



# Exploration of human cognitive universals and human cognitive diversity

Dana Basnight-Brown<sup>1</sup> · Steve M. J. Janssen<sup>2</sup> · Ayanna K. Thomas<sup>3</sup>

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## Abstract

In this editorial, the editors briefly introduce the aims of the Special Issue. If the goal of the scientific field of *Cognitive Psychology* is to improve our understanding of human cognition, then research needs to be conducted on a much broader slice of humanity than it has mostly been doing. The first aim of this Special Issue was to examine cognitive processes in populations that are different from the typical Western young adult samples often used in previously published studies. Studies in this issue therefore included both non-WEIRD participants as well as WEIRD participants who process information using different sensory experiences (e.g., individuals who are deaf). The second aim was to amplify – where possible – the research of scholars from less well-represented regions. The authors of the studies were affiliated with a diverse range of academic institutes and frequently included partnerships between Western and non-Western investigators.

**Keywords** Cognitive psychology · Universality · Diversity · WEIRD · Generalizability

## Introduction

The aim of cognitive psychology is to understand human cognition. The journal *Memory and Cognition* was conceived to publish high-quality work that “covers human memory and learning, conceptual processes, psycholinguistics, problem solving, thinking, decision making, and skilled performance, including relevant work in the areas of computer simulation, information processing, mathematical psychology, developmental psychology, and experimental social psychology” (published aims of *Memory and Cognition*). This was a laudable goal, and for nearly 50 years the journal has consistently published innovative and impactful research. *Memory and Cognition* has played an important role in the growth and influence of cognitive psychology.

Yet, if the aim of human cognition is to develop an understanding of how humans perceive, remember, think, and

decide, we have not adequately achieved this goal. To date, most of the research designed to understand human cognition has focused on a small and unrepresentative section of humanity. For example, Arnett (2008) showed that 68% of studies in six top American Psychological Association journals relied on samples drawn from the USA, and 96% relied on samples drawn from Western industrialized nations (Europe, North America, Australia, or Israel). The White, English-speaking, normatively Invisible, Racially color-evasive, socially Dominant class (see Syed, 2021; Tripp, 2021, for a revised definition of WEIRD), problem has become widely known, but solutions have yet to deeply penetrate investigations into fundamental cognitive processes. Further, WEIRD samples are often being used as the metric to which other psychological behaviors and processes are compared (Cheon et al., 2020); however, these WEIRD samples are likely the outliers and not representative of the majority global population (Henrich et al., 2010). For this reason, the concept of “special samples” should be reconsidered, as WEIRD populations widely examined in the literature may actually be more indicative of the minority “special samples” moniker that many often attribute to studies focusing on participants from under-represented regions.

A reconsideration of whether cognitive researchers should even identify a normative sample would also address concerns regarding research with non-normative samples.

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✉ Ayanna K. Thomas  
Ayanna.Thomas@tufts.edu

<sup>1</sup> United States International University – Africa, Nairobi, Kenya

<sup>2</sup> University of Nottingham Malaysia, Semenyih, Malaysia

<sup>3</sup> Department of Psychology, Tufts University, Medford, MA 02155, USA

For example, many researchers working with samples that do not conform to these characteristics often have faced the requirement to justify the sample used, include a WEIRD comparison sample, and/or discuss the non-WEIRD sample as a possible limitation. Conversely, research using WEIRD samples does not face these critiques.

Like that reported in other areas of psychology, White, middle-class young adults at English-speaking universities have dominated the samples in which cognitive psychologists have tested hypotheses, developed frameworks, and built theoretical models (see also Roberts et al., 2020). Because individual cognitive processes, such as perception, attention, executive control, and memory, are often taken to include universal, species-typical mechanisms, we argue that this is a particularly fruitful area for our efforts to understand what it means for a mechanism or process to be universal or be part of “human nature” (cf., Barrett, 2020). The assumption of universality in human cognition has often minimized the variation across groups, with a goal to control “individual differences.” However, this pursuit has centered on a non-represented normative experience while marginalizing others (see APA, 2021). Although there is a long history of consideration of culture factors as they impact cognition, we suggest that the motivation to identify universal principles resulted in minimizing cross-cultural differences or characterizing them as interesting aberrations as opposed to critical indicators of cognition as an internal-external dynamic system that is adaptable and diverse.

The first aim of this Special Issue was to examine general cognitive processes in populations that are different from the typical Western young adult samples often used in previously published studies. Studies in this issue focus on special samples that include both non-WEIRD participants as well as WEIRD participants who process information using different sensory experiences (e.g., individuals who are deaf). The second aim of this Special Issue was to amplify the research of scholars from less well represented regions, where possible. Researchers studying human cognition are from a skewed subset of the world’s countries, reflecting a bias in science in general, in which most publications come from the USA and Europe (Hassan, 2008). As Dutra (2021) aptly points out, the WEIRD concept does not apply only to participant samples but is also reflected in the dominance of researchers from WEIRD societies. As a result, an important question concerns the degree to which our theories, methods, and research questions are biased by our own cultural backgrounds, a phenomenon that the current Editor-in-Chief

of *Memory and Cognition* wrote about in her opening editorial (Thomas, 2020; see also Thomas et al., [in press](#)).

