

Faculty Research Grant Application

This application must be saved as a PDF document and uploaded to the web form linked on the Fall 2023 intramural grants web page.

# I. Project summary

## Project Title:

**Exploring the Effects of List-Wise Relatedness on Judgment of Learning Reactivity**

## Investigator Information

*Add additional investigators’ information below the table.*

|  |  |  |
| --- | --- | --- |
| **Name** | **College and Department** | **Faculty Rank** |
| **Primary Investigator:** Nicholas Maxwell | **College:** Prothro-Yeager College of Humanities and Social Sciences  **Department:** Psychology | **Rank:** Assistant Professor |
| **Co-investigator:** Click or tap here to enter text. | **College:** Click or tap here to enter text.  **Department:** Click or tap here to enter text. | **Rank:** Click or tap here to enter text. |

If applicable, add additional investigators’ information here (Name, College/Department, and Rank)

## Select the relevant funding opportunity (Select only one):

Exploratory Research Pilot

## Abstract (limit 150 words):

Judgments of learning (JOLs) are reactive when provided for cue-target word pairs. Compared to silent reading, making JOLs at study improves memory for studied items, but only for related pairs. Thus, perceived item relations likely determine whether memory improvements occur. Because previous studies have used cue-target word pairs, it is unclear whether the reported memory benefits extend to other types of related study materials. The proposed study tests whether JOLs benefit memory for single-item words lists. JOL and no-JOL groups will study related and unrelated word lists (Experiments 1A/1B) or related words converging upon a similar, non-presented lure (i.e., bed, pillow, and dream are related to sleep; Experiments 2A/2B). Afterwards, their memory will be tested. If JOLs improve memory by strengthening concept relations, participants making JOLs should show improved memory on related but not unrelated lists. Separately, false memory of lures should similarly be higher for JOL versus no-JOL participants.

## Assurance and Signatures:

By affixing either a typed or scanned signature below, the applicants(s) agree(s) that, if funded, funds will be used to accomplish the aims of the project in accordance with MSU/State of Texas policies. Additionally, the researchers(s) will present their findings at the Celebration of Scholarship.

PI Signature:Date:

Co-PI Signature(s):Date:

Co-PI Signature(s):Date:

PI’s Department Chair Signature:Date:

PI’s Dean Signature: Date:

Project Narrative

*The project narrative is limited to 10 pages. Page numbers are included at the top right hand corner of each page. Please ensure all text that you enter uses the “normal” style on the styles toolbar of this document (Calibri 11 pt font, single spacing). Enter all responses into the text boxes on the form.*

# II. Purpose and Objectives of the project (Limit 1 page)

*This section should include a concise statement of the general purpose and major aims/objectives of the proposed project (the research question/focus, hypothesis, problem or work to be investigated, or aesthetic direction/technique).*

Please delete this text and enter the purpose/aims of your project in this text box.

# III. Significance/Impact

*Describe the importance and potential impact of your project below. All three sections must be addressed.*

## A. How does this project benefit MSU and/or support MSU’s mission?

One goal of this study is to provide more research opportunities within the Department of Psychology. I am currently in my second year as an assistant professor and am looking to get undergraduate and graduate students more involved in research. This project will allow me to continue to recruit students who can assist me with data processing and also inspire follow-up research, which could potentially be used to fulfill thesis requirements for students in our Masters program.

## B. How does this project support the research trajectory of the PI(s)?

As noted above, my primary goal for this project is to continue growing the Psychology Department’s research footprint. Specifically, I plan to use this project to continue a line of research which began with my dissertation. Following the conclusion of this project, I am planning several follow-up studies which will aim to assess the effects of JOL reactivity on more educationally relevant study materials. This will allow me to develop a set of experiments which can be directly used as a vehicle to include students in the research process.

