

Fostering critical, scientific, and creative thinking in psychology education: Bridging student and teacher perspectives

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This symposium addresses the critical need to foster scientific, critical, and creative thinking in psychology education, particularly in an era of global challenges and increasing science denial. These competencies are essential for preparing students to navigate complex societal issues and for ensuring the continued development of psychology as a scientific discipline. The first two contributions focus on students, examining how critical and scientific thinking skills are developed. One contribution highlights the challenges and opportunities in fostering these skills through innovative teaching strategies, while the other shows how reflecting on the concept of belonging requires scientific reasoning and serves as a bridge to practical applications in diverse learning contexts. However, teachers face significant challenges in fostering these competencies in their classrooms. The last two contributions therefore focus on psychology teachers, exploring how they assess scientific reasoning and argumentation through the use of epistemic criteria, as well as how they can integrate critical and creative thinking into their teaching practices. Together, these presentations bridge student and teacher perspectives, offering valuable insights into fostering critical, scientific and creative thinking in psychology education.

Contribution 1: The Intersection of Critical and Scientific Thinking in the Teaching of Psychology

Lenka Sokolová (Comenius University Bratislava, Slovakia)

Integrating critical and scientific thinking can foster a comprehensive understanding of human behaviour and mental processes, which is the key goal of psychology courses. Critical thinking, characterized by the objective analysis and evaluation of information, complements scientific thinking, which relies on empirical evidence and systematic methodologies. Together, they enhance the rigour and validity of psychological studies and allow practitioners to evaluate psychological information and choose evidence-based approaches and interventions. This synergy not only mitigates cognitive biases but also promotes ethical considerations and innovative problem-solving strategies in psychology students. In this contribution, we discuss the results of the study on learning strategies of university students in Slovakia (N = 651) and complement it with the experience of using Psychology Applied Learning Scenarios (PALS, Norton, 2004) in the teaching of an educational psychology course (N = 360). The comparison of the scores of the critical thinking learning strategies subscale of Motivated Strategies for Learning Questionnaire (MSLQ, Pintrich & Groot, 1990) revealed that psychology students tended to report using critical thinking learning strategies more frequently than students of other fields. However, the qualitative content analysis of PALS outcomes shows some shortcomings in their ability to connect psychological theory and evidence-based approaches with school-based case studies. The implication for the teaching of psychology will be discussed.

Contribution 2: Reflecting on belonging: Bridging scientific reasoning and practice in psychology education

Katerina Machovcova, Irena Smetackova (Charles University), Paula Miles (University of St. Andrews) (Czech Republic)

The concept of learning integration is prominent in higher education literature and is often linked to higher-order understanding, as exemplified by the SOLO Taxonomy of learning outcomes (Biggs & Collins, 1982). Building on Leadbeatter's (2021) work, we emphasize integration goals focused on connectivity—specifically, linking theory to practice and connecting different aspects of learning. Using this framework, we introduced the concept of belonging in higher education (Good, 2012; Boulton, 2022) by designing a workshop to help students explore their journey of belonging to their institution. This activity had two primary aims: (a) to support students in examining the theoretical concept of belonging through personal reflections and (b) to enhance their learning experience by exploring the diversity of student perspectives. The workshop consists of four components: a lecture introducing the theoretical conceptualization of belonging, an activity where students create a trajectory illustrating how their sense of belonging evolved, coding their experiences using factors from the literature, and a group discussion.

We piloted the workshop in three classes (N = 8, Psy St. An; N = 62, Psy BA ChU; N = 9, Ped MA ChU) and evaluated it through discussions and additionally brief online feedback in two groups (N = 13 psychology BA students, N = 9 pedagogy MA students). Discussions revealed the workshop facilitated connections between theory and practice and encouraged students to adopt multiple perspectives by sharing diverse experiences, including contrasting feelings about similar events. Group discussions promoted a nuanced understanding of belonging, with theoretical framing offering valuable insights despite individual variability in experiences. Online feedback indicated improved understanding of belonging and positive reception of the approach. However, a recurring theme emerged: both psychology and pedagogy students showed limited awareness of how stereotypes and self-stereotyping negatively influence belonging.

Contribution 3: Challenges in assessing scientific reasoning and argumentation in psychology education

Marleen Evers, Jan Elen, Machteld Vandecandelaere (KU Leuven, Belgium)

Psychology education presents unique challenges due to its complex, non-paradigmatic nature. Fostering scientific reasoning and argumentation (SRA) in secondary education helps students navigate this complexity, yet research provides little guidance on how to effectively teach SRA. This study examines the evaluation of SRA and its relationship to teachers' epistemological beliefs.

Thirty-one psychology teachers formulated assessment criteria and scored student responses using prompted criteria. Epistemological beliefs were measured using Barzilai and Weinstock's (2015) Epistemic Thinking Assessment. The analysis revealed a predominant focus on process and argumentation criteria, with difficulties in identifying and applying epistemic criteria. While prompted criteria enhanced attention to argumentation quality, they often led to the reframing of tasks as application or analysis exercises rather than genuine SRA evaluations. Teachers' epistemological profiles were, however, not reflected in their selection or use of assessment criteria.

The misalignment between teachers' epistemological beliefs and their assessment criteria suggests other underlying gaps in evaluating SRA. To address these issues, we propose follow-up research examining (1) teachers' epistemic knowledge of the criteria used by scientists to evaluate psychological theories, (2) their curricular ambitions for assessing students' SRA, and (3) the characteristics of their own SRA skills. By deepening our understanding of these aspects, this research contributes to the development of more effective assessment practices, ultimately enhancing psychology education by equipping both teachers and students with the skills needed for rigorous scientific reasoning.

Contribution 4: Critical and creative thinking in psychology initial teacher education: preparing future teachers of psychology

Karen Marangio (Monash University, Australia)

Creativity and critical thinking (C&CT) are imperative for sustainable and unpredictable futures. Initial teacher education (ITE) plays a central role supporting future teachers to become innovative and purposeful curriculum-makers to meet the current and future needs of their school students in an ever changing and uncertain world. This 3-year small-scale qualitative research study explores two psychology teacher educators' (TEs) insights into explicitly teaching C&CT in ITE psychology education tutorials. It extends on previous research (Marangio et al. 2024) with a team of science TEs (including psychology) that explored the ways explicitly teaching C&CT in common science seminars and a common assignment challenged their own professional knowledge as part of an OCED-large scale interdisciplinary project. Data consisted of psychology TE weekly meeting documentation and correspondence, reflective journals, curriculum documents, and biannual meetings with a critical friend. Data were deductively and inductively analysed for critical events that triggered deep reflection on the conditions for teaching PSTs to develop C&CT and integrate these C&CT competences into their future teaching. Themes identified were: (1) promoting the central roles of C&CT in psychology and psychology education; (2) challenging PSTs assumptions about C&CT in psychology and psychology education; and (3) fostering productive spaces for collaborative curriculum-making. Explicitly teaching C&CT required deliberate planning, teaching, and collaborative reflection over time. It highlighted the complexities in building trust with PSTs to support their learning to take risks with pedagogy, to navigate the problematic nature of teaching psychology, to reimagine psychology's educative value, and to develop a shared language for psychology's diverse nature and contemporary science base. Implications for psychology teacher education will be discussed.

Is the first author also the speaker?

Yes

If first author is not the speaker, please indicate speaker's name here:

4 speakers (first authors), 1 chair and 1 discussant

Please indicate up to five keywords regarding the content of your contribution

critical thinking, scientific reasoning, creative thinking, psychology education

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