With these goals in mind, when looking at the topics covered by the Special Issue (see Table 1), we can see a wide range of topics representing many sub-fields within cognitive psychology, from perception to language and thinking. Across all areas we present research that demonstrates the need to consider culture and context. Additionally, the Special Issue contains studies with WEIRD samples who may process information differently, such as deaf people (i.e., Dye & Terhune-Cotter, [in press](#); Karadöller et al., [in press](#)), and non-WEIRD samples, such as participants from China, Columbia, Ecuador, Iran, Japan, Malaysia, Papua New Guinea, Poland, Russia, Serbia, Singapore, Turkey, and Vanuatu. Not only did the studies include samples from non-WEIRD countries, but the authors of the studies were also affiliated with a diverse range of academic institutes. In addition, researcher teams included partnerships between Western and non-Western investigators (e.g., Boyette et al., [in press](#); Sarvasy et al., [in press](#); Wefers et al., [in press](#)).

Since the original reports by Arnett (2008) and Henrich et al. (2010), a review of where things stand 15 years later does not reveal tremendous advancements within the literature. For example, roughly 11% of the world’s population are now represented in top psychology journals, with the remaining 89% still absent (Thalmayer et al., 2021). There remains little representation from authors in the Middle East, Latin America, and Africa, even among the articles of this Special Issue. In addition to improving our understanding of human cognition by determining which cognitive processes replicate and emerge as universals across populations, a more diverse cognitive science will also allow us to determine what is of value to different societies. As Dutra (2021) and Thalmayer et al. (2021) have pointed out, when we have few participants *and* authors from certain regions of the world, one might wonder whether the research questions being generated by WEIRD societies are even relevant to other parts of the world. What is valued, as well as who determines those values, affects how a research field develops, which in turn has important implications for our understanding of human behavior. As Muthukrishna et al. (2020) stated, “if psychology were dominated by Chinese psychologists, we would see a different set of psychological outcomes covered in textbooks, and these psychologies would correlate with a Chinese scale” (p. 698).

**Table 1** The authors and topic of the studies in the Special Issue, the countries and short description of the samples examined in the studies, and the countries in which the authors' affiliations are located

Authors	Topic	Country of samples	Samples	Country of affiliation
Baess et al.	Spatial cognition	Australia, China, Germany, Malaysia	Young adults	Australia, China, Germany, Malaysia
Boyette et al.	Teaching behavior	Vanuatu	Children	Canada, Germany
Davoodi et al.	Causality	Iran	Children	Iran, USA, UK
Dye & Terhune-Cotter	Visual attention	USA	Deaf children	USA
Hacibektaşoğlu et al.	Collective memory	Turkey	Adults	Turkey, USA
Karadöller et al.	Spatial cognition	Turkey	Deaf people	Turkey, Netherlands
Kim et al.	Metamemory	Germany, Japan	Children	France, Germany, Japan, and UK
Luna et al.	Metamemory	Colombia	Adults	Colombia
McDonough et al.	Cognitive abilities	USA	Older adults	USA
Mert et al.	Collective memory	Turkey, China, USA	Adults	China and USA
Mohamed et al.	Morphological processing	Singapore	Adults	Canada and Singapore
Öner et al.	Collective memory	Canada, China, Denmark, France, Germany, Greece, Italy, Malaysia, New Zealand, Poland, Russia, Spain, Turkey, UK, and USA	Adults	Canada, China, Denmark, France, Germany, Italy, Malaysia, New Zealand, Poland, Russia, Spain, Turkey, UK, and USA
Perovic et al.	Bilingualism and executive functions	Serbia	Hungarian-Serbian and Slovak-Serbian bilinguals and Serbian monolinguals	Serbia and UK
Sarvasy et al.	Language comprehension and production	Papua New Guinea	Indigenous people of Papua New Guinea	Australia and USA
Sera et al.	Object categorization	China, Japan, Laos, Thailand, USA	speakers of English, Hmong, Japanese, and Mandarin	USA
Siew & Guru	Knowledge	Singapore	Adolescents, young adults	Singapore
Wefers et al.	Social expectations	Ecuador and Germany	Infants	Ecuador and Germany
Xu et al.	Essentialist thinking	China and USA	Adults	China and USA

The present understanding of human cognition is imperfect and limited. This Special Issue helps to address some of the factors that have limited generalizable theory development by presenting work from and about a broader subset of the world population. We expect the field of *Cognitive Psychology* to undergo a paradigmatic shift in the coming years as researchers embrace perspectives and approaches that allow for the study of cognition in context. We anticipate the future of psychological study and research to be more inclusive of non-WEIRD values as many parts of the world see economic and educational expansion (e.g., Forscher et al., 2021). With new perspectives on cognitive psychological phenomena, it is imperative that research societies, editors, and even reviewers recognize and support this necessary progression in our field.

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