



SACRAMENTO STATE

# Icebreakers' Influence on Peer Connectedness in Peer-Led Team Learning

Navid Akhavan, Roger Chan, Brenda Ramos Guzman, Aubrey Heldoorn, Melina Nasser, Emma Taylor, Manraj Toor, Annabella Tucker



## Abstract

STEM students often work independently and may feel unable to connect with their peers. Strong peer connections can lead to the formation of study groups outside of class and improve students' understanding of course material. However, little has been done to determine how to enhance peer connections amongst fellow peers in STEM courses. To execute this study, facilitators leading the experimental group would routinely carry out an icebreaker activity deemed 'rosebud and rosethorn' while the facilitators in the control group would not incorporate the exercise into their class. Statistical analyses of the peer connectivity data were conducted through t-tests. It was found that the icebreaker exercise insignificantly impacted peer connectivity within PAL. Overall, the sole inclusion of one bonding activity was not capable of increasing peer connectivity or the likelihood of student contact outside of the dedicated PAL session. Establishing peer connections is crucial to fostering a supportive academic community, however, more than just incorporating icebreakers is required to push students towards collaborating outside of the classroom.

## Background

Peer Assisted Learning (PAL) has been extremely beneficial for the students, finding on average a 23% increase in GPA compared to their non-PAL peers (Shanbrom, 2021). However, there has not been much research on whether it has an influence on students collaborating and learning together outside of the classroom. Earlier studies have noted that peer-led team learning has not been effective at creating social connections outside of the workshop (Smith et. al, 2014). Building connections with fellow peers is one of the most important predictors when determining the success of students in STEM, especially if they have a desire to work together. It is related to a student's better sense of belonging, which has strong connections to friendship (Premo et. al, 2022). Therefore, building stronger student bonds outside of the classroom could contribute immensely to the academic success of students. This study builds on the model created by Rasco et. al, who introduced a structured one-on-one with classmates to build connections and promote social engagement (2020). However, instead of partners, our approach involved a much larger group with the aim of building a larger community of students that can work collaboratively on course work.

## References

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## Methods

We facilitated pre-planned bonding activities in our Peer Assisted Learning (PAL) classes. These activities consisted of 'rosebud and rose thorn' and were administered to half of the sections, the experimental group, while the other sections, the control group, continued their classroom activities as usual. Rosebud and rose thorn is a sharing exercise where participants share one positive and one negative aspect from their week. Participants could share as much or as little detail as they liked. Facilitators lead the activity once a week for 5 minutes. Participants in both groups were sent a survey at the beginning of the intervention, during the middle of the intervention, and at the end of the intervention, where they could anonymously state how connected they felt to their peers in the group. These surveys were implemented to gauge the evolution of peer connection with and without bonding activities throughout the intervention. These anonymous surveys were completed during the PAL class period and asked the students to rate their connectivity, or perceived relationship, with their PAL peers on a scale from 1-5 (1 = not connected at all, 2 = somewhat connected, 3 = fairly connected, 4 = very connected, 5 = immensely connected). Data was collected and analyzed, comparing the control group and the experimental group. Two additional questions were added in the Quarter 3 survey to gauge the frequency by which students contacted their peers outside of the dedicated PAL section. The peers could include both students taking a PAL or not taking a PAL. Four t-tests were conducted to determine the significance of the intervention during all 3 Quarters.

## Discussion

Data analysis produced a p-value  $>.05$  in all quarters, suggesting that the intervention insignificantly affected peer connections within PAL. Based on this data, 'rosebud and rosethorn' did not make a significant impact on peer connection. A limitation possibly affecting our results is that our experimentation and data collection did not begin until week 5, which means that students in both groups may have already been exposed to some icebreaker activities earlier in the semester as is normally carried out by facilitators. This could immensely impact our data since peer connectivity amongst students was already influenced before experimentation began. Another explanation for our results is that encouraging student collaboration outside of class time necessitates students possessing a much greater familiarity with one another than anticipated which isn't offered enough by one icebreaker activity. In future studies, it would be advisable for the experimental groups to pair rosebud and rosethorn alongside an additional activity, like playing board games, or even providing a platform of communication for the class, like Discord or GroupMe. Increasing the amount of interactive opportunities may amplify the desired positive effect on peer connectivity. Ultimately, promoting peer connectivity and by association, collaboration amongst STEM students, is vital towards fostering a supportive and successful academic community, making further research into this topic beneficial.

