CANNABIS AND YOUTH: AN EVALUATION OF THE CHANGES IN ASSOCIATIVE MEMORY FOLLOWING LEGALIZATION

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INTRODUCTION

The Cannabis Act or Bill C-45
- Bill C-45 was passed on October 17th, 2018, legalizing the recreational use of cannabis[1]
- Allows individuals aged 18 or 19 years and older to purchase, possess, cultivate, and consume cannabis[1]
- One of the primary objectives is to protect young adolescents from cannabis, by prohibiting the marketing and promotion of the drug and also by imposing punishment on those who violate or fail to comply with the act [1]

Word Association Task (WAT)
- The WAT is an implicit measure of cognition that has demonstrated predictive effects of substance use[2]
- Ambiguous words or "cues" have various potential meanings and can elicit a variety of responses depending on the individual responding[2]
- Current and future drug users are apt to having more memory associations in response to substance related cues [4]

Objective
- This study will be one of the first to examine changes in the implicit cognitions of youth both prior to and following legalization using the WAT alongside Frigon & Krank's (2009) complementary self-coding method[3]. The analysis examines whether the introduction of the Cannabis Act results in an increasing amount of cannabis-related cognitions in youth.

METHODOLOGY

Participants
- 1406 grade 8 (N = 503) and 9 (N = 903) students from the Vernon School District in British Columbia, Canada

Healthy Activities and Behaviors Inventory Test
- Students were administered the Healthy Activities and Behaviors Inventory Test (HABIT), a survey which measures a variety of cognitive variables and behaviors with regards to substance use. Data collection involved use of the WAT as well as questions relevant to cannabis use

WAT
- Participants were presented with a variety of ambiguous cues and were asked to respond with the first word or phrase that came to mind

Self-Coding
- Students were asked to self-code their WAT responses into 8 possible categories

Self-Reported Substance Use
- Students were asked to self-report the last time they used cannabis or used other THC products on a 5 point nominal scale

RESULTS

Descriptive Statistics

Table 1
Word Association Score for Individuals Who Reported Past-Year Cannabis Use

Measure		Reported Use			No Reported Use	
	Grade	Year	*M (SD)*	Grade	Year	*M (SD)*
Cannabis-Related Word Associations	8	2017	2.83 (1.72)	8	2017	1.48 (1.72)
		2018	3.50 (1.96)		2018	1.43 (1.50)
	9	2017	4.03 (2.16)	9	2017	1.56 (1.71)
		2018	3.98 (2.03)		2018	1.52 (1.64)

