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Title

Educating for Interdisciplinary Collaboration: A Social Perspective-Taking Framework for Inter- and Transdisciplinary Teams

Authors

Use this format: Corresponding Author, Institution, Country; Contributor #2, Institution, Country; Contributor #N, Institution, Country (you need to choose one author as the speaker)

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Content (abstract text)

Avoid using jargon and acronyms. List three to five keywords at the end of your abstract. Don't forget to comply with the word limit according to the selected contribution.

The increasing complexity of scientific and societal challenges has elevated inter- and transdisciplinary (ITD) collaboration from a desirable capability to a practical necessity. Yet simply assembling individuals with diverse expertise rarely produces effective collaboration. Researchers frequently encounter difficulties negotiating disciplinary assumptions, interpreting alternative standards of evidence, and integrating multiple ways of knowing. Although ITD education has increasingly emphasized competencies such as communication, collaboration, and integrative thinking, comparatively little attention has been devoted to the underlying social-cognitive processes that enable individuals to genuinely understand and work from the perspectives of collaborators with different disciplinary backgrounds.

This presentation argues that social perspective taking (SPT) represents one of the foundational yet underdeveloped competencies for ITD education. We synthesize research from team cognition, social psychology, educational psychology, empathy research, and boundary-crossing scholarship to propose a multilevel framework that reconceptualizes perspective taking not as an individual cognitive ability but as an emergent social process that develops through interaction. In doing so, we connect the literature on shared mental models with contemporary work on interdisciplinary collaboration and transformative learning.

The framework organizes SPT into three interconnected layers. The contextual layer captures the environmental, cultural, and dispositional conditions shaping opportunities for perspective taking, including team composition, communication norms, task characteristics, and motivational predispositions. The regulatory layer focuses on the motivational and feedback

processes that determine whether individuals engage in perspective taking and sustain it during collaboration. The constitutive layer identifies the affective, behavioral, and cognitive competencies through which perspective taking is enacted, including metacognitive reflection, dialogical communication, information seeking, and collaborative meaning making. Integrating these layers with boundary-crossing theory demonstrates how reflection, coordination, identification, transformation, and the use of boundary objects support learning across disciplinary boundaries.

Rather than offering a single instructional technique, the framework identifies leverage points for designing and evaluating ITD education. These include structured reflection activities, communication practices that make disciplinary assumptions explicit, feedback-rich collaborative environments, and instructional use of shared artifacts that facilitate negotiation of meaning across disciplinary perspectives. The framework also generates testable propositions regarding how different combinations of contextual supports, motivational conditions, and interactional practices may influence the development of shared understanding while acknowledging potential trade-offs such as increased cognitive workload.

The presentation concludes by discussing implications for research-informed educational design. We argue that preparing researchers for inter- and transdisciplinary collaboration requires moving beyond teaching communication skills toward cultivating adaptive perspective-taking practices that become embedded within collaborative work itself. By providing a theoretically grounded framework linking individual learning processes to collective cognition, this work offers educators, trainers, and researchers a foundation for developing and evaluating interventions that strengthen collaboration across disciplinary boundaries. In doing so, it contributes to the broader goals of ITD education by supporting integrative thinking, collective knowledge construction, and the capacity to address complex societal challenges through more effective interdisciplinary collaboration.

KEYWORDS: Teamwork; Social Cognition; Competencies; Collaboration