

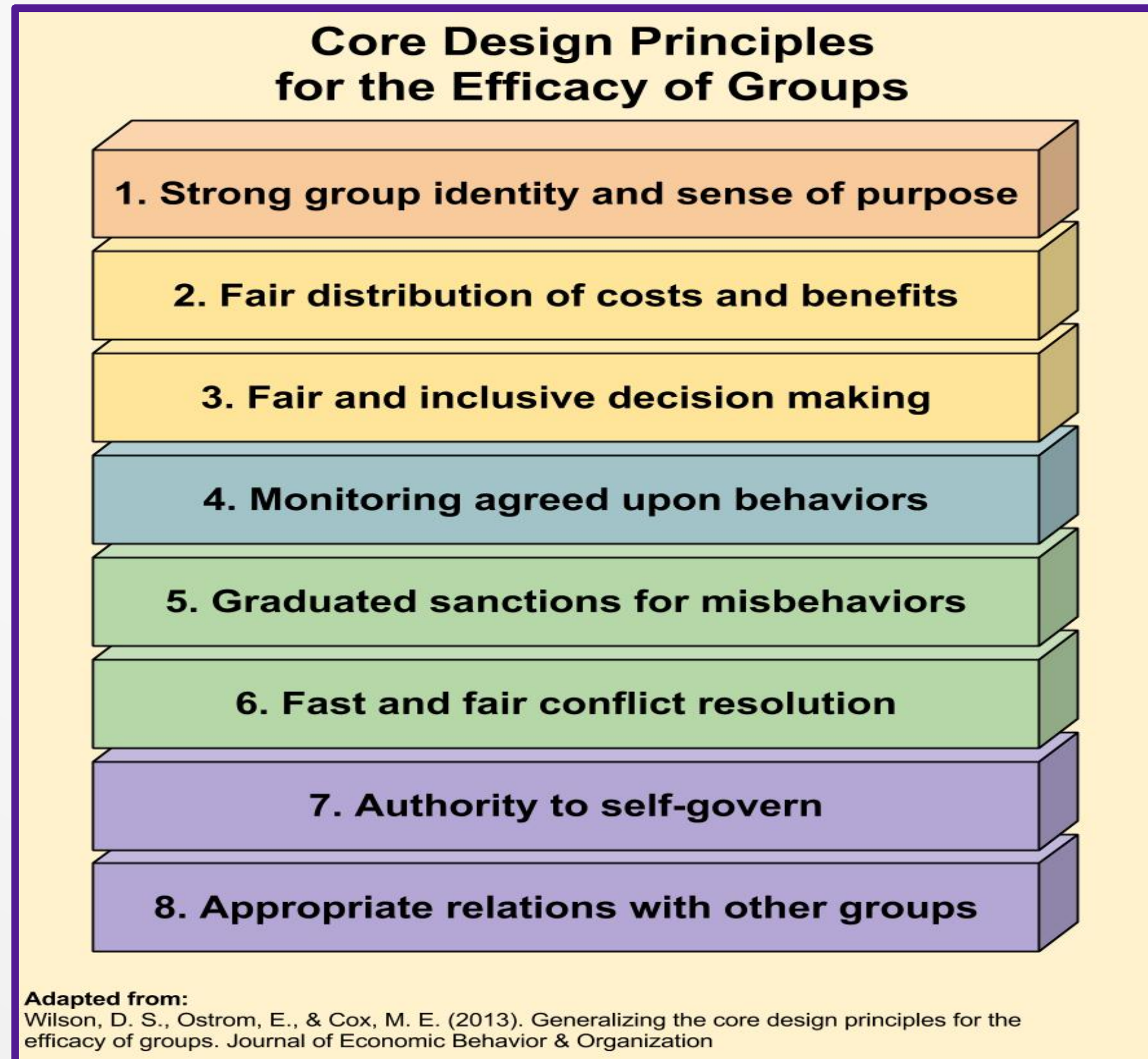
Increasing the Efficacy of Student Learning Groups

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Introduction

- Nobel laureate Elinor Ostrom previously identified 8 “core design principles” [“CDPs”] initially for the purpose of managing common pool resources.
- It has been suggested that the CDPs can be generalized in order to increase the efficacy of all groups¹.
- Recent studies have looked at the implementation of the CDPs in intentional communities and business groups.

This study analyzes the effect of CDP intervention in a classroom setting, utilizing a group poster project integrated into a large university lecture course.



