JIGSAW LEARNING VERSUS TRADITIONAL LECTURES: IMPACT ON STUDENT GRADES AND LEARNING EXPERIENCE

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INTRODUCTION

- numerous studies have been done on active learning including Jigsaw Cooperative Learning (JCL)
- most studies found that JCL positively impacted student performance
- studies on JCL and student experience – findings inconsistent
- this study considers impact of JCL as compared to lectures on two different student groups: traditional and international

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WHAT IS JIGSAW COOPERATIVE LEARNING?

- instructor introduces topic and sub-components
- home groups are formed with 4-6 students, assigning each student with one of the sub-components of the topic
- students are expected to become an expert on their topic – prepare teaching notes
- formation of expert groups

JIGSAW COOPERATIVE LEARNING – cont'd

- return to home group
- each member of home group will teach their part of the puzzle to other group members
- result is formation of whole puzzle

- concluded with some type of testing

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RESEARCH QUESTION 1

Q1: Will student grades be higher when JCL is used as compared to lectures? Will this be true for traditional and international student groups?

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RESEARCH QUESTION 2

Q2: Will students prefer JCL over lecture-style learning? Will this be true for traditional and international student groups?

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METHODOLOGY

- introductory insurance course – two different sections of students: traditional and international
- taught 4 modules JCL and 4 modules lecture-based
- each module tested using a multiple choice quiz – 5% weighting of final course mark

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METHODOLOGY cont'd

- quiz grades used to compare JCL with lecture for all students, traditional group, and international group
- student experience survey was completed by all students (optional)
- results were compared for all students, traditional group, and international group

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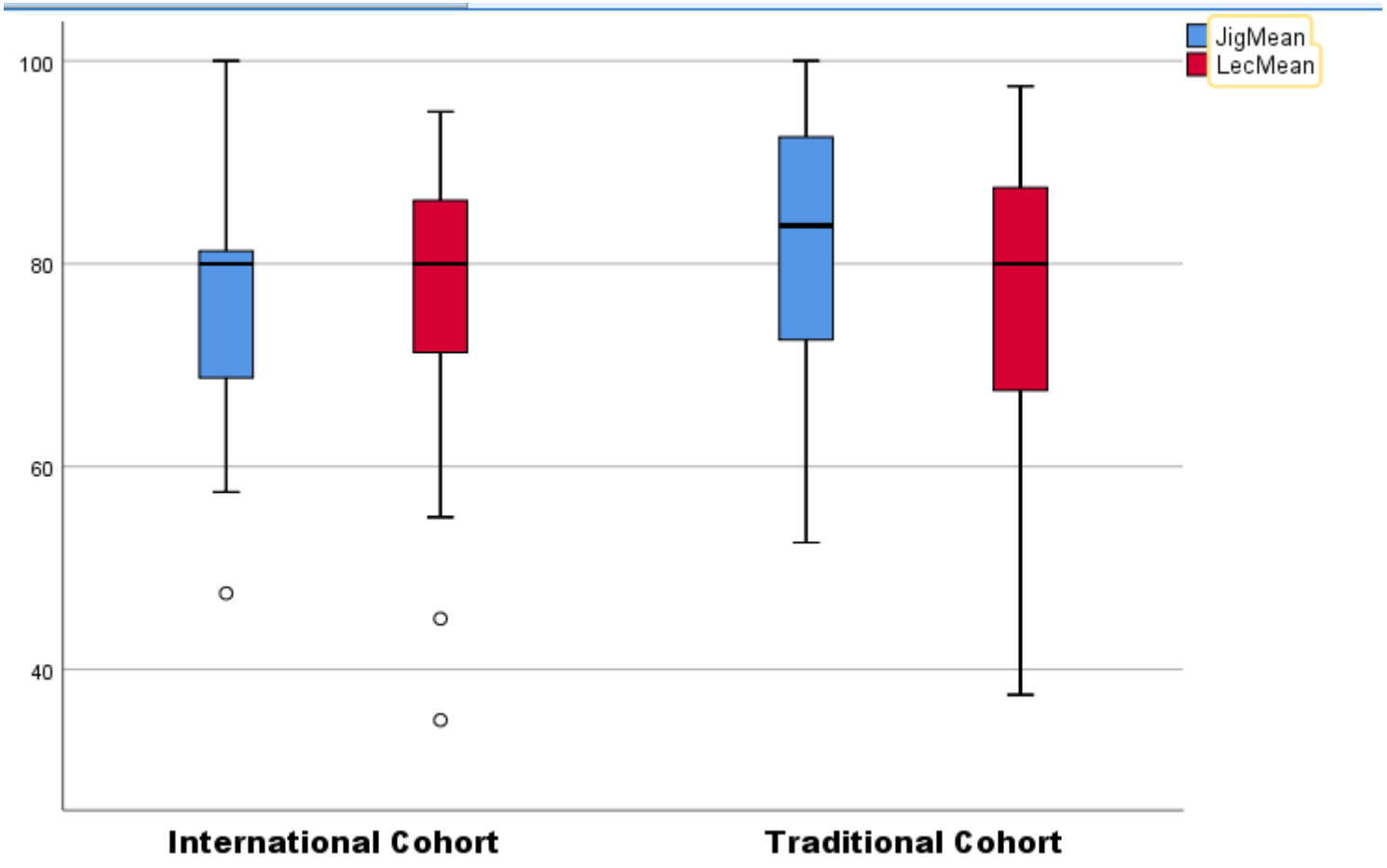
RESULTS: STUDENT GRADES