## Results

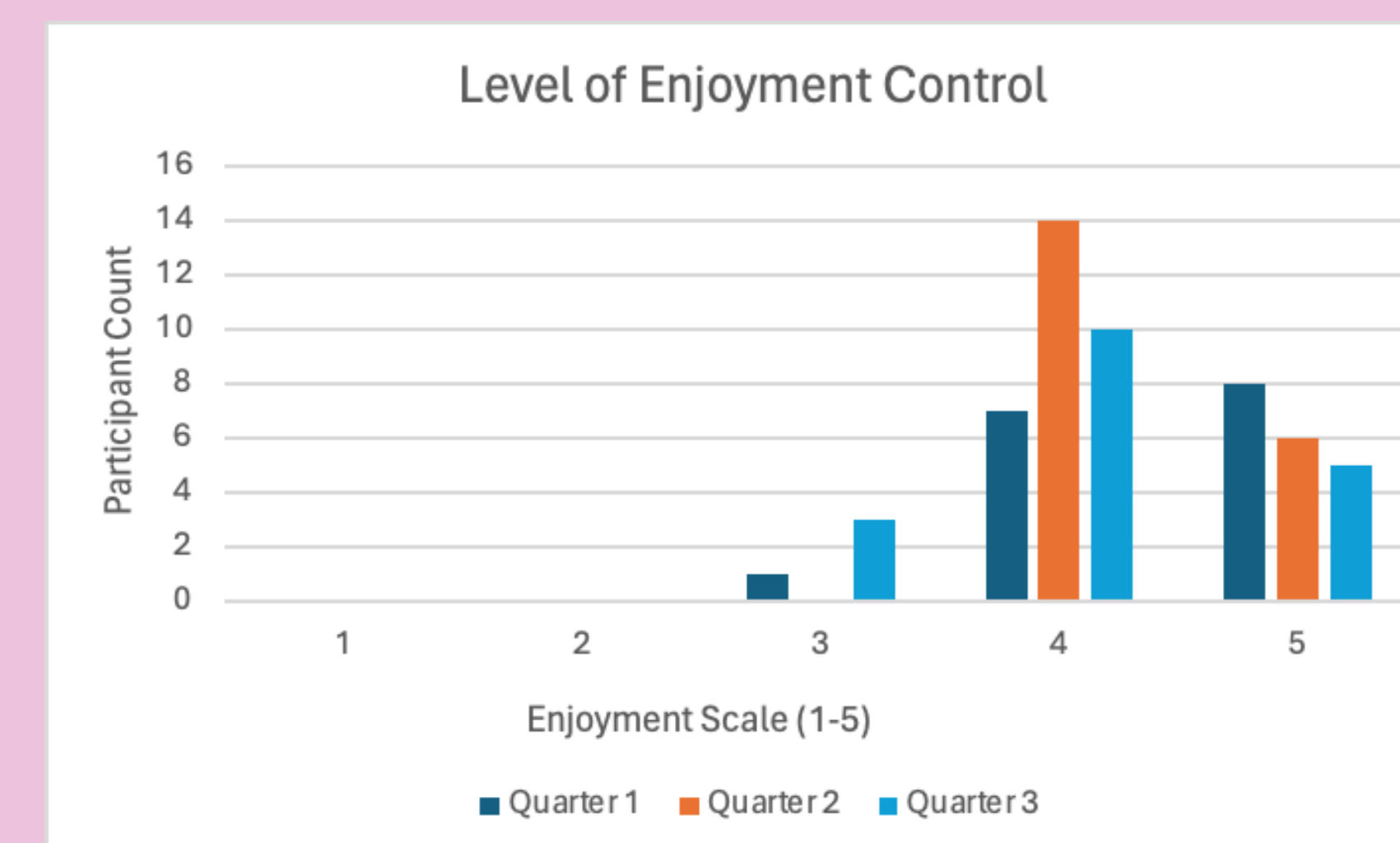


Fig. 1 Level of enjoyment amongst control group students. The highest enjoyment was observed in Quarter 2. Q1-Q3:  $p = 0.18$ .

