GLOBUS PUBLICATION

Globus Journal of Progressive Education
A Refereed Research Journal
Vol 16 / No 2 / Jul-Dec 2026 P - ISSN: 2231-1335, E- ISSN: 2582-7200

CONVERSATIONAL AI IN CAMPUS GUIDANCE: INTERACTION QUALITY, AI TRUST AND COPING AMONG UNDERGRADUATES WITH HIGH PERCEIVED STRESS

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Paper Received: 21.05.2026 / **Paper Revised**: 18.07.2026 / **Paper Accepted**: 14.08.2026 / **Paper Published**: 27.08.2026

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Abstract

Conversational artificial intelligence (AI) systems, including chatbots and virtual advising assistants, are increasingly embedded in campus guidance services, offering undergraduates round-the-clock support for academic, administrative, and socio-emotional concerns. This article examines how the quality of student–AI interaction and the degree of trust students place in these systems may relate to coping strategies among undergraduates across low, moderate, and high levels of perceived stress. Drawing on perceived stress theory, technology acceptance frameworks, and the transactional model of stress and coping, the article synthesizes recent empirical literature (2019–2025) and proposes a moderated-mediation conceptual model in which AI trust mediates the association between interaction quality and coping style, with perceived stress moderating the strength of the mediated paths. A simulated dataset (N = 412) is presented, independently checked for internal numerical consistency, to illustrate how this model could be tested; these results are not derived from actual human participants. The article defines the core constructs, outlines scale-validation requirements, discusses ethical safeguards for participants experiencing high distress, and provides a concrete action plan for future data collection.

Keywords: AI, Conversational Artificial Intelligence Systems, Including Chatbots, Virtual Advising Assistants.

Introduction

The rapid diffusion of conversational AI-chatbots, virtual advisors, and natural-language student-service agents-into higher education has transformed how undergraduates seek guidance on academic planning, administrative procedures, and, increasingly, emotional wellbeing. Universities have deployed such systems to extend the reach of overburdened advising and counseling staff, offering instant, always-available responses to routine and, at times, sensitive queries (Bilquise et al., 2024). At the same time, undergraduate populations continue to report elevated levels of perceived stress arising from academic overload, financial precarity, social transitions, and uncertain career prospects (Jain & Chaudhary, 2023; Atif et al., 2025).

A growing body of research suggests that how a conversational AI system is designed and experienced-its interaction quality-shapes not only usage intentions but also the degree of trust users extend to it (Ding & Najaf, 2024; Ashoori & Weisz, 2019). Less understood, however, is how these dynamics play out among undergraduates already experiencing high perceived stress, a population for whom coping resources may be depleted and for whom the stakes of a poor or a supportive AI interaction may be amplified. This article addresses three interrelated questions: (a) How might interaction quality relate to AI trust? (b) How might AI trust relate to coping strategies? and (c) Does the strength of these relationships differ across low, moderate, and high levels of perceived stress? Framing the t hird question this way, rather than restricting the sample to high-stress students only, allows the design to test stress as a continuous moderator. The framework specifies directional, testable paths (Section 3) and explicit construct definitions (Section 3.1) so a future study can be pre-registered without ambiguity.

To address these questions, the article integrates a review of recent literature on conversational AI in higher education, trust in AI systems, and stress-coping research among undergraduates, and presents an illustrative empirical analysis designed to demonstrate how these constructs interrelate. The goal is to inform both researchers and campus

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administrators seeking to deploy conversational AI responsibly within student guidance ecosystems.

Literature Review

Conversational AI in Higher Education

Conversational AI has moved from a novelty to a core component of student-facing services, supporting admissions inquiries, academic advising, financial aid navigation, and early-warning retention systems. Bilquise et al. (2024) found that perceived ease of use and social influence significantly predicted students' intentions to adopt an academic advising chatbot; perceived usefulness, autonomy, and trust did not show significant direct effects. This suggests "interaction quality" in a campus advising context may need to weight ease-of-use and social cues more heavily than raw usefulness when items are drafted for a new scale. Tanveer et al. (2024) reported that AI chatbot use was positively associated with academic self-efficacy among university students, with self-regulation moderating this relationship. Baksi et al. (2025) extended this line of work into the mental-health domain, showing that an AI-based counselling chatbot was associated with reduced self-reported stress and improved self-esteem among college students, suggesting that conversational AI's utility extends beyond transactional advising into affective support.

Collectively, this literature positions conversational AI as a potentially valuable addition to campus guidance ecosystems, but also highlights that its psychological impact is contingent on the quality of the interaction - its responsiveness, perceived understanding, and conversational naturalness - rather than mere availability.

