



## RATIONALE

Language influences conceptual organization of information and cognitive processing

Evidence suggests potential cognitive benefits of multilingualism, including more efficient of cold cognitive processes (Prior & MacWhinney, 2010; Coderre & van Heuven, 2014), as well as hot cognitive processes that involve linguistic stimuli (Ponari, 2015)

Little is known about the impact of multilingualism on hot cognitive processes

# **SPECIFIC AIMS**

To compare differences in hot and cold cognitive performance between multilingual speakers and monolingual speakers

To evaluate symptoms of depression and quality of life in multilingual speakers and monolingual speakers

# METHODS

**Participants:** 120 English-speaking monolingual and multilingual students, faculty, and staff from the University of Texas at Arlington

**Study/Procedures:** Participants complete assessments including demographic information, language measures, hot and cold cognitive tasks from the CANTAB and EMOTICOM neurocognitive batteries, and measures of depressive symptoms and school-related quality of life

# THE IMPACT OF MULTILINGUALISM ON HOT AND COLD COGNITIVE FUNCTIONING

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Objective language measure that uses vocabulary to measure English proficiency. Participant must decide if word presented is an existing English word. Used for eligibility for session 2

Session 1 is comprised of the language measures described above, as well as completion of demographic information, the Patient Health Questionnaire (PHQ-9) to measure depressive symptoms, and the School subscale of the Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q) to measure school-related quality of life and functioning.





https://cambridgecognition.com/cambridge-gambling-task-cgt/

Session 2 involves cognitive assessments from the Cambridge Neuropsychological Test Automated Battery (CANTAB<sup>®</sup>) shown above and the Emotional Intensity Morphing Task, a ot cognitive task that assesses the point of emotional intensity at which participants can detect the presence of an emotion at an increasing and decreasing emotional intensity across five emotions that is part of the EMOTICOM battery (Bland et al., 2016).

## Language Experience and Proficiency Questionnaire (LEAP-Q)

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Marian, Blumenfeld, & Kaushanskaya (2007). Journal of Speech Language and Hearing Research, 50 (4), 940-967.

Self-report questionnaire for multilingual speakers that measures proficiency in multiple languages and how they were acquired. Used to group multilingual speakers

**Cold Cognition: Non-emotionally-laden** 





https://cambridgecognition.com/multitasking-test-mtt/

Stop Signal Task: Impulse control and response inhibition

Multitasking Test: Working memory, control inhibition, attention

# **ANTICIPATED RESULTS**

Multilingual speakers will have better performance on both hot and cold cognitive processes, including less impulsivity, greater response inhibition, less risky decision making, and less emotion bias

Depression will be associated with poorer cognitive performance and reduced quality of life in both groups

# **FUTURE DIRECTIONS**

Utilization of other hot cognitive tasks, such as delay of gratification or delay discounting

Utilization of cognitive tasks in other languages for those whose first language is not English

Examination into the potential influence of cultural and bicultural factors on cognitive functioning in bilinguals

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# REFERENCES

Full reference list available upon request.