- total of 49 students participated: 30 in traditional group and 19 international students
- student mean test scores were analyzed on SPSS using paired t-tests for all participants
- tests were conducted for each cohort separately
- traditional students: grades were slightly higher for JCL modules

GRADE COMPARISON



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RESULTS: STUDENT EXPERIENCE

- validated survey consisted of 15 questions
- same questions for JCL and lecture – optional
- rated on Likert scale from 1 – 5; 1 represented strong disagreement, 5 represented strong agreement

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QUESTION GROUPINGS

1) Experience of Autonomy
2) Experience of Competence
3) Experience of Social Relatedness
4) Experience of Intrinsic Motivation
5) Activation of Deeper Level Processing

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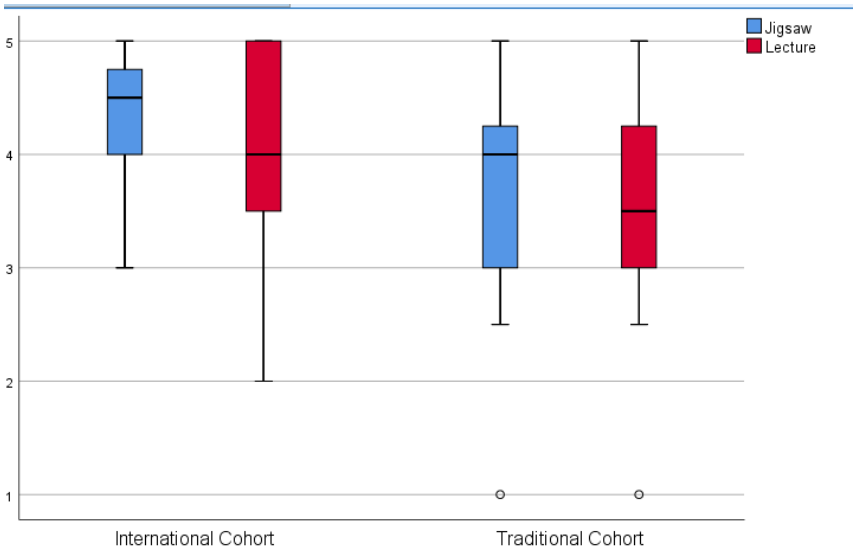
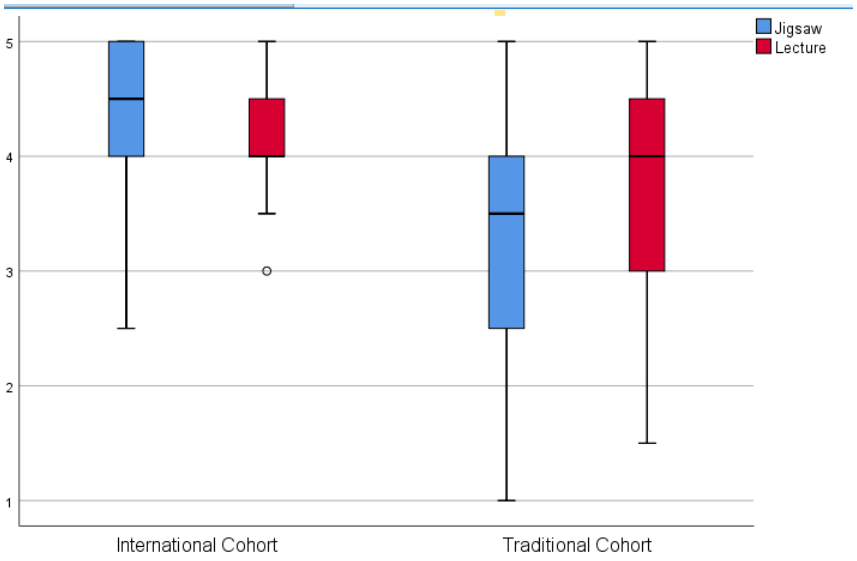
Experience of Autonomy



