson's product-moment correlations (H1–H3), (4) Hayes (2018) Model 4 simple mediation with 5,000-resample bootstrapped CI (H4), and (5) between-group comparisons using independent-samples t-tests and one-way ANOVAs with Tukey's HSD post-hoc tests. With N = 105, the Central Limit Theorem justifies parametric analyses despite mild non-normality in AI-CDS scores ($W = .953$, $p = .001$; Field, 2018).

IV. RESULTS AND DISCUSSION

A. Descriptive Statistics

Table 1 presents descriptive statistics for all three primary variables. AI dependency scores (M = 24.9, SD = 9.34) showed considerable variability across the full scale range (8–40). Self-efficacy scores (M = 30.9, SD = 4.61) were approximately normally distributed ($W = .976$, $p = .051$). Communication apprehension scores (M = 70.5, SD = 21.5, range 27–119) fell in the moderate range (51–80) and aligned with published young adult norms (McCroskey, 2005). Across PRCA-24 subscales, public speaking generated the highest apprehension (M = 18.95, SD = 5.44), followed by meetings (M = 17.84), group discussion (M = 17.32), and interpersonal conversation (M = 16.43), consistent with published normative patterns.

Table 1: Descriptive Statistics and Scale Reliability (N = 105)

Scale	M	SD	Min	Max	α	SW p
AI-CDS	24.9	9.34	8	40	.936	.001*
GSE	30.9	4.61	20	40	.884	.051
PRCA-24	70.5	21.5	27	119	.964	.062

Note. AI-CDS = AI Communication Dependency Scale; GSE = General Self-Efficacy Scale; PRCA-24 = Personal Report of Communication Apprehension; α = Cronbach's alpha; SW p = Shapiro-Wilk p-value. *p < .05.

B. Correlational Analysis (H1–H3)

Three bivariate Pearson's correlations were computed (Table 2). H1 was supported: AI dependency correlated negatively and significantly with self-efficacy, $r(103) = -.257$, $p = .008$, a small-to-medium effect (Cohen, 1988). H2 was supported: AI dependency correlated positively with communication apprehension, $r(103) = .427$, $p < .001$, a medium-to-large effect, with AI dependency accounting for approximately 18.2% of variance in apprehension scores. H3 was supported: self-efficacy correlated negatively with apprehension, $r(103) = -.442$, $p < .001$, replicating the consistently documented protective role of self-efficacy (Dwyer & Fus, 2002; Cong & Li, 2022) in an urban Indian young adult sample.

Table 2: Pearson's Product-Moment Correlation Matrix (N = 105)

Variable	1	2	3
1. AI Dependency (AI-CDS)	—		
2. Self-Efficacy (GSE)	−.257**	—	
3. Comm. Apprehension (PRCA-24)	.427***	−.442***	—

Note. **p < .01; ***p < .001 (two-tailed).

C. Mediation Analysis: The Crutch Effect (H4)

A simple mediation model was estimated using jAMM (Gallucci, 2020), implementing Hayes (2018) Model 4, with AI dependency as X, self-efficacy as M, and communication apprehension as Y. Bootstrap percentile CIs were computed with 5,000 resamples. Table 3 reports all path coefficients. Path a was significant and negative ($B = -0.127$, $SE = 0.047$, $p = .006$): higher AI dependency predicted lower self-efficacy. Path b was significant and negative ($B = -1.661$, $SE = 0.394$, $p < .001$): lower self-efficacy predicted higher apprehension, controlling for AI dependency. The indirect effect, which represents the Crutch Effect pathway, was positive, significant, and its 95% bootstrap CI excluded zero ($B = 0.211$, 95% CI [0.020, 0.443], $p = .022$), confirming H4.

The indirect effect accounted for 21.4% of the total effect (0.211/0.984 × 100), indicating partial mediation. The direct effect remained significant (B = 0.773, p < .001), indicating that self-efficacy is a meaningful but not exclusive mediating pathway. Additional mechanisms, such as communicative avoidance behaviour, reduced oral practice, and disrupted communicative identity, plausibly account for the remaining direct effect.

Table 3: GLM Mediation Analysis – The Crutch Effect (N = 105)

Effect	B	SE	95% CI	p
Path a (AI-CDS → GSE)	−0.127	0.047	[−0.235, −0.017]	.006
Path b (GSE → PRCA-24)	−1.661	0.394	[−2.619, −0.580]	<.001
Direct (c')	0.773	0.195	[0.278, 1.277]	<.001
Indirect (Crutch Effect)	0.211	0.092	[0.020, 0.443]	.022
Total (c)	0.984	0.204	[0.475, 1.484]	<.001

Note. B = unstandardised regression coefficient; SE = standard error; CI = bootstrap percentile interval based on 5,000 resamples. Indirect effect CI excludes zero, confirming significant mediation. Indirect effect accounts for 21.4% of total effect.