## C. What is the Significance of this project within the Field of Study?

This project aims to clarify factors that affect when Judgments of Learning (JOLs) improve memory. As noted in the literature review, previous research on JOL reactivity has mainly investigated these effects using cue-target word pairs of varying relatedness (e.g., related pairs like cat-dog vs. unrelated pairs like cat-muffin). A common theme is that making JOLs at encoding improves memory for related but not unrelated pairs. However, because these studies have primarily relied on word-pairs, it is unclear whether this effect is unique to related word pairs or if extends to other types of related study materials. The present study tests this by assessing whether JOLs are reactive on related and unrelated single word lists (Experiments 1A/1B) and Deese/Rodiger-McDermott lists (DRM), which consist of a series of words that converge upon a related but not-presented critical lure (i.e., particpants might study the words bed, dream, pillow, and blanket, which are all related to the non-presented word sleep. At test, participants often falsely report studying the word sleep, even though it was never presented during the study phase).

**Implications:** By including related, unrelated, and DRM lists, the present study will provide a more complete picture of the effects of item relatedness on JOL reactivity. Furthermore, the present study will be the first to test whether JOLs are additionally reactive on false memory for DRM lures.

# IV. Literature Review

*Enter the literature review (for research projects) or description of artistic/creative precedence (for artistic/creative endeavors) below. This should be in narrative form—it is not simply a list of references.*

When learning new information, it is helpful to assess whether the knowledge one is acquiring is being sufficiently encoded. Metamemory, or the processes by which individuals regulate their learning, is a crucial component of learning, as it helps individuals decide whether items need additional study or if they have been sufficiently learned (see Nelson & Narens, 1990). To investigate questions surrounding metamemory, researchers commonly use Judgments of Learning (JOL) tasks, where participants study a set of items and predict their likelihood of correctly remembering them on a later test (see Rhodes, 2016; Schwartz & Metcalf, 2017, for reviews). Thus, JOLs provide a simple measure for assessing how various experimental manipulations affect the study process.

JOLs have a rich history of use in cognitive psychology, dating back to Arbuckle and Cuddy’s seminal 1969 study which investigated whether learners could accurately predict their performance on a later memory test. For much of their history, JOLs were assumed to be neutral measures having little or no effect on memory. Thus, making JOLs at study was not thought to influence later remembering. As result, much of the early research on JOLs focused on factors affecting the accuracy of these judgments, rather than their potential influence on memory. However, a growing body of research has recently begun to show that these measures are reactive on learning, such that participants who make JOLs while completing a study task often show different patterns of test performance compared to participants who silently read items instead of making judgments. Thus, JOLs modify memory for studied items, likely by calling attention to aspects of stimuli that might otherwise be ignored (see Ericcson & Simon, 1993).

Studies investigating the mechanisms behind JOL reactivity have commonly used cue-target word pairs. These studies have revealed a consistent pattern of reactivity: When pairs are semantically related (e.g., mouse – cheese), making JOLs improves memory for the target item (Janes et al., 2018; Halamish & Undorf, 2023; Maxwell & Huff, 2022; Soderstrom et al., 2015). However, this memorial benefit does not extend to unrelated pairs (e.g., mouse – cup), particularly when memory is assessed via cued-recall testing. To explain why relatedness moderates JOL reactivity patterns, Soderstrom et al. proposed that two conditions must be met for reactivity to occur on cue-target pairs. First, studied items must contain intrinsic cues which participants use to inform their JOLs (see Koriat, 1997). Second, participants must be tested using a method that is sensitive to any cues that are strengthened due to making JOLs. Based on this cue-strengthening account, when participants are tested via cued-recall, the cue-strengthening account predicts a memory benefit on related pairs, given that cued-recall testing is highly sensitive to pair relatedness. For unrelated pairs, however, JOLs do not produce a memorial benefit, as intrinsic cue-target relations are not available for this pair type.

While the cue-strengthening account does not explicitly specify the particular cues which JOLs strengthen, it is likely that making JOLs primarily strengthens pre-existing cue-target relations, given that pair relatedness is a highly salient cue for later remembering (Mueller, Tauber, & Dunlosky, 2013). Given this possibility, recent studies have explored the degree to which relatedness contributes to reactivity. For example, Maxwell and Huff (2022) compared recall for participants making JOLs to three additional encoding groups: A no-JOL control group, a group of participants completing a shallow vowel-counting task instead of providing JOLs, and, importantly, a group of participants who engaged in a deep relational encoding task. Compared to both the no-JOL and shallow encoding groups, JOL participants showed positive reactivity for all related pair types. Critically, participants in the relational encoding group also demonstrated this pattern, even though they were not required to provide JOLs at encoding. Thus, Maxwell and Huff concluded that providing JOLs at encoding encouraged participants process cue-target relations, which led to the implicit adoption of a relational encoding strategy.