Methods

- Students enrolled in introductory evolution course formed groups of 2-4.
- Students applied evolutionary theory to ask a novel research question to ultimately be compiled into an academic research poster.
- 3 out of 6 discussion sections received a minor CDP intervention (worksheet explaining the principles in the context of groups).
- A weekly repeated measures survey [“RMS”] was distributed electronically.
 - Students were asked to rate their group function.
 - Open text response allowing students to explain why or why not their group was performing at optimal function.
- Data collected and analyzed: Group contract text, survey response text, and the number of references cited on students’ final posters as an indication of effort.
- Independent rater anonymously graded students posters.

Excerpt from Student Worksheet

CDP #3: Fair and Inclusive Decision Making: If you want good decisions and motivated people, group members need to be involved in making the decisions that affect them, particularly with agreements about how the group runs.

Key Planning Question: How will we make decisions in a way that involves those who need and want to be involved?²

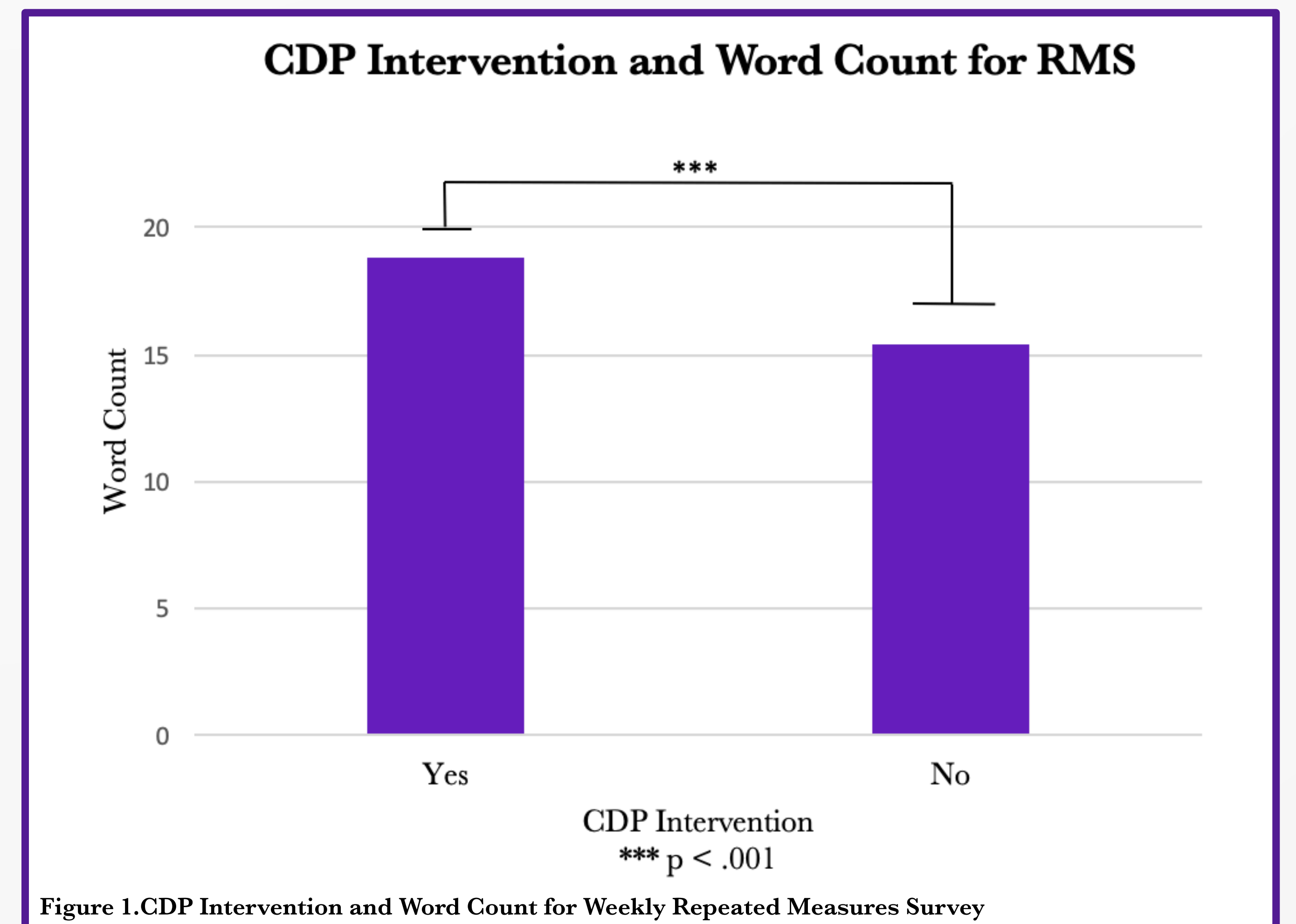


Figure 1. CDP Intervention and Word Count for Weekly Repeated Measures Survey

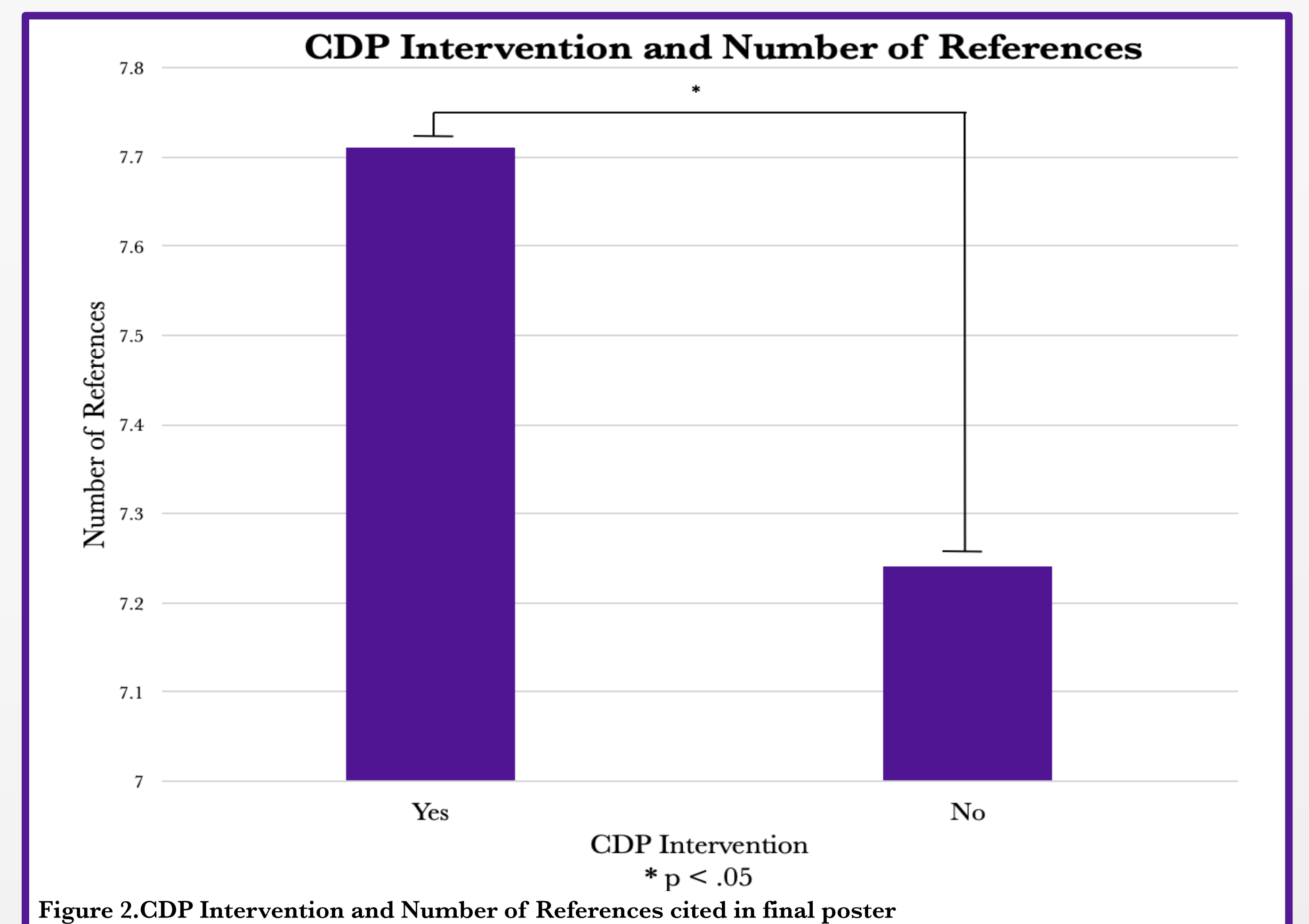


Figure 2. CDP Intervention and Number of References cited in final poster

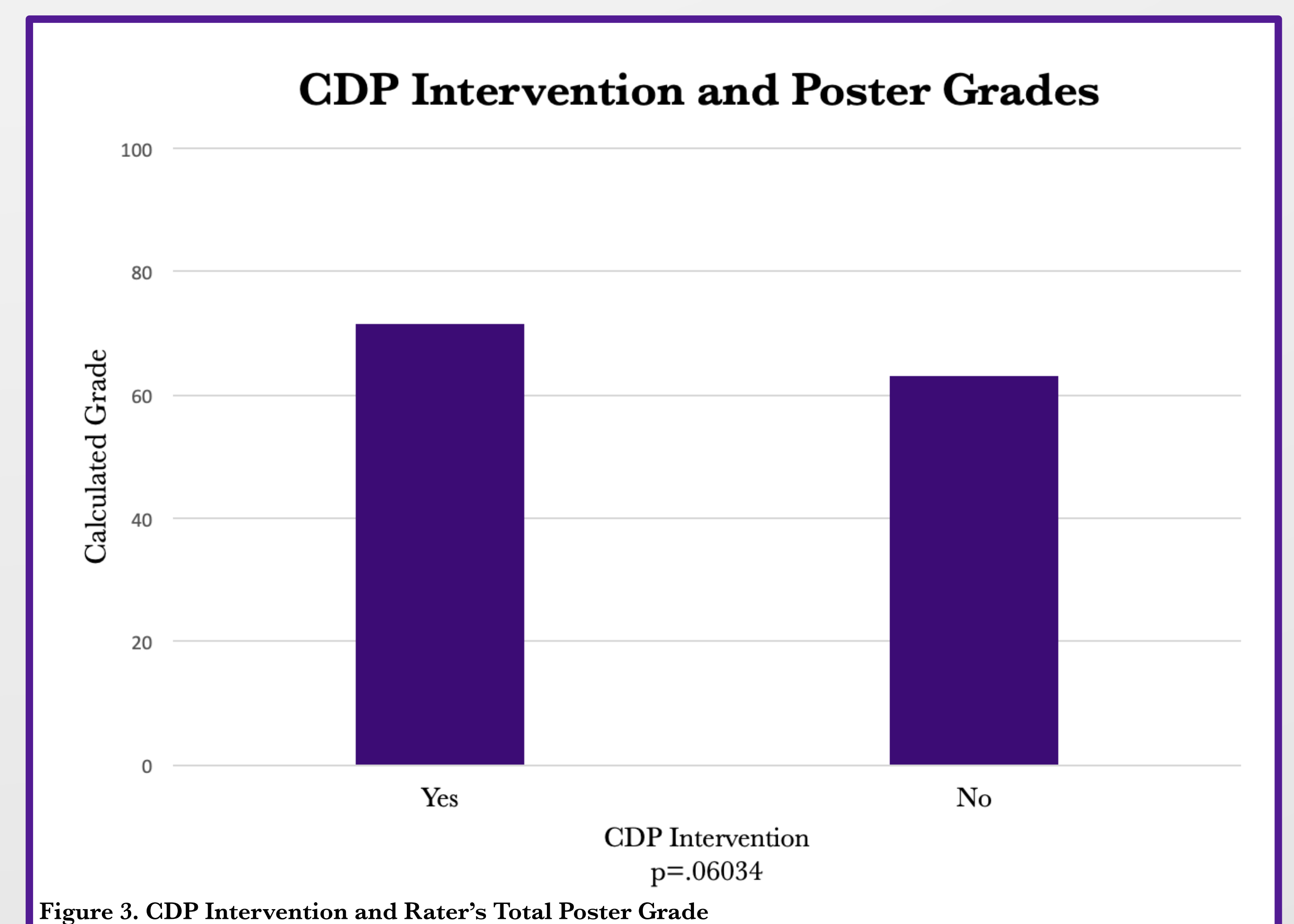


Figure 3. CDP Intervention and Rater’s Total Poster Grade

Results	RMS Word Count (Fig. 1)	Poster References (Fig. 2)	Poster Grades (Fig. 3)
χ^2	126.69	4.50	
Nangelkerke Pseudo r^2	0.16	0.10	
t(43)			1.93
Cohen’s d			0.58
p	2.17 e-29	.03	.06
CDP Intervention	Mean = 18.84 SD = 11.87	Mean = 7.71 SD = 1.93	Mean = 71.43 SD = 14.80
No Intervention	Mean = 15.36 SD = 10.72	Mean = 7.24 SD = 2.47	Mean = 62.94 SD = 14.65

Discussion

- CDP intervention affects key variables associated with group assignments.
- Small intervention affects group function in a real-world classroom setting.
- Despite a lack of significance on total poster grades, the small sample size (n=45) and marginally significant results suggests potential significance if provided a larger sample size.
 - Grades from an additional outside rater are currently being collected for analysis.
- A final, extended survey is currently being analyzed for further outcome variables amongst groups (trust, commitment, satisfaction, cooperation).
- Displays the feasibility of incorporating CDP intervention in real classroom settings.
- Further research can look at the effects of increased intervention levels, as well as variations in group sizes and assignment types.

References

1. Wilson, D. S., Ostrom, E., & Cox, M. E., (2013). Generalizing the core design principles for the efficacy of groups. *Journal of Economic Behavior & Organization*. 90S, S21-S32.
2. Atkins, P. W., Wilson, D. S., & Hayes, S. C. (2019). *Prosocial: using evolutionary science to build productive, equitable, and collaborative groups*. New Harbinger Publications.