Perceptions and Use of Artificial Intelligence Among Undergraduate Students in Science, Technology, Engineering, and Math (STEM) Fields

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Abstract:

A recent study reports that nearly 80% of college students have had at least one professor discuss the use and ethics of artificial intelligence (AI) in the classroom (Nam, 2023). Common classroom discussions cover various topics in STEM including assessment, curriculum, instruction, and generative AI. Artificial intelligence refers to computer systems that mimic human behaviors, learn from experience, and perform tasks typically attributed to humans, such as problem-solving, thinking, and learning (Alzahrani, 2023). Positive perceptions and use of AI have been consistently linked to educational success (Hooda et al. 2022).

A major predictor of college students' educational success is sense of belonging (Strayhorn, 2019). Sense of belonging is defined as feeling accepted, cared about, respected, and important to faculty, staff, and peers. Belonging is implicitly linked to mattering. Mattering has four dimensions: *attention*, *dependence*, *importance*, and *ego-extension* (Schlossberg, 1981). For instance, attention is defined as being the object of someone's care and ego-extension referring to others who are concerned about your fate and interested in your success. Previous research examines undergraduate and professional students' knowledge, perceptions, and use of AI (Crawford et al., 2024). While useful, more research is needed investigating the relationships between sense of belonging, perceptions, and use of AI in specific disciplines, namely STEM, at historically Black colleges and universities (HBCUs) and predominantly white institutions (PWIs)

In this paper, we present empirical research that examines sense of belonging and perceptions as well as use of artificial intelligence among 573 undergraduate students in STEM at HBCUss and PWIs.