



University of Nevada, Reno

Research & Innovation

KAITLYN CLEVIDENCE

kaitlynclevidence@gmail.com

Digital Operant Training for Foreign Language Learning

Comparing Tact and Mand Training Operations in terms of Efficacy and Efficiency

SPECIAL THANKS TO

Dr. Anna Petursdottir
Sadie Klassen
Anna Weltzer

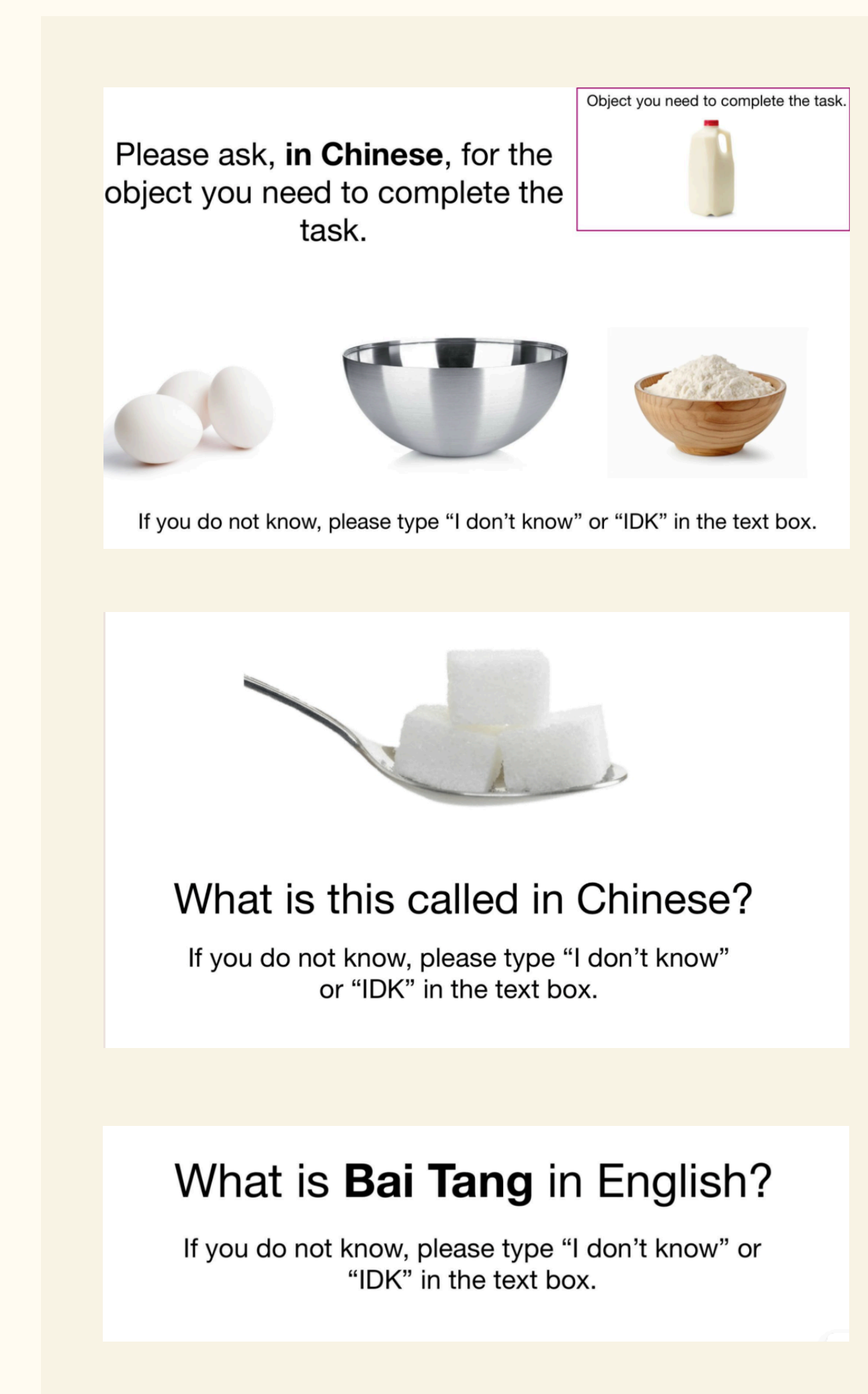
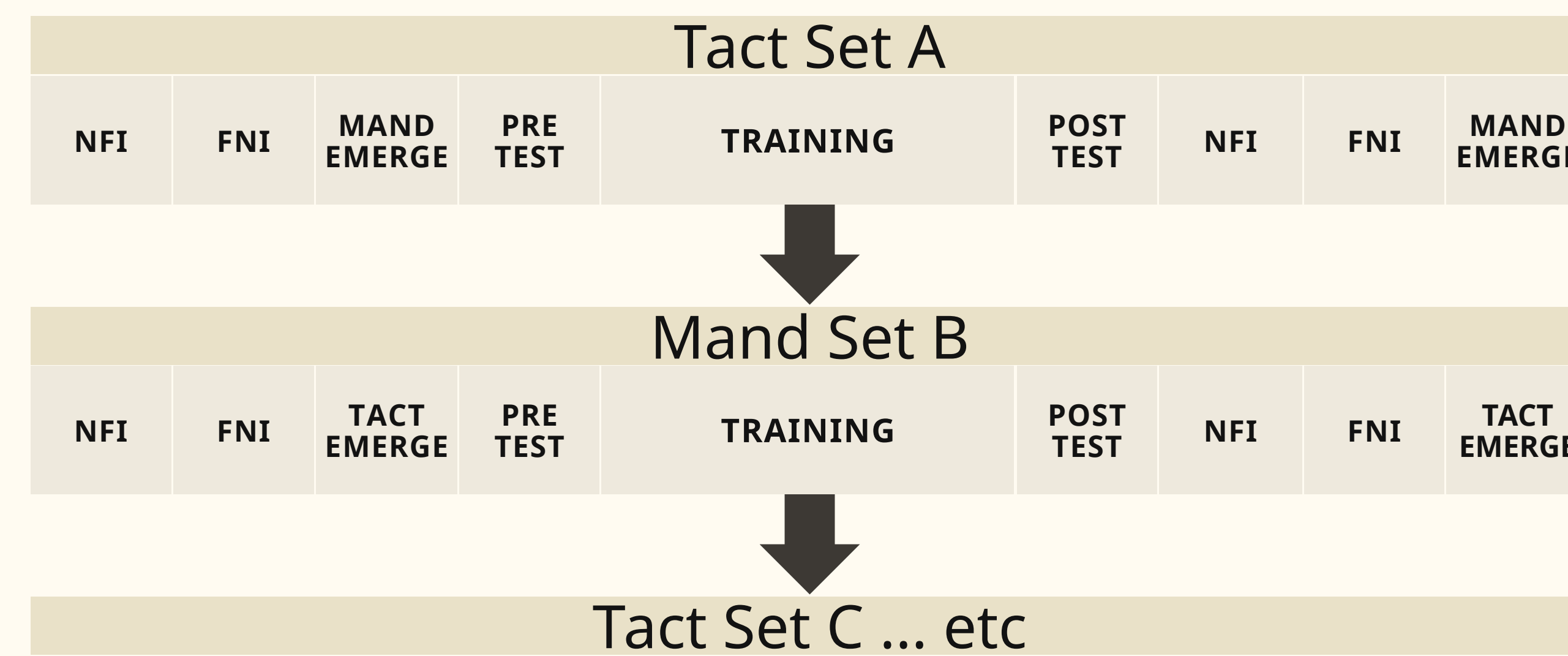
UNR Department of Psychology
UNR Pack Research Experience Program (PREP)

