Fakultät für Psychologie
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Präregistrierung Stereotype Threat im akademischen Kontext

Präregistrierung systematisches Review - vor systematischer Recherche und Auswertung

Title:

Stereotype Threat im akademischen Kontext

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Hintergrund

Stereotype threat, introduced by Steele & Aronson (1995), describes the situational predicament where members of a historically marginalized social group, aware of negative stereotypes surrounding their in-group, feel at risk of confirming these stereotypes (Appel & Kronberger, 2012; Beilock et al., 2007; Jończyk et al., 2022; Spencer et al., 1999; Steele, 1997; Steele & Aronson, 1995; Wheeler & Petty, 2001). Attempts to avoid this outcome can lead to suboptimal performance (Schmader et al., 2008; Spencer et al., 2016).

Schmader & Johns (2003) propose that stereotype threat impairs working memory capacity, hindering performance on complex cognitive tasks. This impairment is attributed to the cognitive load imposed by anxiety and self-monitoring under stereotype threat. Research demonstrates that stereotype threat reduces the efficiency of working memory systems, particularly the phonological loop and central executive functions (Beilock et al., 2007). Further, Ashcraft & Kirk (2001) proposed that anxiety about task performance under stereotype threat drains working memory resources by inducing intrusive thoughts and worries that compete with ongoing cognitive tasks.

Stereotype threat has been most extensively studied in academic settings, the primary focus of this literature review. Research into the mechanisms of stereotype threat has primarily utilized more economical methods (e.g., questionnaires, behavioural observations) (Derks et al., 2008), with a smaller body of work employing the tools of social neuroscience, a relatively nascent field.

Social neuroscience integrates social psychology and cognitive neuroscience, offering

the possibility to gain more profound insight into the cognitive processes and neural mechanisms underlying stereotype threat (Derks et al., 2008). Tools such as functional magnetic resonance imaging (fMRI) and electroencephalography (EEG) allow researchers to explore specific neural regions and systems in social psychology phenomena (Ochsner & Lieberman, 2001).

Neuroimaging studies have revealed that stereotype threat can induce variations in neural activation across different brain areas and networks (e.g. Jończyk et al., 2022; Krendl et al., 2008; Wraga et al., 2007).

Drawing from these theories and empirical findings, this literature review aims to address the following research questions: - How does stereotype threat impact neural activation patterns and cognitive processes in academic settings? - What are the specific neural and cognitive mechanisms through which stereotype threat influences academic performance?

By employing social neuroscience techniques, this review seeks to elucidate how stereotype threat influences brain function and cognitive processes, thereby contributing to a more comprehensive understanding of its impact in the academic context. To do so, this literature review will include studies that have employed neuroimaging techniques as well as those that have used behavioural measures to investigate the effects of stereotype threat on cognitive processes and academic performance — as far as it is related to the below hypotheses. The academic context is defined as any situation where individuals are engaged in learning, teaching, or research activities within an educational institution. This includes, but is not limited to classroom instruction, laboratory work, collaborative projects, and assessments such as tests and exams, where performance and evaluation are integral components.

Hypothesen:

H1: In academic context, stereotype threat induces variations in neural activation across different brain areas and networks, potentially influcencing academic performance. These may include, but are not limited to, the amygdala, the prefrontal cortex, the default mode network, and the salience network.

H2: Individuals under stereotype threat will experience a temporary delice in cognitive control (as measured through brain activation patterns in the cognitive control network, executive function network, or through performance on behavioural tasks and questionnaires). This decline will lead to poorer academic performance compared to individuals not experiencing stereotype threat.

H3: Students working memory performance is impaired under conditions of stereotype threat in academic settings. This impairment manifests through a reduction in working memory capacity, processing speed and accuracy.

Recherche:

Databases: - Google Scholar - Web of Science - Psyndex - EBSCO Host - APA PsycArticles - APA PsycInfo - Psychology and Behavioral Sciences Collection - PSYNDEX Literature with PSYNDEX Tests - Education Source Ultimate - Academic Search Ultimate

Furthermore, the snowball method will be utilized (reviewing the references and citations of key articles found through the primary database searches to identify additional relevant studies). ResearchRabbit will be utilized to discover additional research based on the Zotero library collection, including similar reserach, research by the same authors, earlier and later work, linked content, and suggested authors.

The following search terms and combinations will be used:

Hypothesis	Query
H1	(“stereotype threat”) AND (neural OR neuroimaging OR “functional magnetic resonance imaging” OR fMRI OR electroencephalo* OR EEG OR ERP OR “brain activation” OR amygdala OR “prefrontal cortex” OR “default mode network” OR “salience network”) AND (academ* OR education* OR stud* OR learn* OR perform* OR school OR university OR college)

Hypothesis	Query
H2	(“stereotype threat”) AND (“cognitive control” OR “executive function” OR “executive function network” OR “cognitive control network” OR “brain activation” OR “brain activation patterns” OR “cognitive tasks” OR “executive tasks” OR “cognitive assessment” OR “executive assessment”) AND (academ* OR education* OR stud* OR learn* OR perform* OR school OR university OR college)
H3	(“stereotype threat”) AND (“working memory*” OR “processing speed” OR accuracy) AND (academ* OR education* OR stud* OR learn* OR perform* OR school OR university OR college)

Auswahlkriterien:

Criteria	Inclusion	Exclusion
Study Design	Empirical studies (quantitative, qualitative, or mixed methods)	Literature reviews, meta-analyses, theoretical papers, opinion pieces
Publication Type	Peer-reviewed journal articles, published dissertations/theses	Conference proceedings, book chapters, unpublished manuscripts
Language	English, German	Languages other than English or German
Population	Studies conducted in academic/educational settings, involving student populations (from elementary/primary to higher education levels)	Studies not focused on academic/educational settings or student populations
Stereotype Threat	Studies explicitly examining, manipulating, or measuring stereotype threat as a key study variable or factor	Studies not directly addressing stereotype threat

Criteria	Inclusion	Exclusion
Outcomes	Studies reporting at least one of the following: a) Neural activation patterns/brain imaging data b) Cognitive processes (e.g., working memory, cognitive control/executive functions) c) Academic/educational performance or achievement measures	Studies not reporting any of the specified outcome measures
Methodology	For neural mechanisms: studies using neuroimaging techniques (e.g., fMRI, EEG/ERP) For cognitive processes: studies using standardized cognitive tasks, scales, or questionnaires	Studies not employing relevant neuroimaging techniques or standardized cognitive assessments

Sonstiges:

Any deviations from the preregistration will, naturally, be documented and justified in the final review.

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