Experience of Competence



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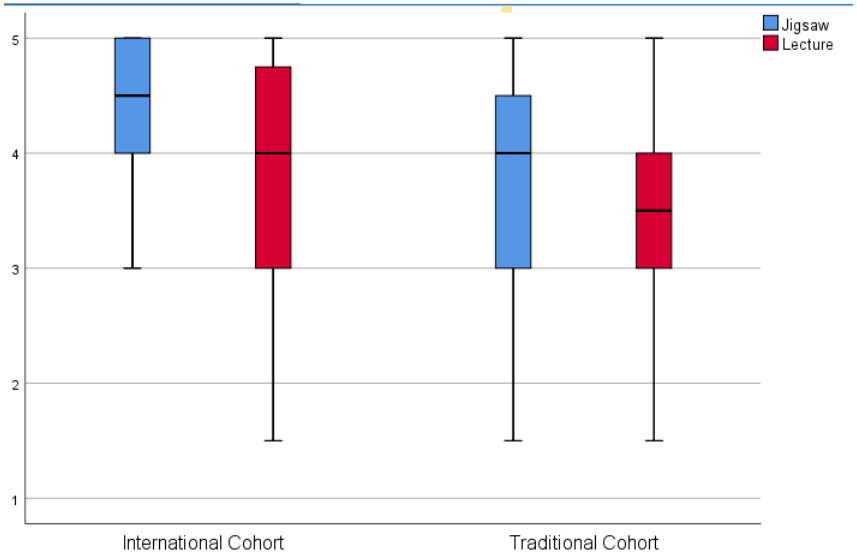
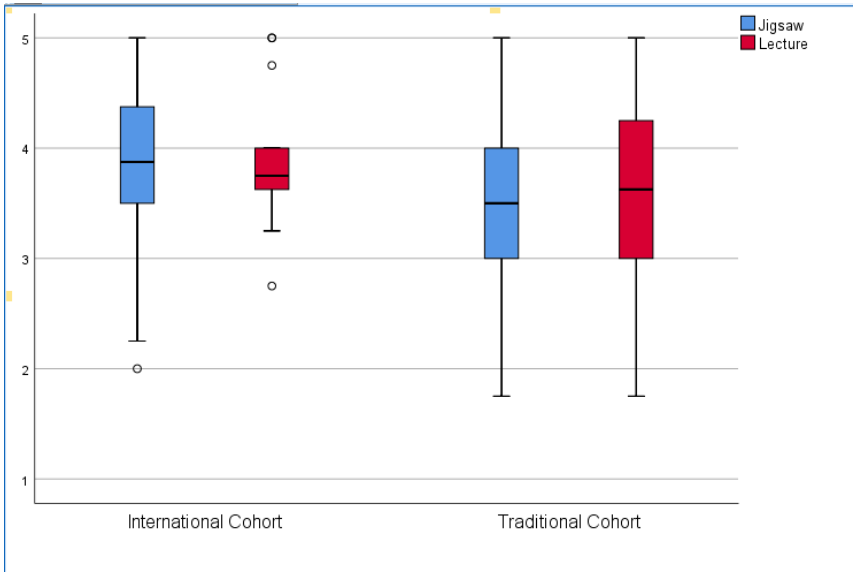
Experience of Social Relatedness



