

IS AN ACTIVE LEARNING SPACE BETTER THAN TRADITIONAL CLASSROOM FOR LEARNING EXPERIENCE IN A FIRST YEAR STATISTICS TUTORIAL CLASS?

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Service teaching of first year statistics classes is common in many universities due to the importance of statistical knowledge for many disciplines. However, large classes and students' varied demographic and discipline backgrounds create challenges for academics. How can we ensure a satisfactory learning experience for these students, who usually are not in the class by choice? Could active and collaborative learning spaces be the missing ingredient? In this research we investigated students' perceived learning experiences in a large first year statistics unit at Macquarie University. Data from a quantitative survey, administered to students in a traditional classroom in 2012 (n=226) and in an active learning space in 2013 (n=619), were used to address the question, "Are students more satisfied with their learning in an active and collaborative learning space as compared to a more traditional classroom?"

Structural Equation Model(s) are used to validate the constructs and the relationships between them and the outcome variables. AMOS 21 software package is used for modelling. One such model can be seen in Figure 1.

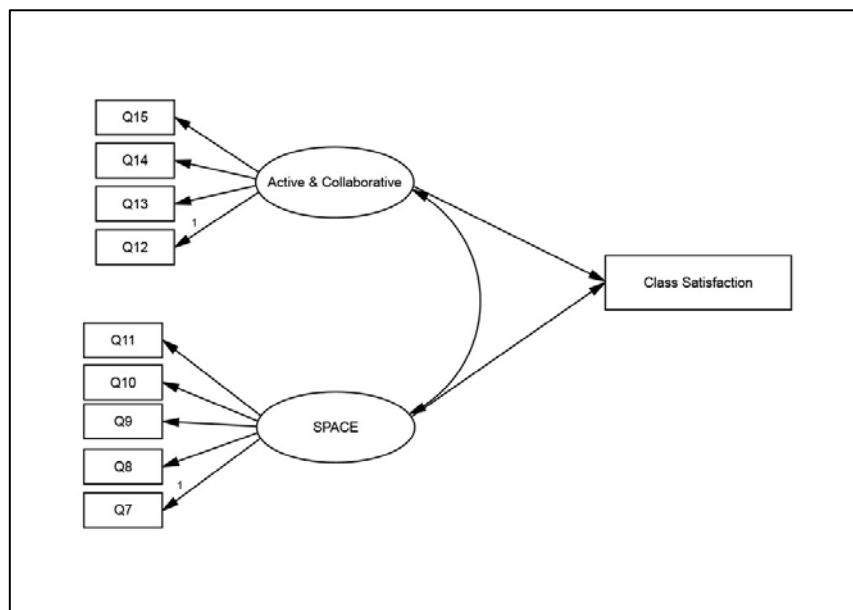


Figure 1: Class (and Unit) Satisfaction Model(s)

In traditional classroom setting, we found that active and collaborative learning is significantly correlated with students' satisfaction in their tutorial classes ($\chi^2 = 73$, $df = 31$, $p < 0.001$; CFI = 0.94, SRMR = 0.0554) and with the unit ($\chi^2 = 60$, $df = 31$, $p = 0.001$; CFI = 0.949, SRMR = 0.0539). Students felt comfortable solving problems after such classroom experiences because they believed that they had a deeper understanding of the concepts studied ($\chi^2 = 65$, $df = 31$, $p < 0.001$; CFI = 0.95, SRMR = 0.0546). On the other hand, we did not find enough evidence to conclude that the in-class activities had prepared students to tackle the unit's assessment tasks more effectively when we considered learning space and active and collaborative learning at the same time. However, when we only considered active and collaborative learning, we found a significant positive relationship ($\chi^2 = 6.5$, $df = 4$, $p = 0.166$; CFI = 0.994, SRMR = 0.0214) (Figure 2). Similarly, we did not find enough evidence to conclude that the class enhanced students' critical

thinking ability when we considered space and active and collaborative learning. However, when we only considered active and collaborative learning, we found a significant positive relationship ($\chi^2 = 9.3, df = 4, p = 0.053; CFI = 0.987, SRMR = 0.029$).

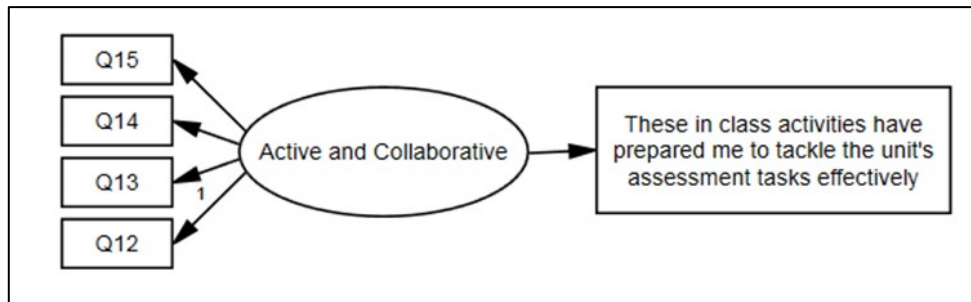


Figure 2: Active and collaborative learning helps to tackle assessment tasks effectively