Additionally, Halamish and Undorf (2023) recently investigated relatedness effects on JOL reactivity using related, unrelated, and identical cue-target pairs. In addition to testing differences in cued-recall across pair types, participants also made relatedness judgments at test, in which participants indicated whether cue items had been previously paired with a related, unrelated, or identical target word. Overall, JOLs produced positive reactivity on related but not unrelated pairs, a finding consistent with previous reactivity studies (e.g., Janes et al., 2018; Soderstrom et al., 2015, etc.). Positive reactivity also extended to identical cue-target pairs, further suggesting that perceived relatedness is necessary for reactivity to occur. Importantly, making JOLs also improved the accuracy of relatedness judgments, but only on related pairs. Taken together, these findings suggest that JOLs encourage participants to process relatedness but only for pairs with pre-existing relations.

As previously noted, most work investigating JOL reactivity has tested for potential memory changes using various types of cue-target word pairs. This is likely because factors influencing JOLs are often studied within the context of related versus unrelated cue-target pairs, rather than via list-wise manipulations of relatedness (see Chang & Brainard, in press). However, like cue-target relatedness, list relatedness has similarly been shown to affect the magnitude of JOLs. For example, Matvey, Dunlosky, & Schwartz (2006) had participants make item-level JOLs for words presented in either categorized (i.e., related) or uncategorized (i.e., unrelated) single word lists. Overall, a classic relatedness effect emerged, such that JOLs were higher for categorized lists relative to uncategorized lists. More recently, Chang and Brainard replicated this general pattern for JOLs while also demonstrating that items in categorized lists were consistently recalled at a greater rate relative to uncategorized lists. Thus, relatedness effects that are observed on JOLs with cue-target pairs extend to categorized and uncategorized single item lists.

While relatedness has been shown to affect the magnitude of JOLs regardless of whether it is manipulated inter-item (i.e., related and unrelated cue-target pairs) or when using categorized and uncategorized single-item lists, the mechanisms driving these effects likely differ based on the type of stimuli. According to Koriat’s (1997) cue-utilization account, making JOLs for cue-target pairs promotes the use of intrinsic cues (i.e., inherent item properties) which participants use to inform the magnitude of their JOLs. Pre-existing cue-target relations reflect a primary example of intrinsic cues, given that the relation between items is inherent to the pair and easily processed at encoding. However, by nature, single-item lists display study items to participants one item at a time. Thus, any relatedness cues would reflect extrinsic cues, given that participants must assess how the item relates back to previously presented items within the list. Thus, extrinsic cues reflect the specific characteristics in which encoding occurs, rather than inherent properties of the stimuli.

Regarding JOL reactivity, few studies have directly assessed the effects of making JOLs on memory for single-item lists. As a result, current theories of JOL reactivity primarily focus on explaining the role intrinsic cues as an underlying factor for reactivity to occur on cue-target pairs (e.g., Soderstrom et al.’s, 2015 cue-strengthening account). Thus, it remains unclear whether the relatedness effects driving JOL reactivity with cue-target pairs would similarly affect categorized word lists. In a notable exception, however, Senkova and Otani (2021) assessed the effect of list relatedness on JOL reactivity by testing for reactivity on categorized and uncategorized word lists for participants making JOLs, pleasantness ratings, or a control task in which participants simply assigned a random number to each item (Experiment 1) and participants making JOLs, completing an imagery task, or the control task (Experiment 2). Across experiments, participants making JOLs had greater free-recall relative to participants in the control group. Importantly, recall benefits were greater for categorized lists, suggesting that the presence of list-wise relatedness facilitated reactivity. Additionally, both deep encoding comparison groups also improved free-recall relative to participants in the no-JOL control group. Because both pleasantness ratings and imagery tasks are classic item-specific tasks based on the item-specific/relational framework (Einstein & Hunt, 1980; Hunt & Einstein, 1981), Senkova and Otani argued that positive JOL reactivity reported on categorized wordlists reflected an item-specific process rather than a relational encoding process. Considered alongside findings investigating the effects of relatedness on reactivity with cue-target pairs (e.g., Halamish & Undorf, 2023; Maxwell & Huff, 2022), it is likely that JOL reactivity reflects different underlying processes based on the type of stimuli that participants study.