D. Group Comparisons

Daily AI usage frequency significantly differentiated participants across all three variables with large effect sizes (AI dependency: $F[3, 101] = 11.75$, $p < .001$, $\eta^2 = .259$; self-efficacy: $F[3, 101] = 5.36$, $p = .002$, $\eta^2 = .137$; communication apprehension: $F[3, 101] = 4.45$, $p = .006$, $\eta^2 = .117$). As daily usage intensified from Low (< 30 min/day) to Very High (> 3 hours/day), a clear gradient emerged: AI dependency rose (M = 19.8 to 31.3), self-efficacy fell (M = 32.7 to 28.6), and communication apprehension climbed from M = 64.3 to M = 81.6. This is precisely the trajectory predicted by the Crutch Effect model. Critically, Very High users' mean PRCA-24 score of 81.6 exceeded McCroskey's (1982) high-apprehension threshold of 80, while Low users remained in the moderate range. Tukey's HSD post-hoc tests confirmed that Very High users reported significantly greater AI dependency than Low users (difference = 11.4, $p < .001$) and Moderate users (difference = 6.78, $p = .021$), significantly lower self-efficacy than Low users (difference = −4.09, $p < .001$), and significantly higher apprehension than Low users (difference = 17.3, $p = .003$).

Gender produced no significant differences on any variable (all $p > .70$; all Cohen's $d < .10$), consistent with prior research (McCroskey, 1986). Employed participants reported significantly higher self-efficacy than students ($F[1, 100] = 4.55$, $p = .035$, $\eta^2 = .044$), a finding interpretable through Bandura's (1977) mastery experience account: professional communicative demands are more frequent, varied, and consequential than those typically encountered in academic settings.

E. Theoretical Integration and Discussion

The central finding of this study is the confirmation of the Crutch Effect (indirect B = 0.211, 95% CI [0.020, 0.443], p = .022, accounting for 21.4% of total effect), which connects two bodies of literature that had not previously been examined together: the cognitive and psychological consequences of AI overreliance, and the self-efficacy determinants of communication apprehension. Both confirmed pathways (path a and path b) match the theoretical expectations derived from Bandura (1977) and Risko and Gilbert (2016), strengthening confidence in the theoretical account.

The partial nature of mediation is substantively informative. A significant direct effect of AI dependency on apprehension persisted after controlling for self-efficacy, indicating that the Crutch Effect pathway is real and meaningful but does not fully explain the relationship. Avoidance behaviour, reduced oral practice, and disrupted communicative identity are plausible candidates for additional mediating mechanisms. The possibility of reverse causation, where high-apprehension individuals are selectively drawn to AI tools as communicative avoidance mechanisms, cannot be ruled out in a cross-sectional design. The descriptive pattern is consistent with both accounts; only longitudinal or experimental designs can establish temporal precedence. The large effect sizes in group comparisons ($\eta^2 = .117$–$.259$) indicate that AI usage frequency explains meaningful, not merely detectable, variance in psychological outcomes.

V. CONCLUSION

This study provides empirical evidence for the Crutch Effect: habitual AI-assisted communication dependency erodes expressive cognitive confidence, which in turn elevates communication apprehension among young adults. All four hypotheses were supported, with the mediation pathway accounting for 21.4% of the total effect. The gradient pattern across daily AI usage frequency groups, culminating in Very High users crossing McCroskey's (1982) clinical threshold for high apprehension, underscores the practical magnitude of the effect.

These findings carry implications across three domains. For clinicians and counsellors, identifying AI communication dependency as a modifiable behavioural antecedent to apprehension creates a new intervention target: graduated independent communication practice programmes designed to restore mastery experiences and rebuild self-efficacy (Bandura, 1977). For educators, these results justify curricula that preserve structured unassisted communication opportunities alongside AI tool integration. For organisations, the dose-dependent pattern across usage groups provides a data-based argument for AI adoption policies that protect communicative confidence among early-career professionals.

Several limitations apply. The cross-sectional design precludes causal inference; longitudinal designs tracking self-efficacy and apprehension as AI usage patterns change over time are required. The convenience sample from urban India limits generalisability to rural Indian populations, older adults, and non-English-speaking communities. All three primary variables relied on self-report, introducing social desirability risk; future studies should incorporate objective AI usage data from application logs. The AI-CDS, as an adapted scale, requires confirmatory factor analysis in an independent sample to establish dimensional structure and discriminant validity. Cross-cultural replication is needed to assess whether the Crutch Effect generalises across individualist versus collectivist cultural contexts.

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