

Virtual Versus In-Person Learning Environments:

Differences in Memory Retention and Effects on Cognitive Load

Primary Question:

Is there a significant difference in content retention between students who attended a lecture virtually and those who attended the same lecture in-person?



Materials:

- 3 ten-question tests on the lecture content (Randomly assigned to each participant as either their pre, post, or delayed post test)
- Demographic Questionnaire
- Paas Cognitive Load Evaluation (Given at the end of each content assessment)

Methods:

- Two Days Prior: Participants received an email containing their assigned condition (meeting location), the demographic questionnaire, pre-test, and post-test.
- The Meeting: Demographic Questionnaire, Pre-Test, Lecture, Post-Test
- One week later: Participants sent a follow up email containing a link to the delayed post-test.

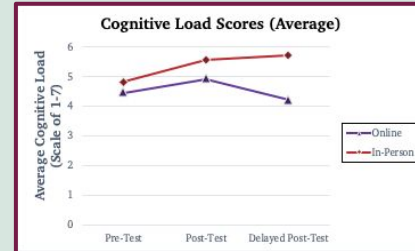
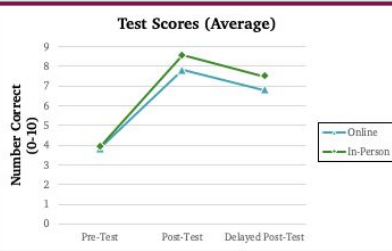
Key Findings:

- No statistically significant difference in test performance over time between the online and in-person conditions
- Participants in the in-person condition completing the delayed post-test reported a significantly higher cognitive load* than those in the online condition.

*Cognitive load is typically increased when unnecessary demands are imposed on a learner, making the task of processing information overly complex.

Question for Future Studies:

Would this difference exist if those in the in-person condition took their tests on paper rather than online? Is cognitive load lighter if the medium in which you listen to the lecture matches the medium in which you take the test?



References