Although it is evident that making JOLs benefits recall of related versus unrelated cue-target pairs, less is known about the effects of making these judgments on categorized and uncategorized lists. As such, the present study sought to first replicate findings from Senkova and Otani (2021) demonstrating that categorized lists show a greater memorial benefit versus uncategorized lists using both free-recall (Experiment 1A) and recognition testing (Experiment 1B). Next, Experiments 2A and 2B used the Deese-Roediger-McDermott paradigm (Deese; 1959; Roediger & McDermott, 1995), which allowed for an assessment of the effects of item-specific and relational processes on JOL reactivity while also investigating whether JOLs could additionally be reactive on false memory for related but non-presented lure items. Overall, if JOLs strengthen pre-existing cue-target relations, participants making JOLs at encoding should show improved memory for categorized but not uncategorized word lists. Separately, false memory for lures should similarly be inflated for JOLs participants.

# V. Research or creative design and methods

*Describe the research or creative design and methods of your project below. For research projects, include a methods/design section with details specific to your discipline (materials, texts, equipment, protocols, etc). For creative projects, include a description of the source materials, processes, and/or techniques. For all projects, describe the role each person (PI, co-PIs, student workers) will have in the project.*

**Overview:**

This study is planned as a four-experiment package. First, Experiments 1A and 1B will investigate whether JOL reactivity effects observed on related cue-target pairs extend to related word lists. Next, Experiments 2A and 2B will use DRM lists, which present participants with a series of related words which converge on a strongly related but not presented critical lure, also demonstrate memory changes. Importantly, the use of DRM lists in Experiments 2A/2B allows for a replication/extension of any potential memory benefits observed in Experiments 1A/1B while also assessing whether JOLs are potentially reactive on false memories, which, to date, has not been explored.

**Participants**:

For each experiment, 120 participants will be recruited. Participants will be recruited from Prolific ([www.prolific.co](http://www.prolific.co)) and will be compensated at a rate of $4.00/half hour. Participants will be randomly assigned to one of three encoding groups: An item-level JOL group (*n* = 40) in which particpants will provide JOLs after studying each word, A global-level JOL group in which participants will make one JOL per list, following the completion of each 12-item study list (*n* = 40), and a no-JOL group in which participants will silently read each item (*n* = 40). This sample size was based on an a priori power analysis conducted using *G\*POWER 3.1* software (Faul, Erdfelder, Buchner, & Lang, 2009), which suggested that a sample of 120 participants per experiment would be sufficient to detect small main effects and interactions (*d* = .28). Additionally, the 40 participants per group requirement was modeled after previous sample sizes used for online JOL reactivity studies (e.g., Maxwell & Huff, 2022; 2023).

**Materials:**

**Experiments 1A/1B:**

Experiments 2A/2B:

Procedure:

Experiment 1A:

Experiment 1B:

Experiment 2A:

Experiment 2B:

# VI. Protection of Human Subjects/Animals (if Applicable)

*Enter any information about protection of human subjects or animals below, including a plan and timeline for obtaining IRB or IACUC approval.*

An IRB application has been submitted to the Institutional Review Board at MSU Texas. IRB approval is currently pending.

# VII. Budget Justification

*In the budget justification narrative below, clearly explain why/how each expense is necessary to achieve the project aims and how the amount was calculated. Ensure that the amounts in the budget justification match the totals on the budget spreadsheet. In addition, list the date by which each expenditure should occur (no later than Aug. 31, 2024). If a graduate student grant is attached to this proposal, do* ***not*** *include graduate student grant expenses in the budget/justification.*

## Student Wages

N/A

## Supplies

*This includes all materials, consumables, software, etc. with a per-item purchase price of less than $500*

N/A

## Travel to conduct research

*Use current state of Texas / GSA travel rates. Travel to conduct research is an allowable expense, but funds may not be used for costs associated with travel to attend or present at professional meetings or conferences. Include the purpose of the trip, destination (if known—may be TBD), duration, number of travelers, and estimated**transportation costs, lodging costs, and meals and incidentals.*

