The Effect of Font Style, Font Size, and Medium on Text Comprehension of Students.

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Introduction

- Students now have two options for accessing and utilizing course materials: through traditional paper formats or digitally. However, which format helps students study more effectively is still a hotly debated topic.
- Moreover, how the presentation elements, such as font style and font size, impact student learning is also an interesting question that is of much interest to scholars.
- Varied research findings
    - No effect - Ali et al (2013); Florit et al (2023); Hermena et al. (2017)
    - Significant effect - Dressler (2019) ; Ralekar et al. (2018); Rello et al (2016)
- By analyzing empirical data and theoretical frameworks, this study investigates how font style, font size, and medium impact students' ability to comprehend text effectively.

Experimental Setup

- Experiment design: 2^3 factorial design with 3 replicates
  - Factor 1: Font Style (Calibri vs Times New Roman)
  - Factor 2: Font Size (10 pts vs 12 pts)
  - Factor 3: Medium (Paper vs Computer)
- Participants: 3 Miami University students with varying educational and cultural backgrounds
- Procedure:
  - Experiment was conducted at King Library
  - For each round, each participant received a text passage with a random combination of font style, font size, and medium to read in 5 minutes
  - After 5 minutes, participants were given a set of 10 questions based on the text passage to assess understanding of its content
  - The number of correct answers for each participant for each round was recorded for analysis
  - Experiment was repeated for 8 rounds, each corresponding to a different text passage
- Analysis: The collected data was analyzed using SAS