Word Association Task Scores
- A between-subjects ANOVA was conducted to compare the effect of year, grade, and past year cannabis on the amount of cannabis-related word associations
- There was a significant effect on the number of word associations at the $p < .05$ level for cannabis use [$F(1) = 87.82$, $p < .001$, $\eta p^2 = .059$] and also for grade [$F(1) = 4.31$, $p = .038$, $\eta p^2 = .003$]. However, there was no significant effect at the $p < .05$ level for year [$F(1) = .034$, $p = .56$, $\eta p^2 = 0$]
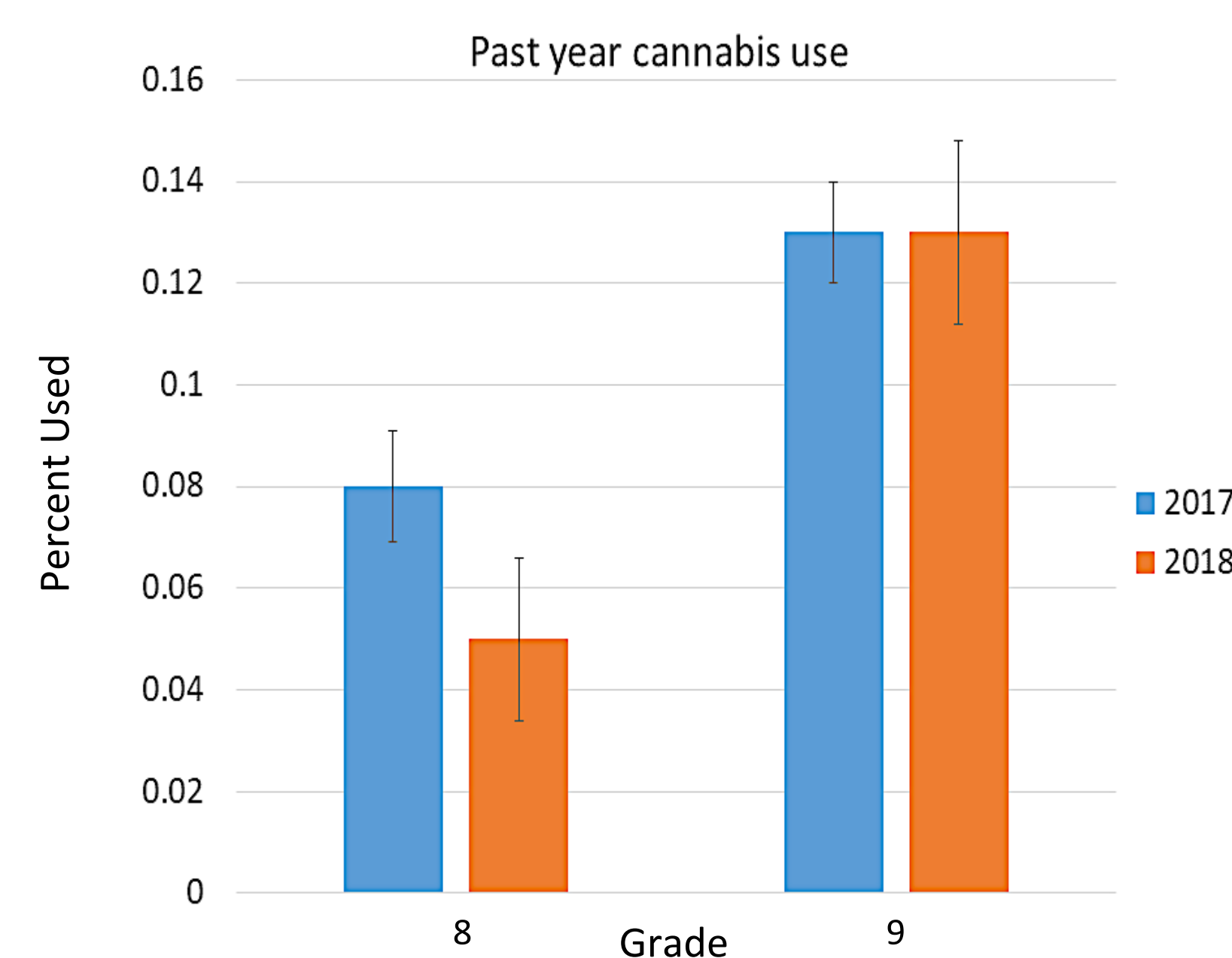- None of the interactions were significant