N/A

## Other

*Include all expenses that do not fit within other categories (e.g. contracted services, data purchases, etc.)*

I plan to recruit participants via Prolific. Prolific requires that researchers pay participants at a rate of at least $8/hour. Additionally, prolific charges a 33% fee on top of participant pay (LINK). Since this study is being planned to take 30 minutes to complete, I should expect to spend $5.32 per participant ($4/participant in base pay plus $1.32 in Prolific fees). For each experiment, I plan to recruit 120 participants (40 participants per experimental condition). Since this study is being planned as a four-experiment package, this means I am expecting to recruit a total of 480 participants at a rate of $5.32/participant. Thus, I’m anticipating that it will cost ~$2,500 ($2553.60) to collect the necessary data via Prolific.

## Equipment

*Include all items with a per-unit purchase price of greater than $500 and a useful life of longer than one year. Include copies of any quotes with your application.*

Since I would be able utilize the web-server acquired from my previous intramural grant, no additional equipment will be needed.

# VII. Timeline for the project

*Please provide a timeline for the project, by month, with completion of the project no later than Aug. 31, 2024.*

October 2023: Finalize materials, program experiments, and submit IRB application.

November 2023: Receive IRB approval. Begin data collection pending receipt of funding. Submit abstract to SWPA as a research proposal poster.

December 2023: Complete data collection on Experiments 1A and 1B

January 2024: Analyze data from Experiments 1A and 1B.

February 2024: Recruit additional participants if needed for Experiments 1A/1B; Begin work on poster

March 2024: Begin data collection on Experiments 2A/2B; Present preliminary findings from Experiments 1A/1B at SWPA

April 2024: Analyze all remaining data; recruit additional participants if needed. Present findings at Celebration of Scholarship

May 2024: Begin drafting manuscript with target submission deadline of August 1st, 2024.

# IX. Specific Plans for Dissemination

*Please describe specific plans for dissemination of the findings of the project, including Celebration of Scholarship.*

Findings from this project would be shared in three ways. First, I plan preliminary findings from this project as a poster at the annual meeting of the Southwestern Psychological Association (SWPA), which will be held in March 2024 in San Antonio, TX (the dates for SWPA 2024 have not officially been announced yet, but the conference is traditionally held during the last week of March). Second, I plan on presenting this project as either a poster or a talk at Celebration of Scholarship. Finally, I plan on using Summer 2024 as an opportunity to write this project up for publication in a peer reviewed journal. Target journals might include *Memory & Cognition* (https://www.springer.com/journal/13421) or *Metacognition and Learning* (https://www.springer.com/journal/11409).

# X. Other Current/Prospective Sources of Internal or External Funding

## A. Other current or pending sources of internal and/or external funding

*If other internal or external funding has been requested or procured (e.g. department funds, other grants), please describe the relationship of that funding to this proposal*

N/A

## B. Plans for pursuing and securing external funding

*Describe how you plan to use your intramural-funded research or creative project to pursue and secure external funding. You are encouraged to identify specific grants or other funding sources for which you intend to apply upon completion of the funded project. Contact OSPR if you would like assistance in identifying potential funding matches.*

N/A

# XI. Continuation Project Information

*Is this project a continuation of a project initiated with a previous intramural award? If so, please describe the rationale and benefits of requesting an additional intramural award in this funding cycle. Also describe how this project is different from the previously funded project.*

# N/A XII. Prior Intramural Grants

*If the* ***PI and/or or co-PIs*** *have been awarded any other intramural grants in the previous 5 years, please fill out the table below. List ALL PIs and co-PIs who were named on the grant.* ***Note:*** *Faculty who are serving as PI/co-PI on a current, active intramural grant are* ***ineligible*** *to receive any additional intramural grant funding until the final report is submitted and accepted by OSPR. Add additional rows to the table if necessary.* ***These awards should also be listed on the relevant PI/co-PI’s biographical sketch.***

|  |  |  |
| --- | --- | --- |
| **PI and co-PI Name(s)** | **Award Cycle/Year**  **(e.g. Fall 2019)** | **Title of Project** |
| Nicholas Maxwell | Fall 2022 | Investigating the Effects of Mindfulness on Source-Monitoring Accuracy |
|  |  |  |
|  |  |  |