Introduction

- 1.5 billion people are learning a foreign language globally
- Intermediate speakers use 2,000-5,000 words in day-to-day life
 - equivalent to 5-14 words every day for a year
- Teaching vocabulary in Behavior Analysis using operant training:
 - **Tact**: a verbal response to a nonverbal stimulus when in its presence - One sees water, so they say "water"
 - **Mand**: a verbal response based on a state of deprivation or aversive stimulation - One feels thirsty, so they ask for "water"
 - **Intraverbal**: a verbal response whose stimuli's product has a different form to the stimulus which evoked it -
 - **Foreign to Native (FNI)** - responding with "water" when prompted "agua"
 - **Native to Foreign (NFI)** - responding with "agua" when prompted "water"
- Wu et al. showed there may be increased efficiency/efficacy when teaching with Mand compared to other verbal operants

Methodology

- 6 sets of 6 Mandarin Chinese words, taught in their Romanized form as follows:
- 2 participants started with the Mand condition
- 2 participants started with the Tact Condition
- Only training panels had any reinforcing feedback
 - Tact: "Correct!" or "Incorrect", explaining the correct answer
 - Mand: an image of the action being performed for a correct response, or an explanation of the correct answer
- Otherwise, only a blank screen between stimuli
- Pre/Post-Tests: determine emergent behaviors (untaught relations between words)
 - Can participants Mand for an item they were taught to Tact?