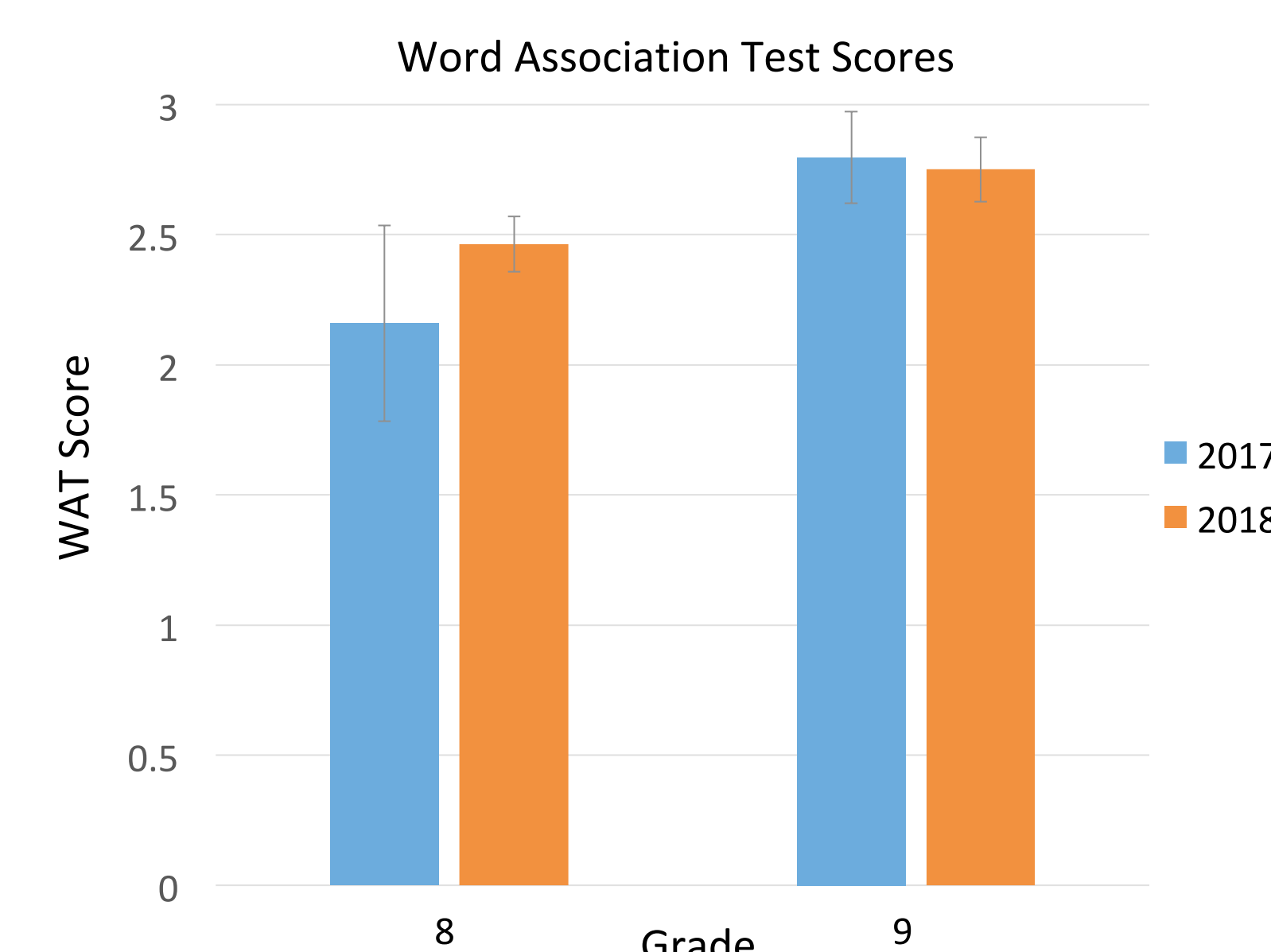**Figure 1.** Percentage of grade 8 and 9 students who reported past year cannabis use in 2017 and 2018

Figure 2. Mean WAT scores for grade 8 and grade 9 students in 2017 and 2018

DISCUSSION

Conclusions
- Grade nine individuals exhibited a greater number of cannabis-related word associations in comparison to the grade eight students
- Those who used cannabis or used other THC products within the past year displayed a greater number of cannabis-related word associates in comparison to those who had not used cannabis within the past year
- The number of post-legalization cannabis-related word associations did not differ significantly from pre-legalization

Limitations
- Teenage experimentation is associated with the current age group and thus age may behave as a confounding factor
- Although the survey encourages honesty and confidentiality, there may be issues associated with self-report
- Data collection post-legalization was done shortly after legalization and therefore significant changes may occur over a longer period of time

Implications
- The results support previous research, indicating that there is a relationship between self-reported substance use and word association scores
- This information is valuable to inform future prevention and intervention efforts
- Although legalization resulted in no immediate change in use nor in the cognitive indicators of risk, levels of use are present at an early age and prevention efforts should target this early use

ACKNOWLEDGEMENTS

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