# Appendices:

***All proposals must include appendices 1-3. If necessary, include quotes for equipment and IRB/IACUC approvals as an additional appendix after Appendix 2.***

* ***Appendix 1: References Cited:*** *List references cited in a discipline-appropriate style.*
* ***Appendix 2: Biographical Sketches:*** *On the following pages, please fill out biosketches for the PI and all co-PIs. If you need additional biosketches, please copy/paste the blank form onto a new page.*
* ***Appendix 3: Budget Spreadsheet:*** *This is an Excel document that will be uploaded as a separate file. The template can be downloaded from the Fall 2023 Intramural Grants web page.*

*Appendices do not count against your 10-page limit.*

Appendix 1. References

*List references cited in the proposal using a discipline-appropriate citation style.*

Please delete this text and enter your references. Please limit this section to no more than two pages. You may change the formatting for the references cited section to match your discipline-appropriate citation style.

Appendix 2. Biographical Sketches

*Each biosketch is limited to 2 pages. Please add and delete rows as needed. Each investigator should complete both pages of the biosketch. If you need additional biosketches, copy/paste the blank form to a new page.*

# Principal Investigator (PI) Biosketch:

|  |  |  |
| --- | --- | --- |
| Name: Nicholas Maxwell | | |
| Rank: Assistant Professor | College: Prothro-Yeager | Dept: Psychology |

## Education/Training

|  |  |  |  |
| --- | --- | --- | --- |
| **Institution/Location** | **Degree** | **Year(s)** | **Field of Study** |
| University of Southern Mississippi | PhD | 2022 | Cognitive Psychology |
| Missouri State University | MS | 2018 | Experimental Psychology |
| Mississippi State University | BA | 2015 | Psychology |
|  |  |  |  |

## Academic and Professional Experience

|  |  |
| --- | --- |
| **Academic Year(s)** | **Rank and Tenure Status** |
| 2022-Present | Assistant Professor (Tenure-Track) |
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## Courses taught at MSU Texas in the previous two years

|  |  |
| --- | --- |
| **Semester and Year** | **Course Title** |
| Fall 23 | PSYC XXXX Psychological Tests & Evaluations |
| Fall 22; Spring 23; Fall 23 | PSYC 3323 Developmental Psychology (6 sections (2 per semester)) |
| Fall 22; Fall 23 | PSYC 3303 Writing in Psychology (2 sections (1 per semester)) |
| Summer 23 | PSYC XXXX Cognition |
| Spring 23 | PSYC XXXX Research Methods |
| Spring 23 | PSYC XXXX Social Psychology |
| Fall 2022 | PSCY 1103 General Psychology I |

## Relevant Publications/Presentations

*List publications and presentations relevant to the proposed project below.*

|  |
| --- |
| Maxwell, N. P., Cates, E. E., & Huff, M. J. (In Press). Item-specific and relational encoding are effective at reducing the illusion of competence. *Psychological Research*, X – XX.Available at: https://osf.io/x9n4f/  Maxwell, N. P. & Huff, M. J. (2023). Is discriminability a requirement for reactivity? Comparing the effects of mixed vs. pure list presentations on judgment of learning reactivity. *Memory & Cognition, 51*(5), 1198-1213.Available at: <https://osf.io/3fztn/>  Maxwell, N. P. & Huff, M. J. (2022). Reactivity from judgments of learning is not only due to memory forecasting: Evidence from associative memory and frequency judgments. *Metacognition and Learning,* *17*(2), 589-625. Available at: https://osf.io/8yvn3/  Maxwell, N. P., Perry, T., & Huff, M. J. (2022). Perceptually fluent features of study words do not inflate judgements of learning: Evidence from font size, highlights, and Sans Forgetica font type. *Metacognition and Learning,* *17*(2), 293-319. Available at: <https://osf.io/3xwdr/>  Maxwell, N. P. & Huff, M. J. (2021). The deceptive nature of associative word pairs: Effects of associative direction on judgments of learning. *Psychological Research, 85*, 1757-1775. Available at: https://osf.io/hvdma/.  Maxwell, N. P. & Buchanan, E. M. (2020). Investigating the interaction of direct and indirect relation on memory judgments and retrieval. *Cognitive Processing, 21*(1), 41-53. Available at https://osf.io/fcesn/  **Relevant Presentations:**  Maxwell, N. P & Huff, M. J. *Investigating the Effects of Mediated Association on JOL Reactivity.* Abstract accepted at the 64th annual meeting of the Psychonomic Society, San Francisco, CA (Nov. 2023).  Maxwell, N. P., Cates, E. E., & Huff, M. J. *Item-Specific and Relational Encoding are Effective at Reducing the Illusion of Competence.* Talk presented at the University of Southern Mississippi’s annual Susan A. Siltanen Graduate Student Research Symposium, Hattiesburg, MS (April 2022).  Maxwell, N. P. & Huff, M. J. *The Effects of Associative Direction on Judgment of Learning Reactivity*. Poster presented at the 61st annual meeting of the Psychonomic Society, Virtual Conference (Nov. 2020).  Maxwell, N. P. & Huff, M. J. *Relations are not Always Beneficial: The Effect of Associative Direction on Judgments of Learning*. Poster presented at the 60th annual meeting of the Psychonomic Society, Montreal, QC, CA (Nov. 2019). |