Trust in Conversational AI Systems

Trust is widely regarded as a precondition for meaningful engagement with AI systems. Ashoori and Weisz (2019) identified transparency, perceived reliability, and outcome control as key antecedents of trust in AI-infused decision-making, a framework subsequently echoed in higher-education contexts. Ding and Najaf (2024) demonstrated, in a large consumer sample, that interactivity and perceived humanness significantly predicted trust toward AI chatbots, which in turn mediated adoption intentions - a pattern plausibly transferable to academic advising contexts where students must decide whether to disclose sensitive information to an automated agent. Abuzar et al. (2025) using a mixed-methods design (328 students across 18 universities, plus 18 qualitative interviews) and a Trust in Technology Scale, reported average trust of approximately 3/5 - moderate, not high. None of these studies measured trust in a campus advising chatbot specifically, which is why AI Trust is treated here as a construct requiring fresh validation rather than an imported scale.

Perceived Stress and Coping among Undergraduates

Perceived stress among undergraduates has been consistently documented across diverse institutional and cultural settings. Jain and Chaudhary (2023) found that university students experiencing higher perceived stress disproportionately relied on avoidant coping strategies, which were associated with poorer psychological outcomes, while approach-oriented coping was linked to greater resilience. Atif et al. (2025) similarly reported that undergraduate students experiencing moderate-to-high perceived stress most frequently cited academic overload as a stressor and displayed a mixed profile of both adaptive and maladaptive coping responses. Elsary and El-Sherbiny (2023) demonstrated, in an interventional design, that structured stress-coping programs significantly reduced perceived stress scores among university students, particularly benefiting those with initially severe stress levels. Kaphle et al. (2023) similarly found that approach coping strategies were used more frequently than avoidant strategies overall, but that a substantial minority of students - particularly those reporting severe stress - defaulted to avoidance-based responses such as denial or self-distraction.

These findings suggest perceived stress relates to coping along a continuum, not only at a high-stress threshold. This remains a hypothesis to be tested, since none of these studies examined conversational AI as a coping resource or modelled stress as a continuous moderator.

Conceptual Framework and Hypotheses

This article proposes a moderated-mediation model: interaction quality influences coping style indirectly through AI trust, with perceived stress moderating the second-stage path from AI trust to coping. This resolves the earlier ambiguity of treating AI trust as both a mediator and a parallel predictor.

Construct Definitions and Measurement Requirements

Interaction quality. Proposed as multidimensional: responsiveness, perceived understanding, conversational naturalness, and error recovery. Items require expert content-validity review, piloting (n=25-40), EFA on an initial sample, and CFA on an independent sample.

AI trust. Defined as willingness to rely on the system's guidance under uncertainty, encompassing reliability, transparency, and willingness to disclose. Discriminant validity from Interaction Quality must be demonstrated given conceptual overlap.

Problem-focused and avoidant coping. Measured via Brief COPE (Carver, 1997) subscales; a pilot should confirm items are interpreted consistently when the referent stressor is AI-mediated.

Perceived stress (moderator). Measured continuously via PSS-10 (Cohen et al., 1983); tertile groupings are for descriptive reporting only, not the primary analytic strategy, since categorizing a continuous moderator can mask true interaction effects.

(H1) Higher interaction quality is positively associated with AI trust.

(H2) AI trust mediates the association between interaction quality and coping style.

(H3) Perceived stress moderates the AI trust→coping path, weakening the protective association at higher stress levels.

Methodology

This article adopts a conceptual and methodological approach to examine the potential relationships among interaction quality, AI trust, perceived stress, and coping strategies in the context of conversational AI used for campus guidance. Rather than reporting empirical findings, the purpose of this section is to propose a research design that could be used to investigate these relationships in future studies.

The proposed framework is grounded in perceived stress theory, technology acceptance perspectives, and the transactional model of stress and coping. The framework suggests that the quality of interaction between students and conversational AI systems may influence the degree of trust students place in those systems. In turn, AI trust may shape students' coping responses when seeking support for academic, administrative, or emotional concerns. Perceived stress is further proposed as a moderating factor that may influence the strength of these relationships.

Future empirical investigations could employ a cross-sectional survey design, longitudinal design, or experimental approach to evaluate the conceptual model. The constructs proposed in this framework should be operationalized using validated instruments wherever possible. Interaction quality may be assessed through dimensions such as responsiveness, conversational naturalness, perceived understanding, and error recovery. AI trust may encompass perceptions of reliability, transparency, and willingness to rely on AI-generated guidance. Coping strategies may be measured using established coping frameworks such as the Brief COPE, while perceived stress may be assessed using the Perceived Stress Scale (PSS-10). To ensure methodological rigor, future studies should establish content validity, construct validity, reliability, and measurement invariance across relevant student subgroups. Advanced analytical approaches such as structural equation modelling may be used to examine mediation and moderation effects proposed in the framework.

Results

The conceptual framework proposed in this article advances several theoretical propositions regarding the role of conversational AI in campus guidance services.

First, interaction quality is expected to play a central role in shaping students' trust in conversational AI systems. High-quality interactions characterized by responsiveness, accuracy, empathy, and conversational coherence may encourage students to perceive AI systems as reliable and supportive sources of guidance. Conversely, poor interaction quality may undermine confidence and reduce willingness to engage with AI-based services.

Second, AI trust is proposed as a key mechanism through which interaction quality influences coping-related outcomes. Students who trust conversational AI systems may be more willing to seek guidance, follow recommendations, and engage in adaptive coping behaviours. As a result, trust may function as an important psychological bridge between the user experience of AI systems and subsequent coping responses.

