

The Effects of Point Values and Time Constraints on Self-Regulated Learning



Barbara J. Wright & Jodi Price
University of Alabama in Huntsville

Introduction

Students are faced with decisions that can facilitate optimal learning or lead to ineffective study strategies. These decisions include what to study, how long to study, and when to terminate study (Dunlosky & Ariel, 2011), with the decisions being driven by potential rewards from learning material and the learners own intrinsic motivation (Ariel, Dunlosky, & Bailey, 2009, Dunlosky & Thiede, 1998, Pintrich, 2000). Over the past several decades, researchers have addressed different aspects of self-regulated learning (SRL) which involve metacognitive monitoring and control (Winne, 1996). In their *agenda based regulation* (ABR) model of self-regulated learning, Ariel, Dunlosky, & Bailey (2009) assert that learners construct agendas to make decisions about how to allocate study time. Agenda construction can be influenced by rewards, task constraints, and time constraints. Recent literature by Ariel & Dunlosky (under review) looks at how time constraints affect learner's use of habitual versus agenda based processes. They found that when faced with limited time to select and study items, learners may not have had the time needed to construct an agenda, and so they tended to select items for study in a left-to-right order (habitual reading order), instead of selecting high-reward items (based on point value). The question of how time constraints interact with point values to affect agenda construction during self-regulated learning is the basis of this research.

Hypotheses

- When students are offered points for learning Spanish words, we expect students to select for study the words offering the highest reward (point values).
- When selecting words to study in a left-to-right array, we expect students to select items in the left column more often when they are assigned higher point values.
- We expect habitual left-to-right selection behaviors to occur at a higher rate when learners are faced with time constraints.

Method

Participants

- 130 UAH students (M age = 19.95, SD = 1.80)
- 60% female

Design

- 2 (time allowed for selection & study: 5 seconds, unlimited) x 3 (Point values: 1, 3, 5) x 3 (Point order: 1-3-5, 5-3-1, random) design
 - Point values manipulated within subjects
 - Point order and study time manipulated between subjects