## Other Relevant Activities

*In this section, list up to* ***five*** *items that demonstrate the broader impact of your professional and scholarly activities as they relate to this project. Examples may include, among others: innovations in teaching and training, mentorship activities, awards and honors, etc.*

|  |
| --- |
| **Awards**: In Fall 2022, I received a Research and Faculty Development Grant worth approximately $1500 which was used to present my research findings at international and regional conferences.  **Mentorship**: During the 2022-2023 academic year, I mentored three graduated students who presented their work at the annual meeting of the Southwestern Psychological Association and Celebration of Scholarship. This would not have been possible without the intramural grant I received last year.  **Other**: In 2021, I developed an *R* package for scoring lexical output from memory studies (package available at: <https://cran.r-project.org/web/packages/lrd/index.html>; publication available at: <https://link.springer.com/article/10.3758/s13428-021-01718-y>). This package is open-source and has been made freely available to other memory researchers to aid with data scoring/coding. This program will be used to score recall data generated from the proposed study. |

## Current and Previous MSU Intramural Grant Funding

You must list all MSU intramural grants on which you have served as PI or co-PI since Fall 2018. Add additional lines if needed.

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Award Cycle** | **Title** | **PI and co-PI name(s)** |
| 1 | Fall 2022 | Investigating the Effects of Mindfulness on Source-Monitoring Accuracy | Nicholas Maxwell |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| ***How were the results of these prior intramural awards disseminated or made public? Include the type of dissemination (e.g. manuscript, book chapter, exhibition, presentation).*** | | | |
| 1 | Presentations (Southwestern Psychological Association, March 2023; Celebration of Scholarship Spring 2023); Manuscript is currently in preparation | | |
| 2 |  | | |
| 3 |  | | |
| 4 |  | | |

## Current and Previous External Grant Funding

*If applicable, list all external grants or research contracts on which you have served as PI or co-PI.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Title or brief description** | **PI and co-PI names** | **Sponsor** | **Start/End Dates** |
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Co-PI 1 should complete both pages of this biosketch. Please feel free to add or delete rows as needed.

# Co-PI 1 Biosketch

|  |  |  |
| --- | --- | --- |
| Name: | | |
| Rank: | College: | Dept: |

## Education/Training

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| Institution/Location | Degree | Year(s) | Field of Study |
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## Academic and Professional Experience

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| Academic Year(s) | Rank and Tenure Status |
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## Courses taught at MSU Texas in the previous two years

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| Semester and Year | Course Title |
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## Relevant Publications/Presentations

*List publications and presentations relevant to the proposed project below.*

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## Other Relevant Activities

*In this section, list up to* ***five*** *items that demonstrate the broader impact of your professional and scholarly activities as they relate to this project. Examples may include, among others: innovations in teaching and training, mentorship activities, awards and honors, etc.*

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## Current and Previous MSU Intramural Grant Funding

You must list all MSU intramural grants on which you have served as PI or co-PI since Fall 2018. Add additional lines if needed.