The Big Question

As apps such as Duolingo and AirLearn continue to increase in popularity, would implementing mand training into these digital platforms increase the success of the learners using them?

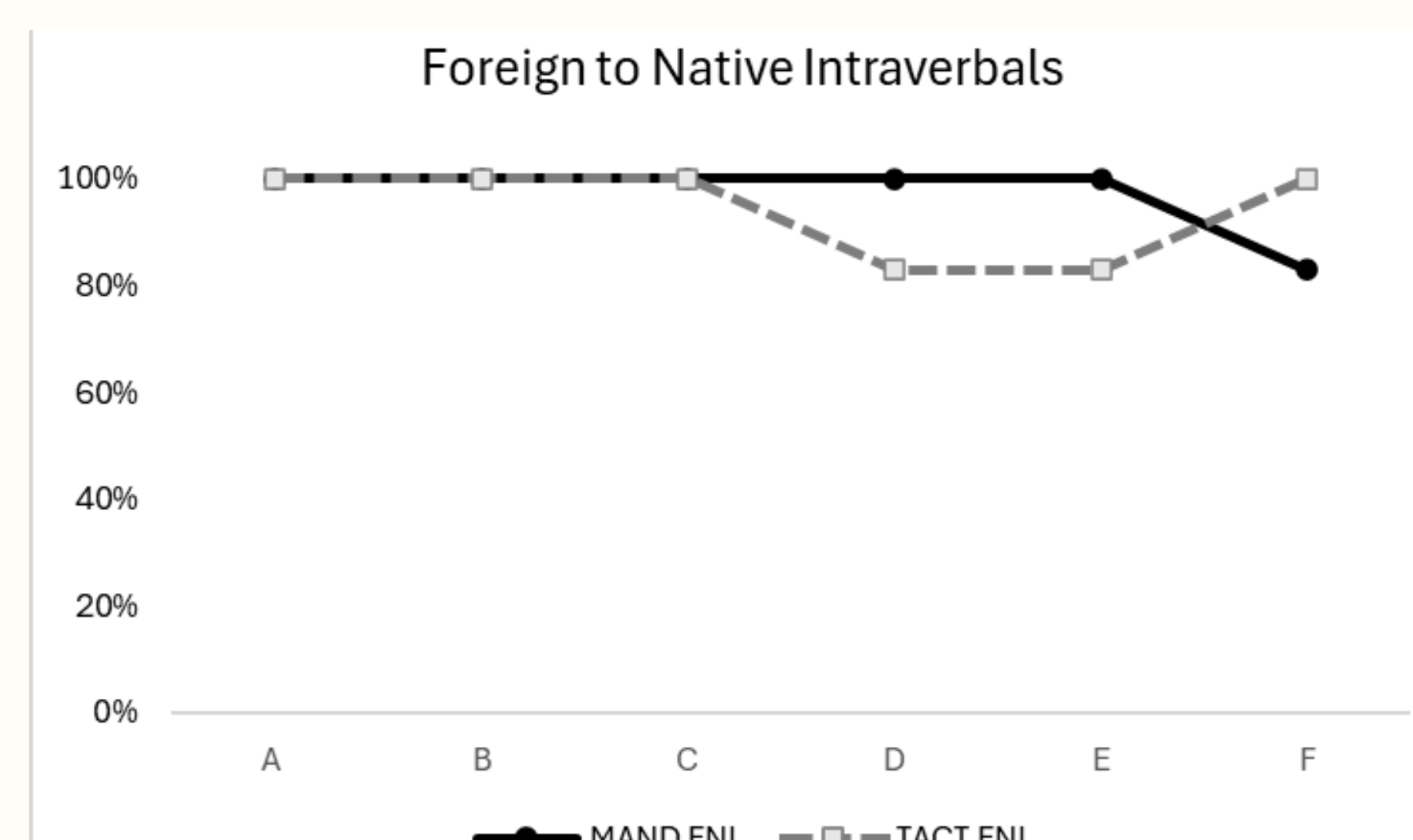
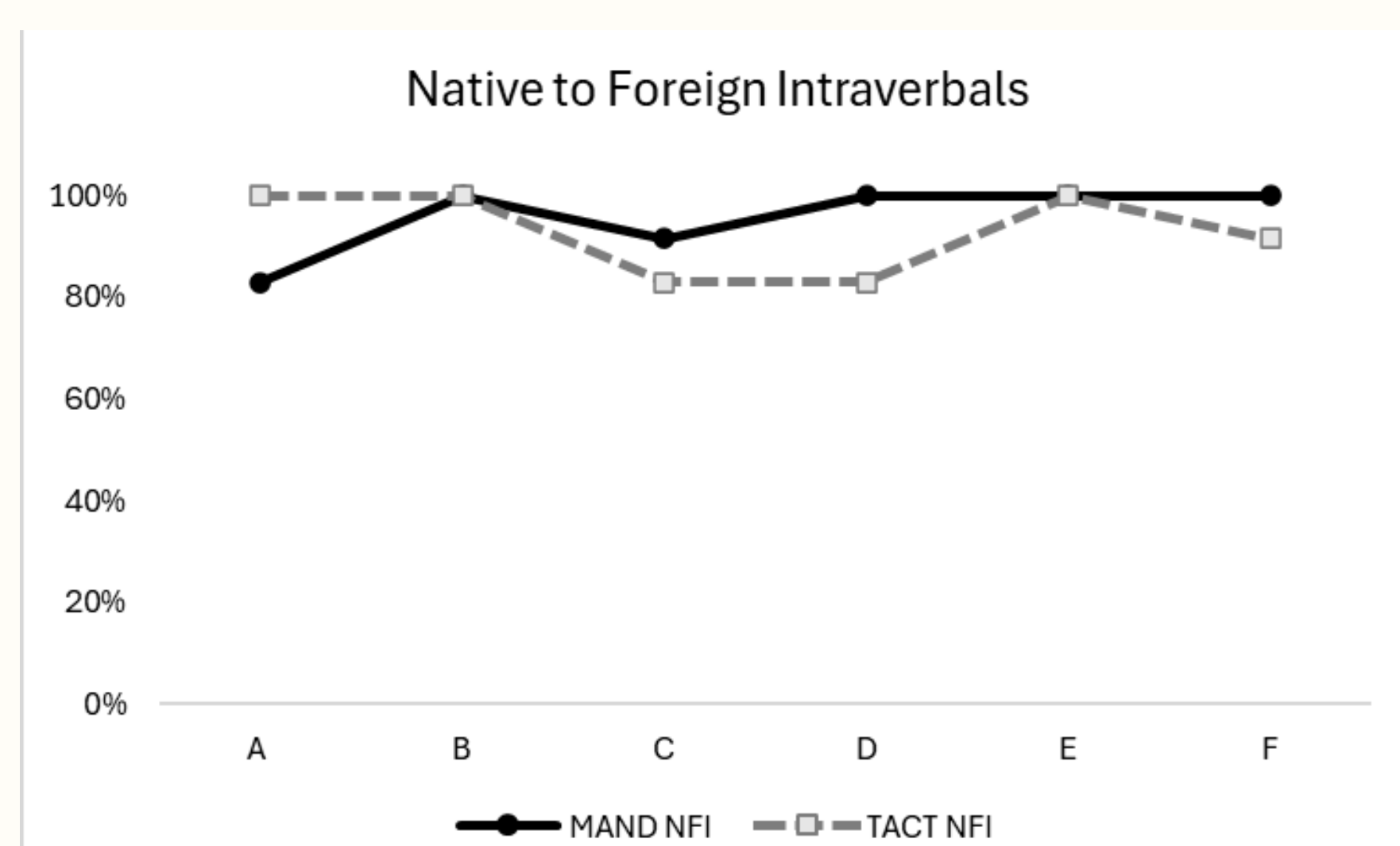
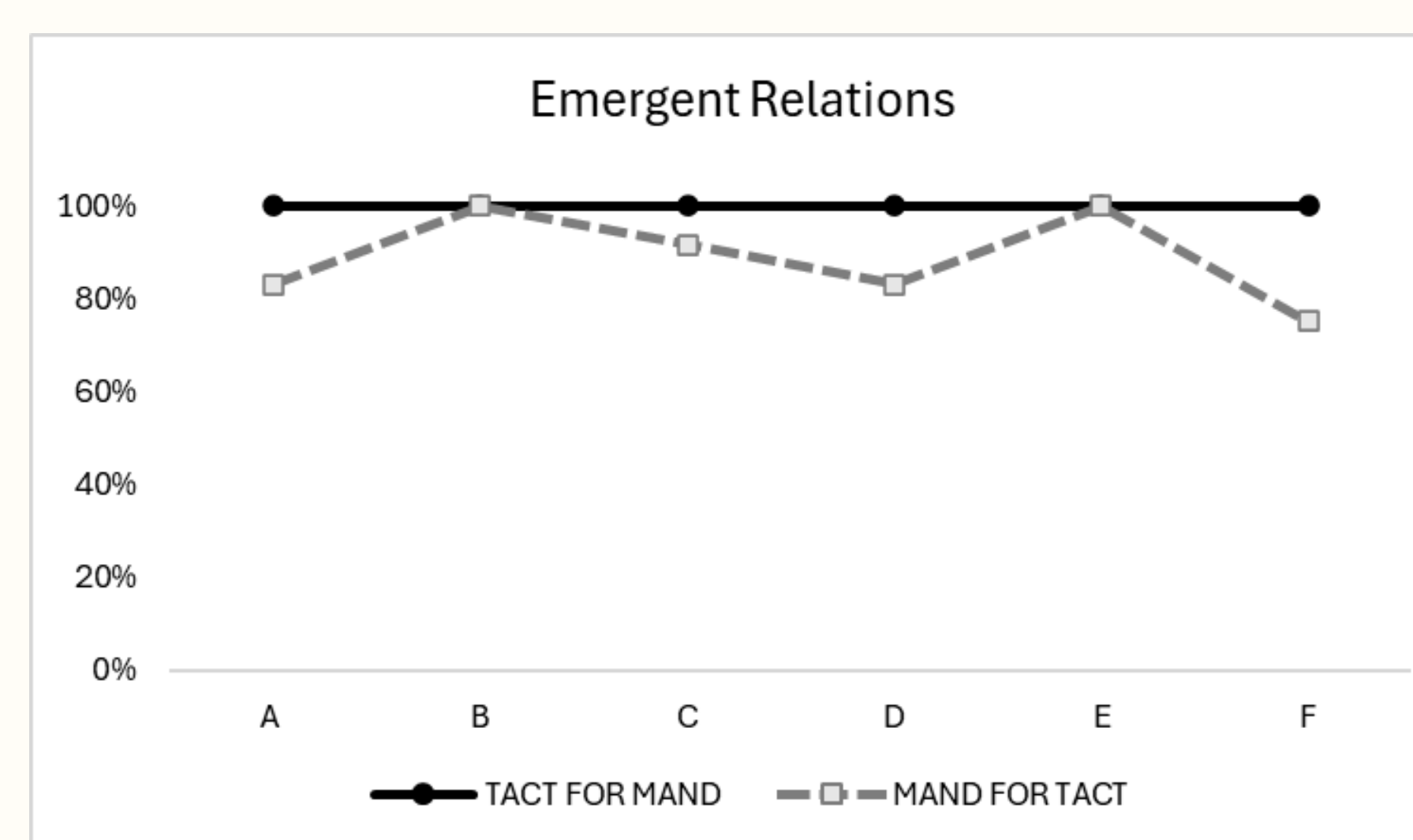
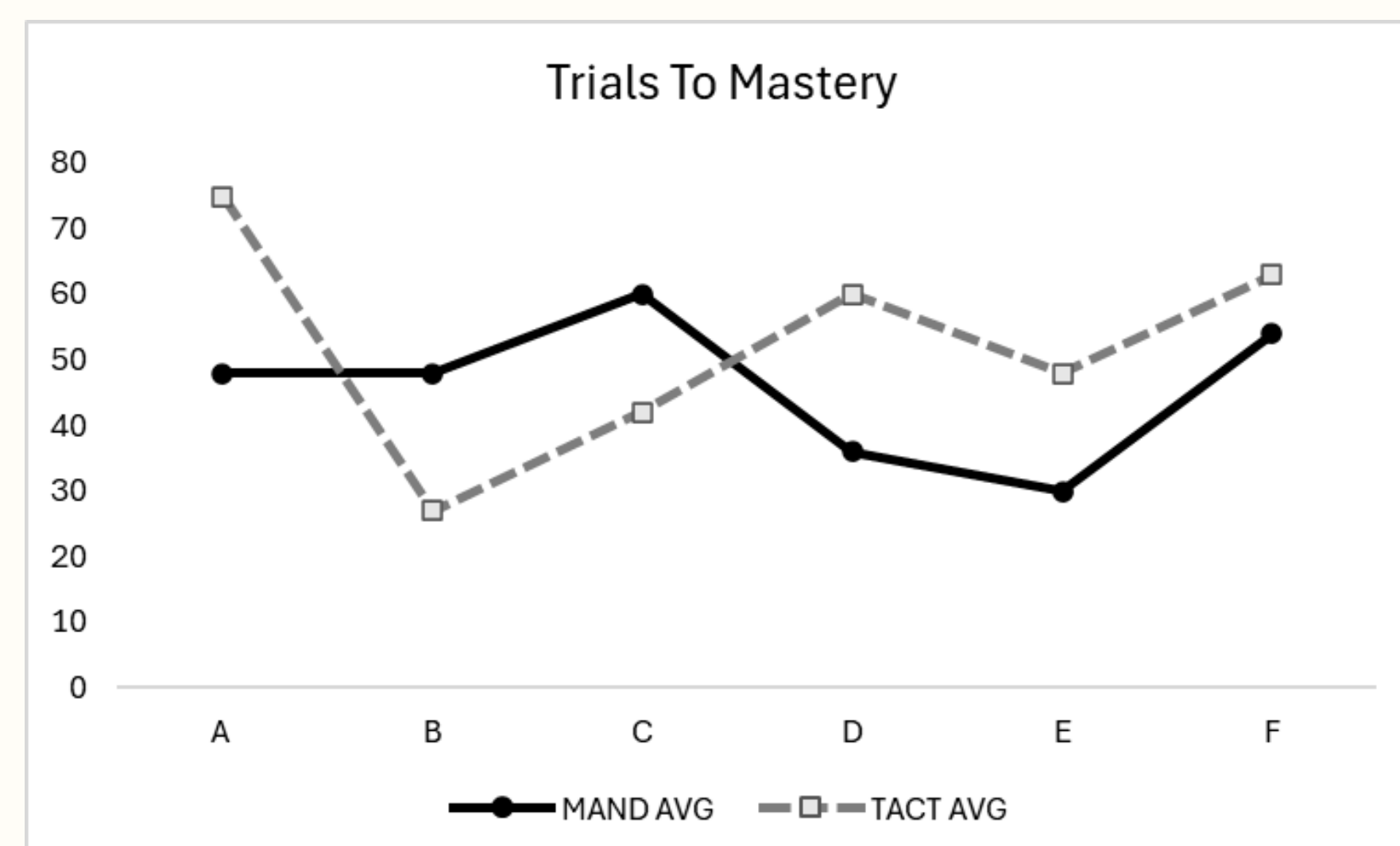
Discussion

Previous research has revealed that Foreign Tact Training (FTT) has higher efficacy and efficiency when compared to directly training intraverbals, and our data shows that mand training, despite having been studied much less, may have comparable results.

- Efficacy: Tact and Mand conditions produced similar results, averaging from 75% to 100% accuracy for all types of emergent relations
 - When the Mand condition was taught, it seemed that the participant was able to easily tact for that same item (100% accuracy across all word sets)
- Efficiency: Both Tact and Mand conditions showed similar results, averaging 46 (Mand) to 52.5 (Tact) trials to mastery across all word sets

Results

- Trials to Mastery
 - Variable
- Emergent Relations
 - Tact for Mand was very consistent, 100% accuracy
- Native to Foreign Intraverbals
 - Variable
- Foreign to Native Intraverbals
 - Variable



References

1. Knagg, 2014
2. McCarten, 2007
3. Skinner, 1957
4. Wu et al., 2019
5. Wooderson et al., 2022

Overarchingly, this study reveals that both Mand and Tact training may be beneficial within digital language learning spaces.