Materials

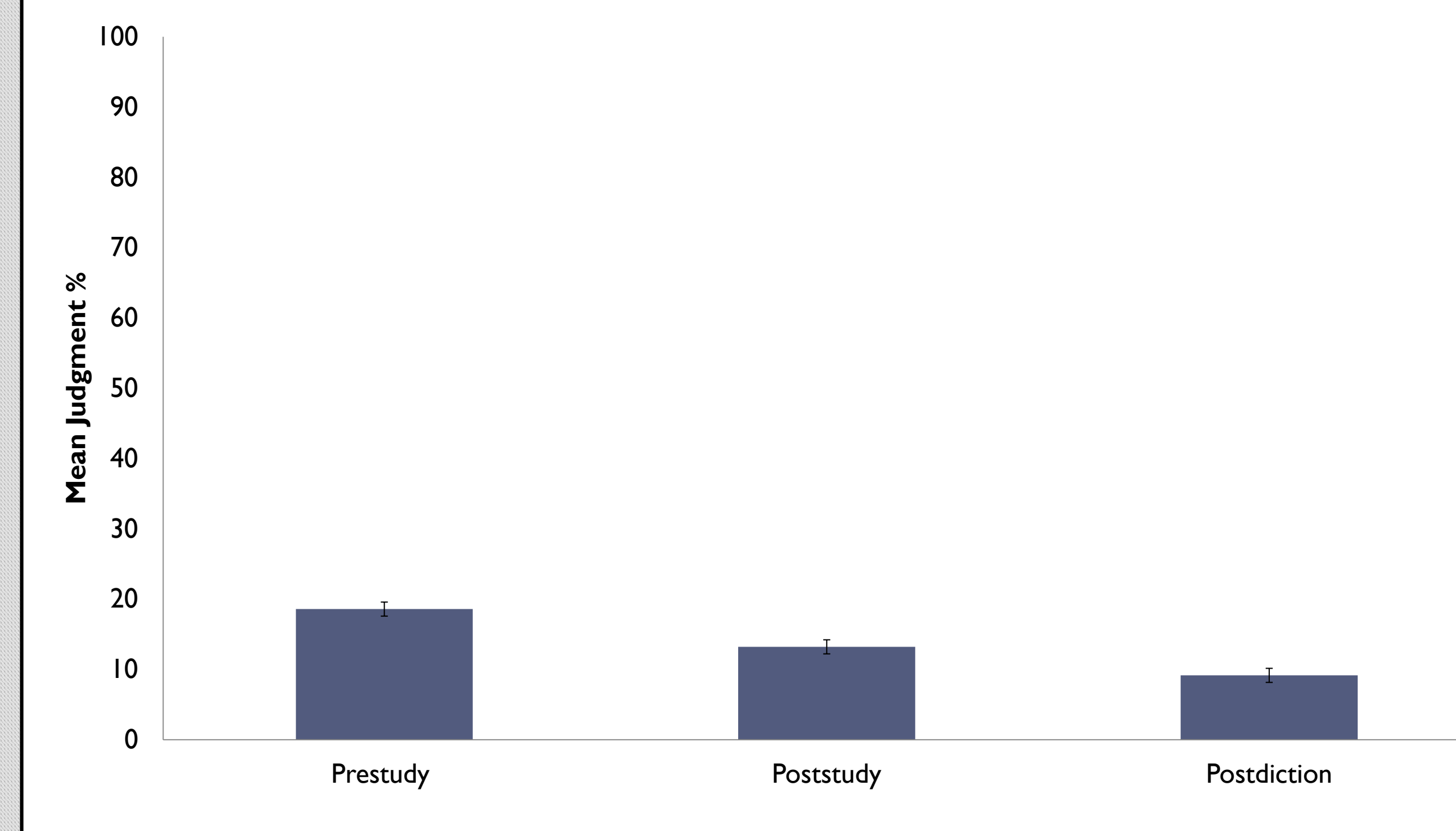
- 48 Moderately difficult Spanish-English pairs (e.g., pluma – pen)
- 16 grids with condition specific point values

Cerveza 1	Alimento 3	Ingravidez 5	Cerveza 5	Alimento 3	Ingravidez 1	Cerveza 3	Alimento 1	Ingravidez 5
--------------	---------------	-----------------	--------------	---------------	-----------------	--------------	---------------	-----------------

