



Investigating if Frustration Changes with Post Class Plans



Nicole Lam, Sarah Berny, Lydia Bullo, Nate Schultz, Brooke Milam, Mina Aljibori, Jayden Lim

Abstract

Frustration is a common emotion felt by students in STEM classes and is known to decrease their focus and ability to learn new information. Attempting to reduce this frustration, we helped students create study plans at the end of PAL. Our research showed that there was a statistically significant difference between control and experimental student groups in their frustration levels with a p-value of 0.0020. Students encouraged to create study plans at the end of PAL class exhibited decreases in their levels of frustration. However, in comparison to the control PAL class that did not create any plans, the experimental groups level of frustration decreased significantly less.

Introduction

PAL facilitators have a limited time to work with students and guide them through problems; thus, it is possible students leave the classroom frustrated. This study attempts to establish that students' frustration after PAL sessions can be minimized by having students create study plans before leaving class. Previous studies have shown the effect that mood and frustration have on learning. A negative mood significantly hinders the learning process and academic performance. Students that had bad moods were seen to have lower concentration levels and persistence with their learning (Febrilia et al., 2011). Students being frustrated after PAL sessions can influence the students' overall academic performance. Study plans will give students a way to alleviate their frustration. Students creating study plans will also help students manage their time better outside of the PAL class. One study found that time management behaviors were correlated to higher academic success, and another study correlated higher academic success with lower stress levels (Cyril, 2015 & Buzzai, et al, 2021). By having students create plans related to their time management, students will have less stress and have better moods when going to PAL classes. Students having better moods may improve their experience with PAL.

Methods

To measure the effect of study plans on student frustration, we administered surveys at the start and end of class through weeks 5-10. Student baseline survey was compared to their end-of-class surveys using t-tests. Control and experimental groups were split by facilitator class size and students were directed to choose an identifier based off a class theme. The baseline survey included the identifier question and asked what the student's frustration level was with the current material. The post class surveys requested the same identifier, asked students how difficult they found the material, if they were frustrated during the class period, and how frustrated they feel before the end of class. Frustration levels were ranked from a scale of 1 (not frustrated) to 5 (extremely frustrated). The experimental group had the same questions with the addition of a fourth part: list one part of their tentative plan.

