**Statistical Inference:**

**How to Hack the Minerva Grading System**

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**Abstract**

*Keywords:* two-sample mean t-test,

**Statistical Inference: How to Hack the Minerva Grading System**

**Introduction**

GPA, the Grading Point Average, is a huge part of college life. As it represents the academic performance and is often used to evaluate the success of the learning, most students, especially those freshmen, worry so much about this score and feel highly pressured in improving it. The same for students in Minerva Schools at KGI, though the school takes a different approach in its grading system, where students are graded on the HCs, the Habits of Mind and Fundamental Concepts (“Philosophy & Pedagogy | Minerva Schools,” n.d.).

However, this system is a little too complicated as to evaluate the students from three dimensions, including HC mastery, Transfer competency, and Transfer scope (“Transfer Calculation and Cornerstone grading – The Hub,” n.d.). Unable to fully understand how the system works, students often failed to improve their performance, leading to mental and physical stress. An upperclassman Puthipiroj from M20 had proposed three strategies for Minervans to improve their grades: improving HC applications, practicing transferring HCs, and using feedbacks effectively (Puthipiroj, n.d.). This article will use deductions and inductions to evaluate the effectiveness of these approaches according to the information provided by the Academic Team and the data collected during the first semester study of the author.

**Data Exploration**

The Dataset is the retrieved from the grading records of the author in the fall semester of 2020, collected from the four Cornerstone Courses: Multimodal Communication (MC), Empirical Analysis (EA), Formal Analysis (FA), and Complex System (CS). As presented in Table 1, there were 183 raw data in the dataset. However, only 140 of them are considered as effective data with graded HC scores.

**Table 1**

*The HC Grades Raw Dataset.*

*Graphical user interface, table

Description automatically generated*

*Note.* Thexxxxxxxxxxx

The dataset contains several variables, where the Type, HC, Foregrounded, Session, Comment are the categorical qualitative variables, differentiating these data into different groups, while Data is a continuous quantitative variable and Weight is continuous quantitative.

Grade might be assumed as a discrete quantitative variable as it can only take the values of integers in a 1 to 5 scale. As a result, Weighted Grade, the product of Grade and Weight, is also a discrete variable.

**Table 2**

*The HC Dataset Grouped by HC and Date*

Table

Description automatically generated

*Note.* Thexxxxxxxxxxx

One underlying ordinal variable we can infer from the Data is the order that we apply the HC, which is an important information for our analysis. As presented in Table

Table

Description automatically generated

[Text]

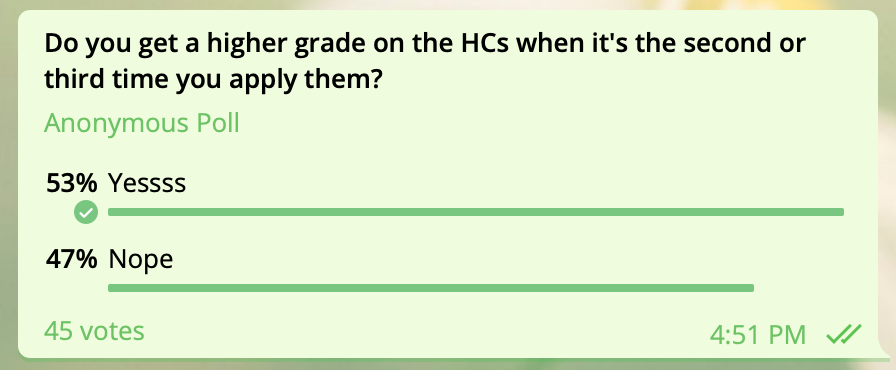


Figure I.,

**Hypothesis Development**

**Significant Test**

[Text]

[Text]

**Conclusion**

[Text]

[Text]

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**Reference**

Philosophy & Pedagogy | Minerva Schools. (n.d.). Retrieved December 18, 2020, from https://www.minerva.kgi.edu/academics/philosophy-pedagogy/

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**Appendix I. Raw Dataset**

**Appendix II. Clean Dataset**