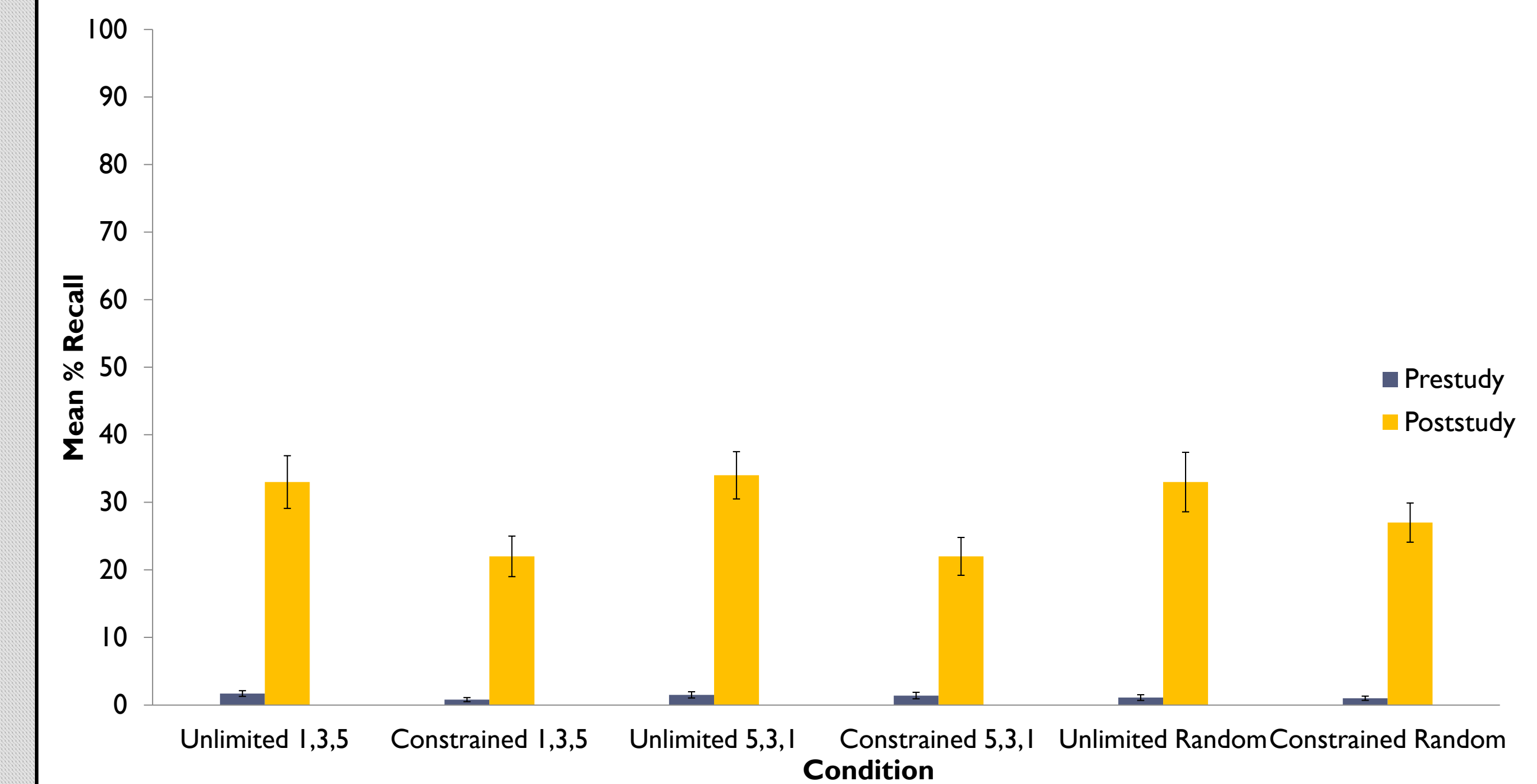
Procedure

- Prestudy Recall Test → Prestudy Judgment
- Study Phase → Poststudy Judgment
- Poststudy Recall Test → Postdiction Judgment

