**An Introductory Analysis of Relationship between**

**Schedule Preference & Schedule Impact on Mental Health and Student Experience at Masterman School**

An Addendum to the Student Input Survey Analysis

Prepared by SAC Student Delegates

with High School SGA Input

1. **INTRODUCTION**

Based on the below correlation matrix, a strong linear relationship between the variables “mh\_effect” and “pref\_ab” was identified. These variables represent the input from two survey questions, the former “The impact of this year’s 7 period A/B schedule on my mental health and overall Masterman experience has been positive,” and the latter “I prefer this year’s 7 period A/B schedule to last year's Regular 8 period schedule.”

A colorful grid with numbers

Description automatically generated with medium confidence

The correlation matrix includes all numeric variables asked to the entire sample population of 667 students. With an *r* value (correlation coefficient) of 0.84, the highest magnitude of any relationship within the matrix, further investigation into this relationship was deemed warrant.

1. **NUMERICAL ANALYSIS**

Using RStudio, a Pearson’s Chi-squared test, a Fisher’s Exact Test, and multiple measures of association including a Cramer’s V & Phi coefficient were determined. These results are displayed below.

A screenshot of a computer

Description automatically generated

A number grid with black numbers

Description automatically generated with medium confidenceThe contingency table of data is displayed to the right. The *x*-axis represents of “pref\_ab” (where 1 = “Strongly Disagree” and 5 = “Strongly Agree” to preferring the 7 period A/B over an 8 period 5-day schedule) and the *y*-axis represents “mh\_effect” (where 1 = “Strongly Disagree and 5 = “Strongly Agree” to the impact of the 7 period A/B schedule having a positive impact on student mental health & Masterman experience. Given the questions determining “pref\_ab” and “mh\_effect” were asked only to students attending Masterman for 2+ years, the 134 0-0 pairs represent the 134 first-year student respondents, regardless of grade.

1. **INTERPRETATION**

A preference for the Fisher’s Exact Test over the Pearson’s Chi-squared test was identified given the contingency table representative of “mh\_effect” and “pref\_ab” violated a fundamental assumption of Pearson, in that all expected frequencies must exceed 5. Regardless, both tests indicated an estimated *p*-value (probability of obtaining the observed data by chance alone, assuming there is no variate relationship) of <0.05, the universally accepted threshold for statistical significance. As a result, the null hypothesis (H0) of no association is rejected, indicating a robust correlation between “mh\_effect” and “pref\_ab”.

Fisher’s alternative hypothesis is two sided, indicating the correlation does not have a specified direction. In context, this either means respondents were more likely to indicate the 7 period A/B schedule negatively impacted their mental health & Masterman experience if they preferred an 8 period 5-day schedule OR were more likely to prefer an 8 period 5-day schedule if they indicated a 7 period A/B schedule negatively impacted their mental health & Masterman experience. Without further investigation, it cannot be definitively specified which causes the other.

To quantify this correlation, the default set of correlation measures was utilized. A Phi-coefficient is not applicable in this case because the contingency table is not a 2x2 matrix. The contingency coefficient value of 0.84 (on a scale of 0 to 1) indicates a strong association. Cramer’s V value of 0.626 on the same scale suggests a moderate-to-strong association; however, the contingency correlation is preferred given Cramer’s V is primarily utilized when comparing associations across different tables.

1. **CONCLUSION**

In conclusion, the data indicates a strong relationship between negative impact on mental health and Masterman student experience