Results

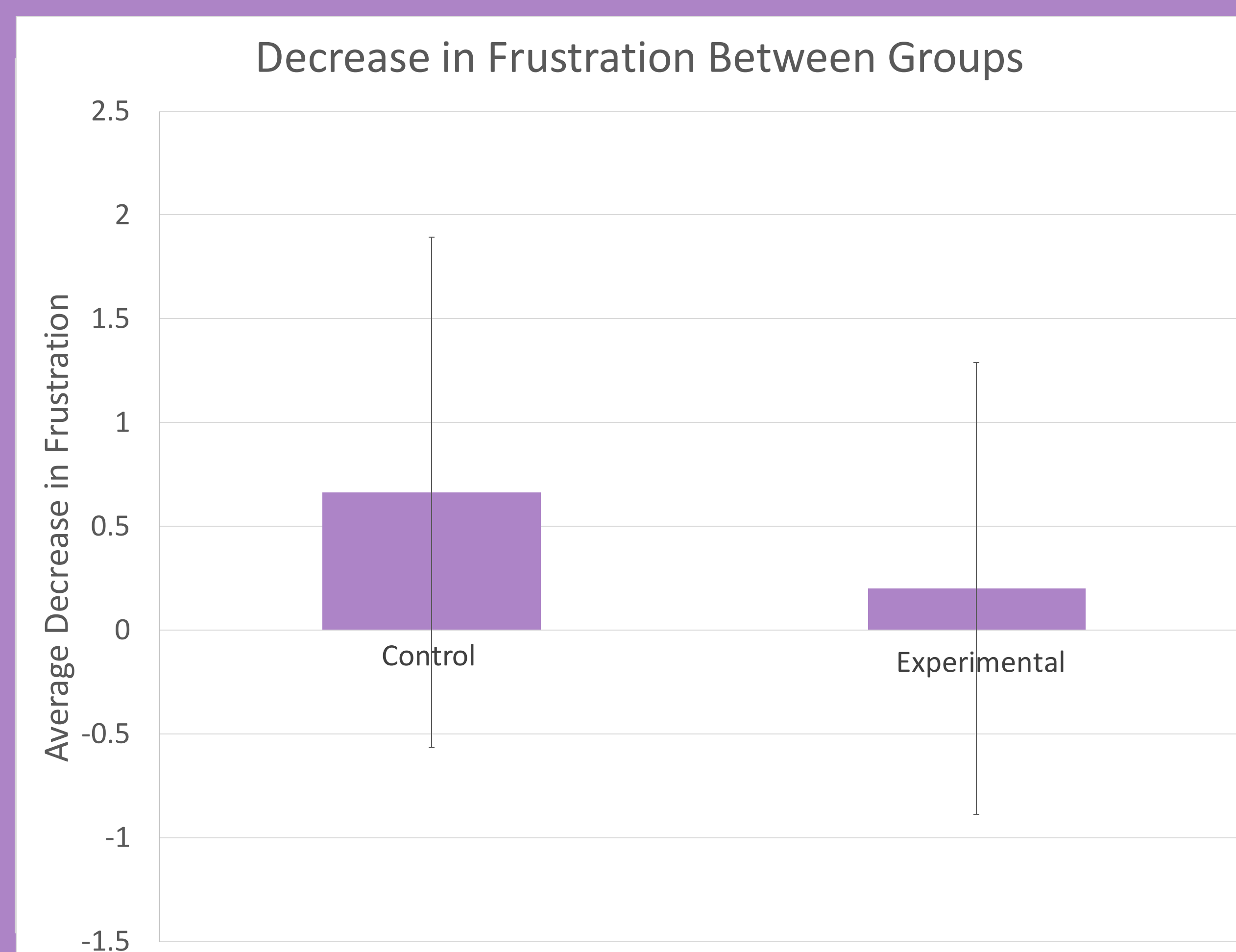


Figure 1: The mean frustration level difference in the control group and experimental group was 0.664 ± 1.23 and 0.178 ± 1.08 , respectively. The error bars represented the standard deviation of the dataset. All students exhibited a decrease in frustration when comparing their frustration at the beginning of the class to the end of class; however, the students in the experimental group had significantly less of a decrease in frustration (p-value = 0.0020).

Example Plans

Spend the day Work on practice problems, do mastering chemistry exam practice, and review flashcards/solubility rules
Study for quiz in lab by doing gas law example problems
Finishing mastering chemistry hw
Go to office hours and review lecture
Cry and force myself to rewrite notes

Conclusion

The data concluded that making plans does not decrease frustration in students more than PAL itself. Frustration overall decreases, however, the students that made plans did not decrease in frustration significantly more; their frustration decreased significantly less. This data could have shown that students were frustrated at having to think about what they needed to do. However, the classes of the experimental and control group may have an impact on what the frustration decrease was. Chem 124 data was only collected as the experimental group while Chem 4 was only collected as control group. It can be theorized that the frustration in Chem 124 decreased less due to it being a harder course than Chem 4. It is also possible that thinking of what they should do made the students more frustrated because they have a lot on their to-do list. Future researchers should consider having the same parent classes in the two treatment groups.

References

- Buzzai, C., Sorrenti, L., Costa, S., Toffle, M. E., & Filippello, P. (2021). The relationship between school-basic psychological need satisfaction and frustration, academic engagement and academic achievement. *School Psychology International*, 42(5), 497-519. <https://doi.org/10.1177/01430343211017170>
- Cyril, A.V. (2015). Time Management and Academic Achievement of Higher Secondary Students. *Journal on School Educational Technology*, 10, 38-43.
- Febrilia, I., Warokka, A., & Abdullah, H. (2011). University Students' Emotion State and Academic Performance: New Insights of Managing Complex Cognitive. *Journal of e-Learning & Higher Education*. <https://doi.org/10.5171/2011.879553>