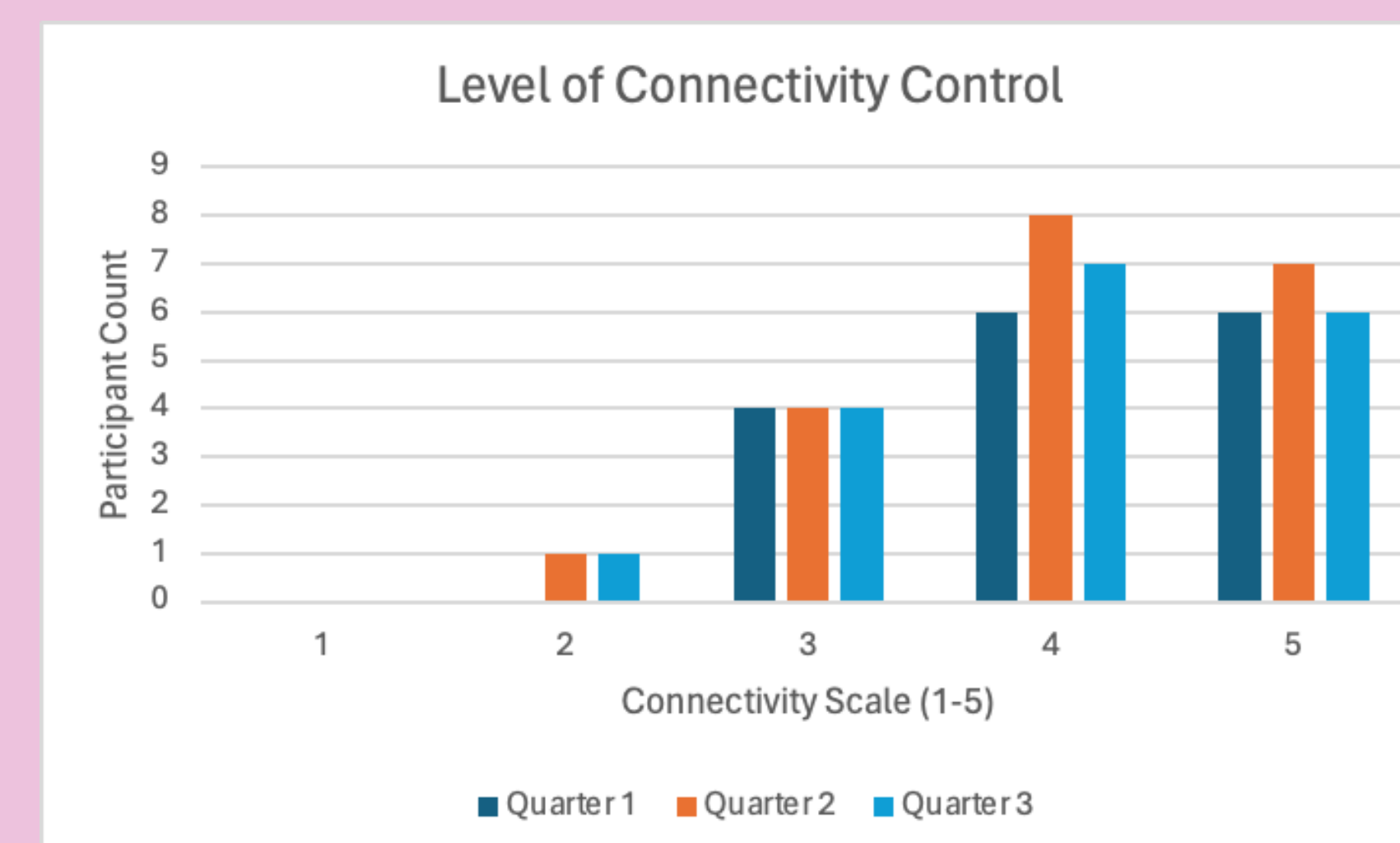


Fig. 2 Level of connectivity of control group students. The mode was during quarter 2, but data was evenly distributed amongst all quarters. Q1-Q3:  $p = 0.54$ .