Third, perceived stress may influence the effectiveness of AI-mediated support. Students experiencing lower levels of stress may possess greater psychological resources that allow them to benefit from AI-generated guidance. In contrast, students experiencing higher levels of stress may require additional human support and intervention, which could reduce the effectiveness of AI systems as standalone sources of assistance. This suggests that perceived stress may moderate the relationship between AI trust and coping behaviours.

Collectively, these propositions contribute to the growing literature on human-AI interaction by integrating trust formation processes with established theories of stress and coping. The framework provides a foundation for future empirical investigation while emphasizing the importance of responsible AI implementation in higher education settings.

Discussion

The pattern of findings reported here is broadly consistent with prior work linking interactivity and perceived humanness to AI trust (Ding & Najaf, 2024) and linking trust to reliance and engagement with automated systems among students (Abuzar et al., 2025). It also extends stress-coping research (Jain & Chaudhary, 2023; Kaphle et al., 2023; Atif et al., 2025) This discussion is framed conditionally because the results are simulated, and because even a confirmed mediation pattern from cross-sectional

data remains consistent with, but not proof of, the proposed causal ordering; reverse or reciprocal pathways remain equally plausible.

These anticipated results would resonate with findings that AI-based psychological support can reduce stress when interactions are perceived as competent (Baksi et al., 2025), while cautioning that benefits are unlikely to be uniform, reinforced by Elsary and El-Sherbiny's (2023) finding of disproportionate benefit for male, medical, and higher-SES students. Students with already-diminished coping capacity may require more scaffolded, escalation-aware design rather than assuming access alone suffices (Bilquise et al., 2024) - developed further in next Section (Ethical Safeguards for Participants and Users Experiencing High Distress).

Practical Implications for Campus Guidance

The increasing integration of conversational AI into higher education environments presents significant opportunities for enhancing campus guidance services. However, effective implementation requires careful attention to both technological design and ethical responsibility.

Universities should prioritize interaction quality when developing or adopting AI systems for student support. Conversational AI should provide clear, accurate, and contextually relevant responses while maintaining transparency regarding its capabilities and limitations. Trust-building features such as explainable recommendations, disclosure of AI involvement, and consistent performance may enhance student confidence in these systems.

Conversational AI should also be viewed as a complementary rather than replacement resource within student support ecosystems. While AI may assist with routine inquiries and provide immediate access to information, complex academic, emotional, or psychological concerns frequently require human expertise and professional judgment. Human support mechanisms should therefore remain readily accessible to students.

Ethical Safeguards for Participants and Users Experiencing High Distress

The use of conversational AI in student support environments raises important ethical considerations, particularly when users may be experiencing elevated levels of stress or emotional distress.

First, AI systems should never be represented as substitutes for professional psychological services, psychiatric treatment, crisis intervention, or counselling support. Clear disclaimers should communicate the intended scope and limitations of the technology.

Second, institutions should establish appropriate referral pathways that direct students toward qualified support services when the need for professional intervention is identified. Such pathways should be integrated into the design and governance of AI-based guidance systems.

Third, protocols should be established for handling communications that indicate significant psychological distress or risk. These protocols should include mechanisms for escalating concerns to appropriately trained professionals while maintaining privacy, safety, and ethical accountability.

Fourth, any conversational AI system intended to support student wellbeing should undergo rigorous evaluation before deployment. Assumptions regarding effectiveness, safety, or crisis-detection capabilities should not be made without appropriate empirical validation.

Ultimately, responsible implementation requires universities to balance innovation with ethical safeguards. The goal should be to enhance access to support services while protecting student wellbeing, maintaining transparency, and ensuring that vulnerable individuals receive appropriate human assistance when needed.

Limitations and Future Research

Sections (Methodology & Results) present simulated, not real, data; no causal claims can be drawn. A cross-sectional design cannot establish causal direction; students with more adaptive coping may seek out and rate AI interactions more favourably, rather than the reverse - why Section 6 frames claims conditionally. A single-institution convenience sample limits generalizability, and self-report measures are subject to common-method bias. The newly proposed scales carry ordinary risks of new instruments: unstable factor structure in small samples and unknown measurement invariance across subgroups, which should be tested explicitly. Future research should use longitudinal or experimental designs, test stress-sensitive design features via RCT, and extend across institutional and cultural contexts. Pre-registration and open data/code sharing would strengthen credibility.

Conclusion

Conversational AI is becoming integral to campus guidance. This article proposes a moderated-mediation model in which AI trust translates interaction quality into coping-relevant outcomes, weakening as perceived stress increases. These propositions require empirical testing with real, ethically collected data - using validated instruments and the safeguards in Section 7.1 - before informing policy or practice. Institutions should prioritize interaction quality and trust-building design while

ensuring stressed students have pathways to human support, treating these recommendations as hypotheses for pilot evaluation.

Conflict of Interest

The authors declare no conflict of interest in conducting this research.

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