Experience of Intrinsic Motivation



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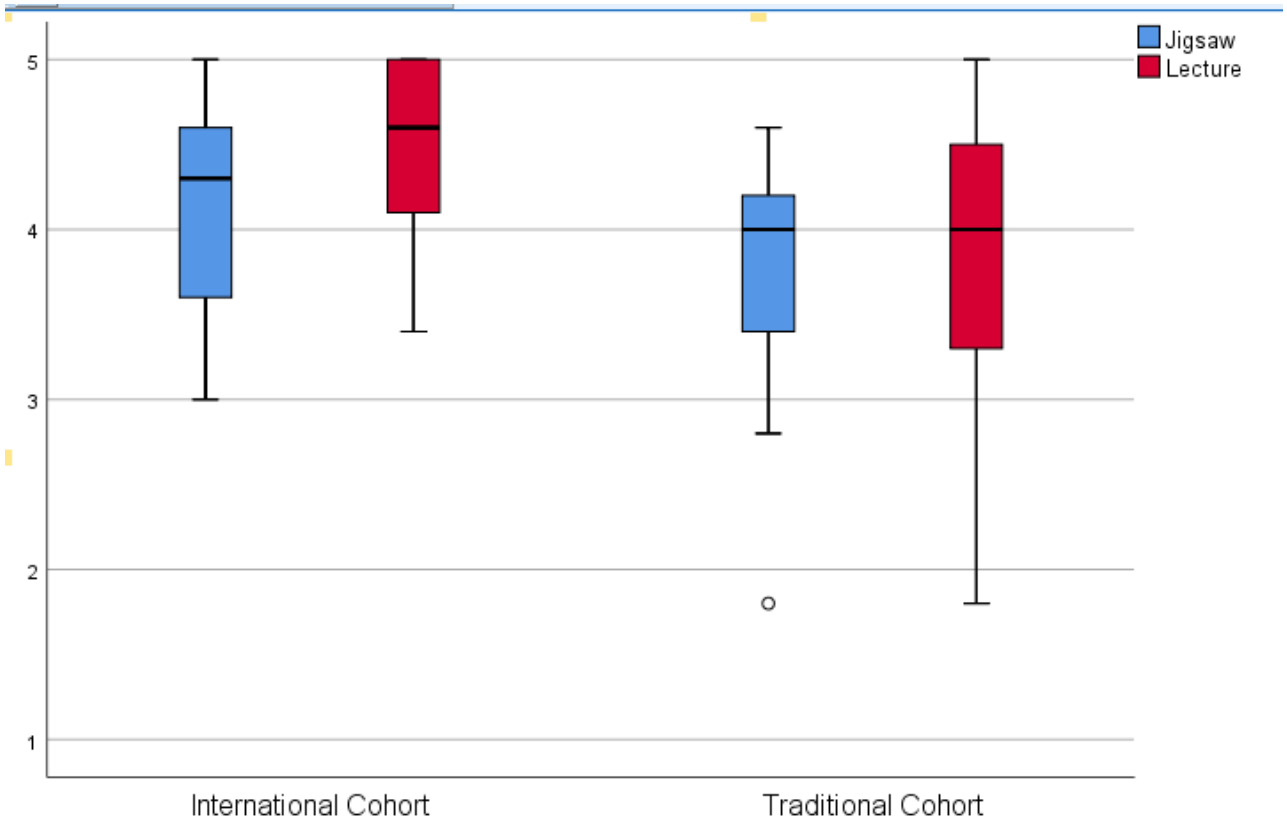
Activation of Deeper Level Processing



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CONCLUSION: QUESTION 1

- **Student Grades** –slightly higher for the traditional student group when using JCL over lecture.

CONCLUSION: QUESTION 2

- **Student Experience:** mixed results.
- **International Students:** results show a **significant** difference in experience of **social relatedness** when using JCL, and a slight increase in autonomy. Lectures resulted in deeper level processing of material.
- **Traditional Students:** results show a slight increase in experience of competence when lectures were given.

KEY REFERENCES

Aronson, E, Stephen, C., Sikes, J., Blaney, N., & Snapp, M. (1978). *The Jigsaw Classroom.* Beverly Hills, CA: Sage Publication

De Baz, T. (2001). The effectiveness of the jigsaw cooperative learning on students' achievement and attitudes toward science. *Science Education International, 12*(4), 6-11.

Doymus, K. (2008). Teaching chemical bonding through jigsaw cooperative learning. *Research in Science & Technological Education, 26*(1), 47-57.

Hänze, M., & Berger, R. (2007). Cooperative learning, motivational effects, and student characteristics: An experimental study comparing cooperative learning and direct instruction in 12th grade physics classes. *Learning and instruction*, *17*(1), 29-41.

Killian, M., & Bastas, H. (2015). The effects of an active learning strategy on students' attitudes and students' performances in introductory sociology classes. *Journal of the Scholarship of Teaching and Learning*, *15*(3), 53-67.

Missildine, K., Fountain, R., Summers, L., & Gosselin, K. (2013). Flipping the classroom to improve student performance and satisfaction. *Journal of Nursing Education, 52*(10), 597-599.

Yamarik, S. (2007). Does cooperative learning improve student learning outcomes? (Research in Economic Education Report). *The Journal of Economic Education, 38*(3), 259-277.

Zakaria, E., Chin, L. C., & Daud, M. Y. (2010). The effects of cooperative learning on students' mathematics achievement and attitude towards mathematics. *Journal of Social Sciences*, *6*(2), 272-275.