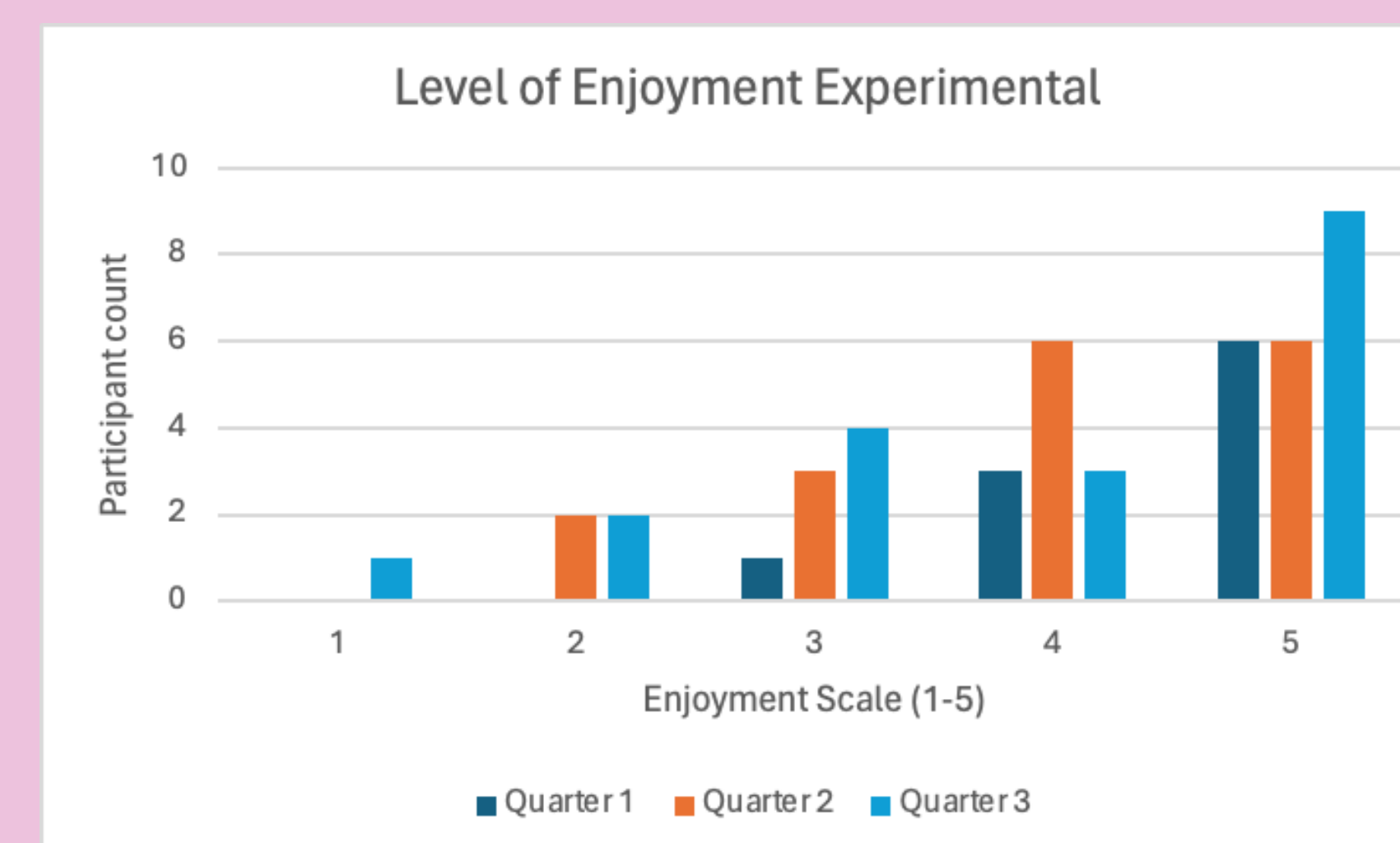


Fig. 3 Level of enjoyment of experimental group students. Q1-Q3:  $p = 0.82$ .

