

Special Issue Call for Papers

Re-Examining Cognitive Tools: New Developments, New Perspectives, and New Opportunities for Educational Technology Research

Guest editors

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Focus of the special issue

Submissions are invited for a forthcoming special issue of AJET to be published in early 2019, entitled *Re-examining cognitive tools: New developments, new perspectives, and new opportunities for educational technology research*.

The idea of digital technologies as cognitive or ‘mind tools’ was heavily advocated in the 1990s by a number of educational scholars (e.g., Jonassen, 1991, 1994, 1996; Jonassen & Reeves, 1996; Lajoie & Derry, 1993; see also Pea, 1985) who argued that computing devices and software could be usefully viewed in terms of their affordances for facilitating cognitive activities in support of constructivist learning. Central to the concept is an emphasis on students’ learning *with*, rather than *from* or *through*, the technology as they undertake higher order thinking tasks. This underscores the role technologies can play in enabling student-directed experiences that give rise to deep learning and engagement.

Today, the concept of cognitive tools continues to offer a relevant and important lens through which to understand how learners engage in cognitive activities by leveraging the capabilities and affordances of contemporary technologies (Herrington & Parker, 2013; Hwang, Shi, & Chu, 2011; Lee, Pradhan, & Dalgarno, 2008; Liu, Horton, Toprac, & Yuen, 2011; Wang, Hsu, Reeves, & Coster, 2014; Zap & Code, 2016). However, following Iiyoshi, Hannafin, and Wang (2005, p. 291), it remains the case that “cognitive tool technology offers substantial potential to improve learning, but requires significant study to determine the factors that influence their successful application” (see also Kim, 2012; Kim & Reeves, 2007). Furthermore, over the course of the intervening decades since the concept was first popularised, the educational technology landscape has transformed drastically from one in which desktop computer-assisted learning (CAL) packages and static hypermedia environments were considered state of the art, into one where Internet-connected mobile, wearable, and embedded computing devices proliferate; where students and teachers routinely use online social media for personal as well as educational purposes; and where immersive virtual reality looks to finally be entering the mainstream. With all of the above in mind, this special issue seeks to stimulate further conversation on cognitive tools for learning in post-secondary education, revisiting the concept in light of recent developments and advances not only technologically, but also with respect to learning theory, pedagogy, instructional design, cognitive science, and psychology.

Suggested topics

The guest editors seek article submissions from a wide cross-section of scholars who have creatively and rigorously employed the concept of cognitive tools for their research into technology-enhanced learning

in higher education, vocational education, and professional/workplace learning contexts. Possible topics include, but are not limited to, the following:

- Design-based research studies that report on innovative applications of new and emerging technologies (e.g., mobiles and wearables, virtual reality, augmented reality, robots, drones, Internet of Things devices) as cognitive tools for learning;
- Meta-analyses or meta-syntheses of prior empirical research, leading to new insights and understandings about technology-based cognitive tools for learning and/or evidence-based principles to guide the creation of such tools;
- New or alternative theoretical perspectives on cognitive tools for learning, along with implications for practice and future research;
- Development, validation, and application of novel frameworks for assessing the efficacy of specific approaches or tools in supporting student cognition;
- Examination of the relationship between cognition, social learning, and affect in technology-mediated learning environments to extend the concept of cognitive tools;
- Cognitive tools in the form of integrated scaffolds for inquiry-based or discovery learning within 3D virtual world and game environments;
- Cognitive tools for assisting shared cognition among large numbers of distributed individuals and for supporting collaborative learning on a massive scale (e.g., in MOOCs);
- Applicability of the cognitive tools concept to next-generation user interfaces that take learner-computer interactions beyond the screen (e.g., multi-touch tabletops and walls, motion-sensing controllers, haptics/force-feedback hardware, natural-language speech recognition and speech synthesis systems, brain-computer interfaces);
- Adaptive and intelligent cognitive tools capable of dynamically adjusting/responding to different learner needs and situations (e.g., through machine learning);
- Cognitive tools for learning that are based on or otherwise make use of big data and advanced analytics.

Please note that since AJET's focus and scope are strictly limited to post-secondary education, submissions pertaining to K-12 or early childhood education will **not** be considered for the special issue.

Manuscript submission instructions

Manuscripts addressing the special issue's focus should be submitted through AJET's online [manuscript submission system](#). Please review the [Author Guidelines](#) and [Submission Preparation Checklist](#) **carefully**, and prepare your manuscript accordingly. Information about the [peer review process and criteria](#) is also available for your perusal.

NOTE: When submitting your manuscript, please include a note in the 'Comments for the Editor' field indicating that you wish it to be considered for the "Cognitive Tools" special issue. Please direct questions about manuscript submissions to the guest editors at ajet.cogtools@gmail.com.

Prospective authors are strongly encouraged to get in touch with the guest editors well ahead of the submission deadline, advising them of the provisional title of the manuscript they intend to submit and supplying a brief proposal or abstract outlining the manuscript's nature, content, and aims.

Timeline

Before 1 June 2018	Brief proposals/abstracts to be emailed to guest editors (optional, but strongly encouraged)
1 August 2018	Strict deadline for submission of full manuscripts via AJET's submission system
1 November 2018	Decisions and feedback on manuscripts sent to authors
1 February 2019	Revised manuscripts due
April 2019	Anticipated publication of special issue in AJET 35(2)

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