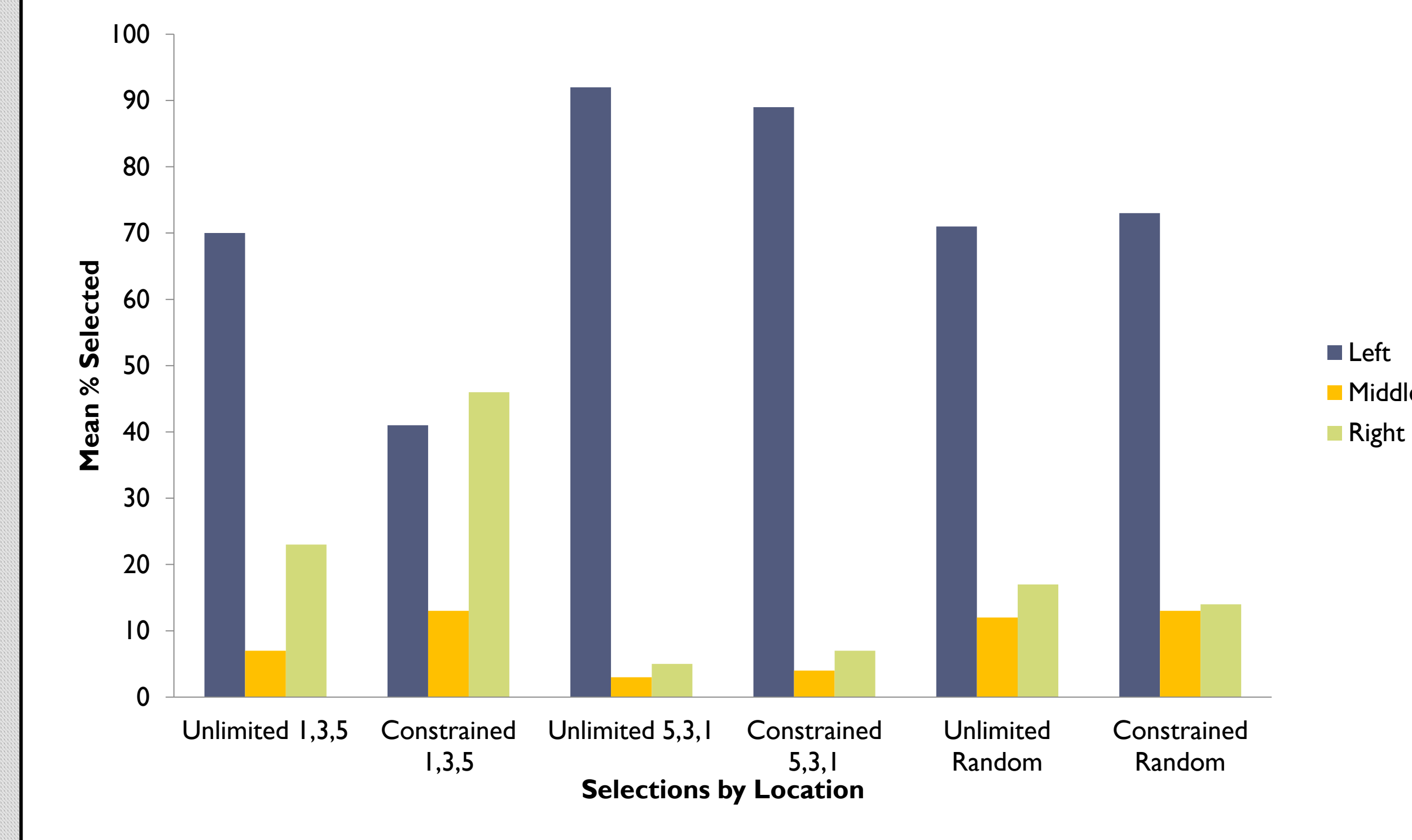
Judgments



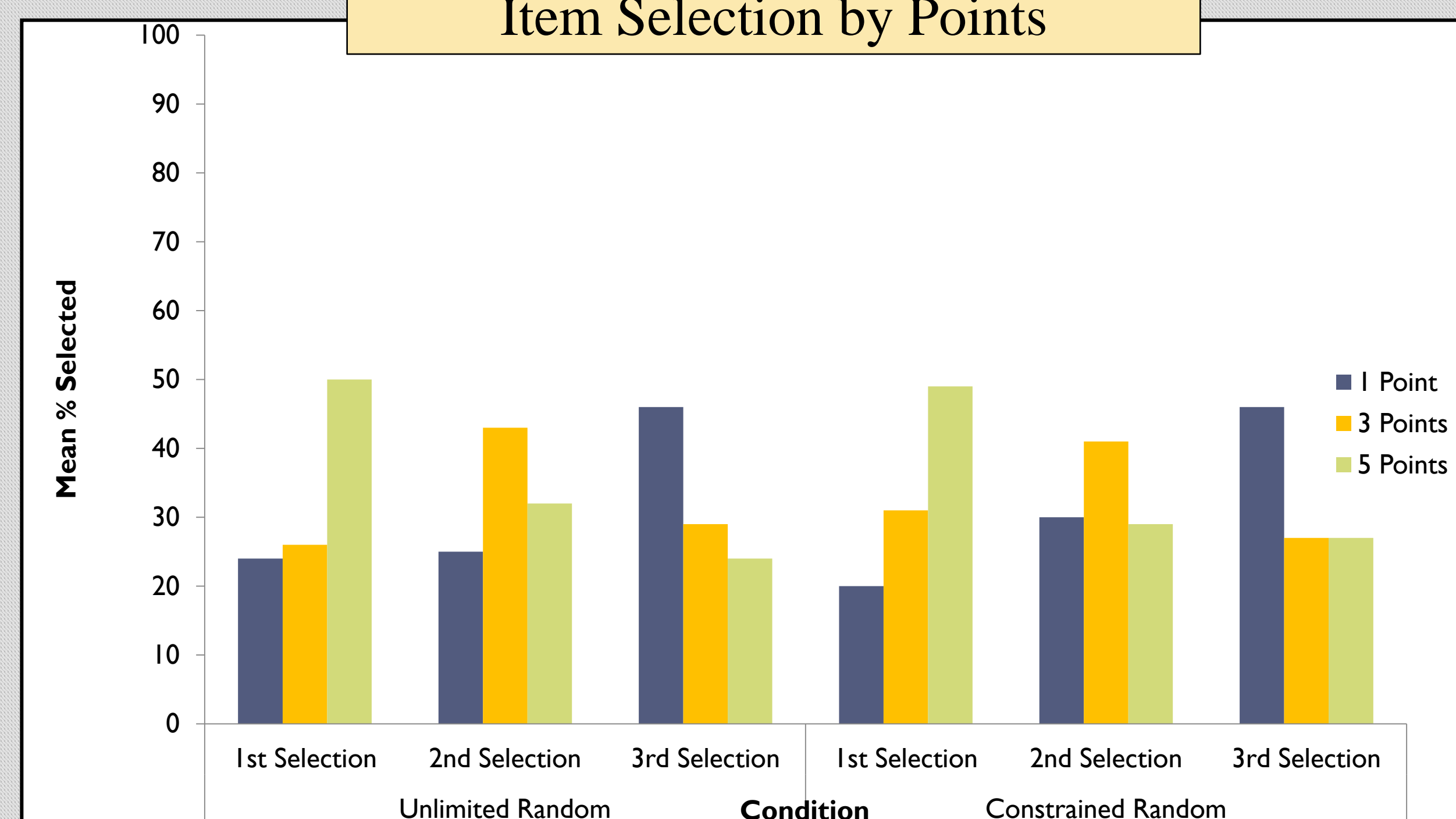
Recall



Item Selection by Location



Item Selection by Points



Discussion

- Data analysis revealed that when looking at selection by location, participants selected items in the left column at a higher rate, giving support to habitual processes.
- Given limited time, participants in the 1,3,5 point order condition selected 5 point items at a higher rate than 1 or 3 point items. This suggests that when faced with time constraints, participants found constructing an agenda to be optimal in obtaining the set goal.
- When point values were presented in a random order, participants in both time conditions selected 5 point items a higher rate than 1 or 3 point items.
- Participants in the unlimited time conditions recalled significantly more Spanish-English vocabulary pairs than in the time constrained conditions.

References

- Ariel, R., & Dunlosky, J. (under review). When do learners shift from habitual to agenda-based processes when selecting items for study?
- Ariel, R., Dunlosky, J., & Bailey, H. (2009). Agenda-based regulation of study-time allocation: When agendas override item-based monitoring. *Journal of Experimental Psychology: General*, 133, 432-447. doi:10.1037/a0015928
- Dunlosky, J., & Ariel, R. (2011). The influence of agenda-based and habitual processes on item selection during study. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 37(4), 899-912. doi:10.1037/a0023064
- Dunlosky, J. & Thiede, K. W. (2004). Causes and constraints of the shift-to-easier materials effect in control of study. *Memory and Cognition*, 32, 779-788. doi: 10.3758/BF03195868

Acknowledgments

This research was made possible due to the generous funding from the President's/Provost's office, the Vice President for Research, the Chemistry Department through their patent account, and the Alabama Space Grant Consortium.