Findings and Discussion

Figure 1: Residual Plots for Original Data

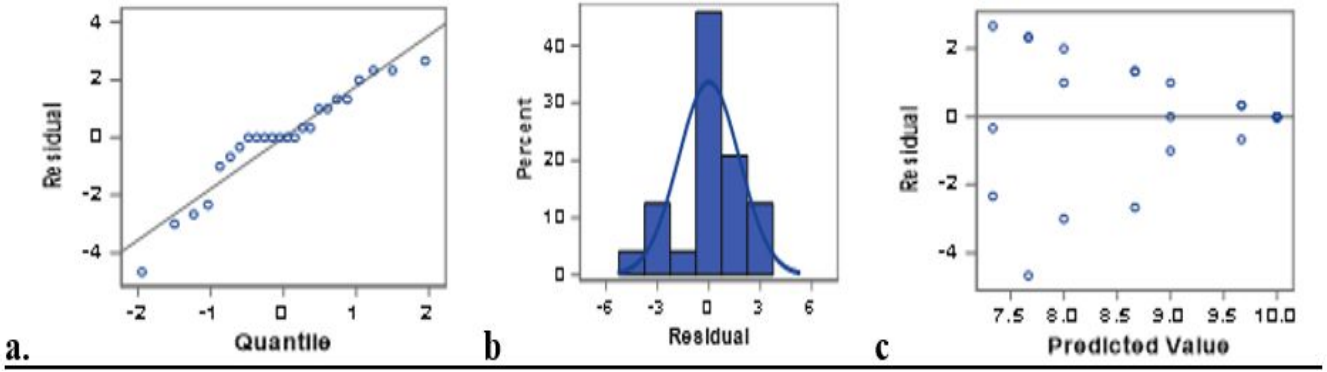

Figure 2: Residual Plots for Box-Cox Transformed Data

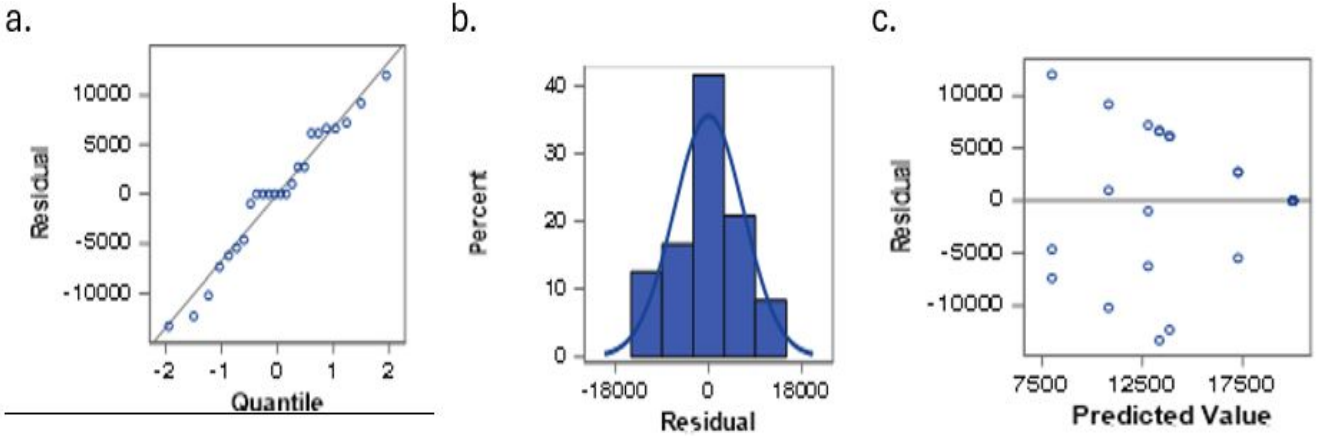

Table 1: Anova Table

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	7	386282057	55183151	0.85	0.5632
Error	16	1037833577	64864599		
Corrected Total	23	1424115633			

Table 2: Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	14508	1643.98650	8.82	<.0001
F. style (A)	1	1609.54167	1643.98650	0.98	0.3421
F. size (B)	1	5.04167	1643.98650	0.00	0.9976
Medium (C)	1	145.47500	1643.98650	0.09	0.9306
F. style*F. size (AB)	1	2512.12500	1643.98650	1.53	0.1460
F. style*medium (AC)	1	-953.54167	1643.98650	-0.58	0.5700
F. size*medium (BC)	1	-2026.07500	1643.98650	-1.23	0.2356
F. style*F. size*medium (ABC)	1	1469.10833	1643.98650	0.89	0.3848

Conclusion

- Through our experiment, we discovered that font style, font size, and medium don’t have significant effect on how students comprehend text.
- However, the ability of students to understand texts might depend more on other factors rather than the nature of the text and the medium through which it is presented.
- As demonstrated by germane and intrinsic cognitive load aspects of the Cognitive Load Theory, the comprehension ability depends more on students’ efforts and their previous knowledge of subject matter (Sweller, 2010; Sweller, 1988).

Recommendations

Practice

- It is thus recommended that students should commit more effort into studying their lecture materials irrespective of the characteristics of the texts or the medium in which they presented.
- Educators and publishers must ensure consistency and continuation in study materials in subsequent levels.

Future Research

- Future studies are recommended to explore this topic further with a larger sample size to obtain a more informative result.
- Further research could be conducted by using complex and familiar topics to examine the topic in different familiarity contexts.

References

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Appendix

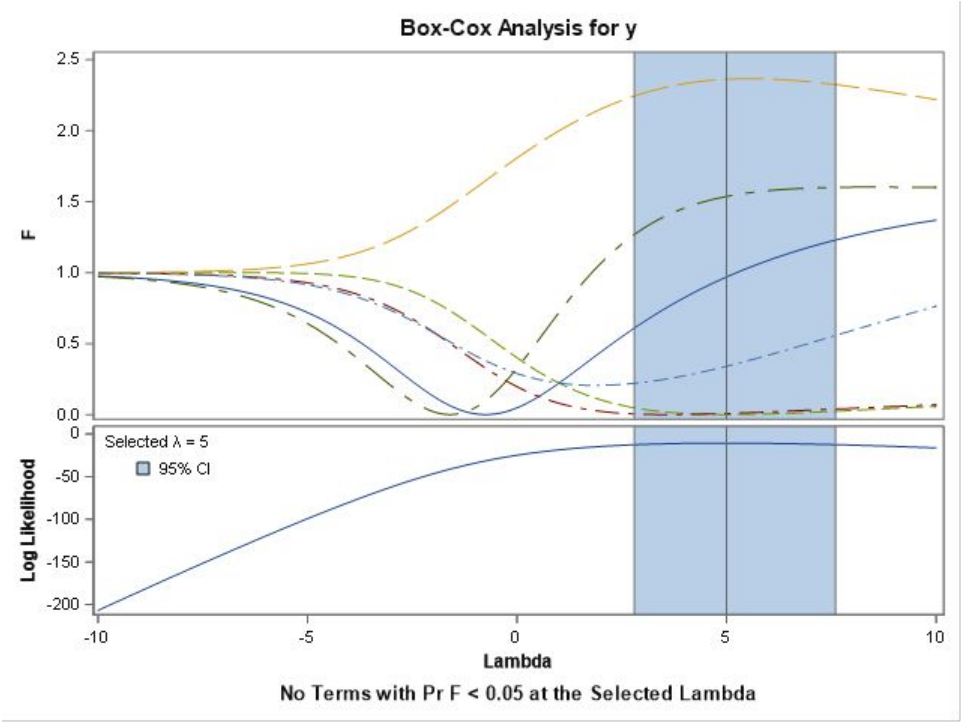

Figure 1. Box-Cox Analysis for the Response Variable