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Award Cycle** | **Title** | **PI and co-PI name(s)** |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| ***How were the results of these prior intramural awards disseminated or made public? Include the type of dissemination (e.g. manuscript, book chapter, exhibition, presentation).*** | | | |
| 1 |  | | |
| 2 |  | | |
| 3 |  | | |
| 4 |  | | |

## Current and Previous External Grant Funding

*If applicable, list all external grants or research contracts on which you have served as PI or co-PI.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Title or brief description** | **PI and co-PI names** | **Sponsor** | **Start/End Dates** |
|  |  |  |  |
|  |  |  |  |

Co-PI 2 should complete both pages of this biosketch. Please feel free to add or delete rows as needed.

# Co-PI 2 Biosketch

|  |  |  |
| --- | --- | --- |
| Name: | | |
| Rank: | College: | Dept: |

## Education/Training

|  |  |  |  |
| --- | --- | --- | --- |
| Institution/Location | Degree | Year(s) | Field of Study |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

## Academic and Professional Experience

|  |  |
| --- | --- |
| Academic Year(s) | Rank and Tenure Status |
|  |  |
|  |  |
|  |  |
|  |  |

## Courses taught at MSU Texas in the previous two years

|  |  |
| --- | --- |
| Semester and Year | Course Title |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

## Relevant Publications/Presentations

*List publications and presentations relevant to the proposed project below.*

|  |
| --- |
|  |

## Other Relevant Activities

*In this section, list up to* ***five*** *items that demonstrate the broader impact of your professional and scholarly activities as they relate to this project. Examples may include, among others: innovations in teaching and training, mentorship activities, awards and honors, etc.*

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## Current and Previous MSU Intramural Grant Funding

You must list all MSU intramural grants on which you have served as PI or co-PI since Fall 2018. Add additional lines if needed.

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Award Cycle** | **Title** | **PI and co-PI name(s)** |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| ***How were the results of these prior intramural awards disseminated or made public? Include the type of dissemination (e.g. manuscript, book chapter, exhibition, presentation).*** | | | |
| 1 |  | | |
| 2 |  | | |
| 3 |  | | |
| 4 |  | | |

## Current and Previous External Grant Funding

*If applicable, list all external grants or research contracts on which you have served as PI or co-PI.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Title or brief description** | **PI and co-PI names** | **Sponsor** | **Start/End Dates** |
|  |  |  |  |
|  |  |  |  |

Co-PI 3 should complete both pages of this biosketch. Please feel free to add or delete rows as needed.

# Co-PI 3 Biosketch

|  |  |  |
| --- | --- | --- |
| Name: | | |
| Rank: | College: | Dept: |

## Education/Training

|  |  |  |  |
| --- | --- | --- | --- |
| Institution/Location | Degree | Year(s) | Field of Study |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

## Academic and Professional Experience

|  |  |
| --- | --- |
| Academic Year(s) | Rank and Tenure Status |
|  |  |
|  |  |
|  |  |
|  |  |

## Courses taught at MSU Texas in the previous two years

|  |  |
| --- | --- |
| Semester and Year | Course Title |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

## Relevant Publications/Presentations

*List publications and presentations relevant to the proposed project below.*

|  |
| --- |
|  |

## Other Relevant Activities

*In this section, list up to* ***five*** *items that demonstrate the broader impact of your professional and scholarly activities as they relate to this project. Examples may include, among others: innovations in teaching and training, mentorship activities, awards and honors, etc.*

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|  |

## Current and Previous MSU Intramural Grant Funding

You must list all MSU intramural grants on which you have served as PI or co-PI since Fall 2018. Add additional lines if needed.

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Award Cycle** | **Title** | **PI and co-PI name(s)** |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| ***How were the results of these prior intramural awards disseminated or made public? Include the type of dissemination (e.g. manuscript, book chapter, exhibition, presentation).*** | | | |
| 1 |  | | |
| 2 |  | | |
| 3 |  | | |
| 4 |  | | |

## Current and Previous External Grant Funding

*If applicable, list all external grants or research contracts on which you have served as PI or co-PI.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Title or brief description** | **PI and co-PI names** | **Sponsor** | **Start/End Dates** |
|  |  |  |  |
|  |  |  |  |