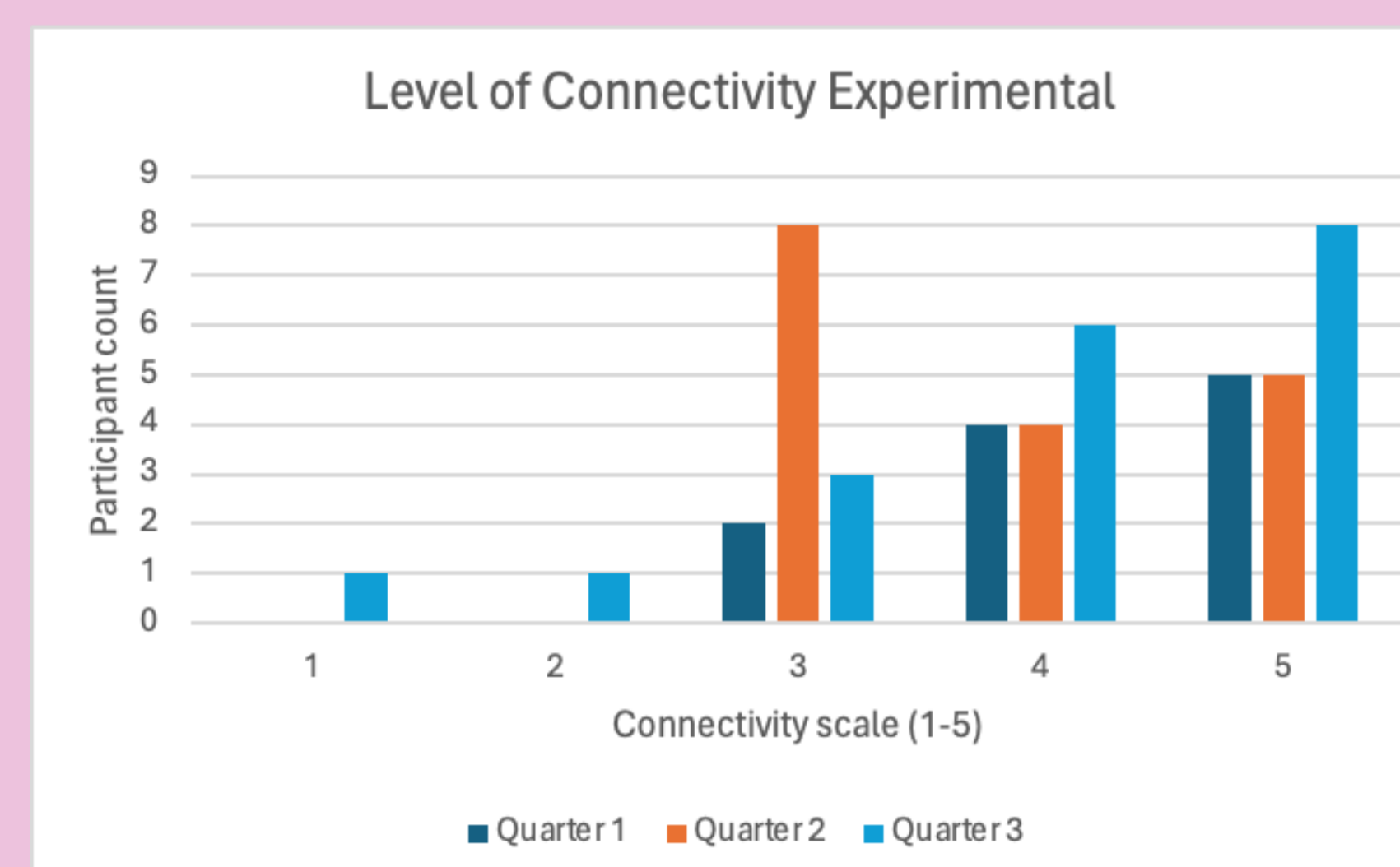


Fig. 4 Level of connectivity of experimental group students. Q1-Q3:  $p = 0.49$ .