Co-Teaching: Innovative Strategies for Student Success

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Abstract

Students enrolled in Part 4 of the Diploma in Computer Sciences are required to complete the course titled 'Introduction to Probability and Statistics (STA116).' This course covers the fundamental principles of probability and statistics. The course covers four main topics: descriptive statistics, probability and counting rules, discrete random variables and probability distributions, and continuous random variables and probability distributions. Continuous assessment, comprising tests, assignments, and group projects, constitutes 60% of the final grade, with the remaining 40% attributed to the final examination. It has been noted that the failure rate for this course is relatively high, peaking at 25% during the October 2015–February 2016 semester. This situation presents a challenge as these students must successfully complete all their courses in preparation for their upcoming internship in Part 5. During the March–August 2022 semester, three lecturers, two from UiTM Tapah and one from UTeM, collaborated to implement collaborative teaching (co-teaching) for this course. The project included planning for course materials, schedules, the platform used for instruction, and assessment methods. Co-teaching has proven to be a valuable teaching and learning method for STA116. It offers both lecturers and students a valuable experience in co-teaching. Additionally, it enables lecturers to create effective teaching and learning strategies when dealing with many students (4 groups) and lecturers. The results indicate a significant decrease in the failure rate compared to previous semesters. Students have also expressed satisfaction and positive feedback regarding the co-teaching approach and their understanding of STA116. Many students are in favour of continuing co-teaching in the future.

Keywords: Collaborative Teaching (Co-Teaching), Diploma in Computer Sciences, Probability and Statistics (STA116)

CO-TEACHING: INNOVATIVE STRATEGIES FOR STUDENT SUCCESS IN STA116
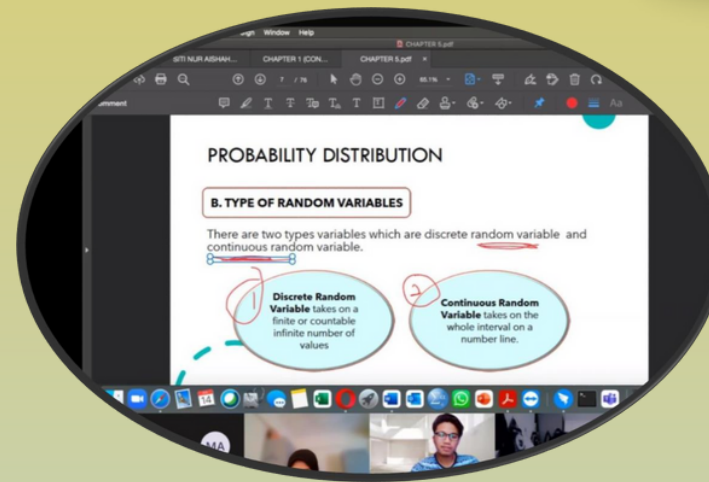
ABSTRACT

Students enrolled in Part 4 of the Diploma in Computer Sciences are required to complete the course titled 'Introduction to Probability and Statistics (STA116).' This course covers the fundamental principles of probability and statistics. The course covers four main topics: Descriptive Statistics, Probability and Counting Rules, Discrete Random Variables and Probability Distributions, and Continuous Random Variables and Probability Distributions. Continuous assessment, comprising tests, assignments, and group projects, constitutes 60% of the final grade, with the remaining 40% attributed to the final examination. It has been noted that the failure rate for this course is relatively high, peaking at 25% during the October 2015 - February 2016 semester. This situation presents a challenge as these students must successfully complete all their courses in preparation for their upcoming internship in Part 5. During the March - August 2022 semester, three lecturers, two from UiTM Tapah and one from UTeM, collaborated to implement collaborative teaching (Co-Teaching) for this course. The project included planning for course materials, schedules, the platform used for instruction, and assessment methods. Co-Teaching has proven to be a valuable teaching and learning method for STA116. It offers both lecturers and students a valuable experience in Co-Teaching. Additionally, it enables lecturers to create effective teaching and learning strategies when dealing with many students (4 groups) and lecturers. The results indicate a significant decrease in the failure rate compared to previous semesters. Students have also expressed satisfaction and positive feedback regarding the Co-Teaching approach and their understanding of STA116. Many students are in favor of continuing Co-Teaching in the future.
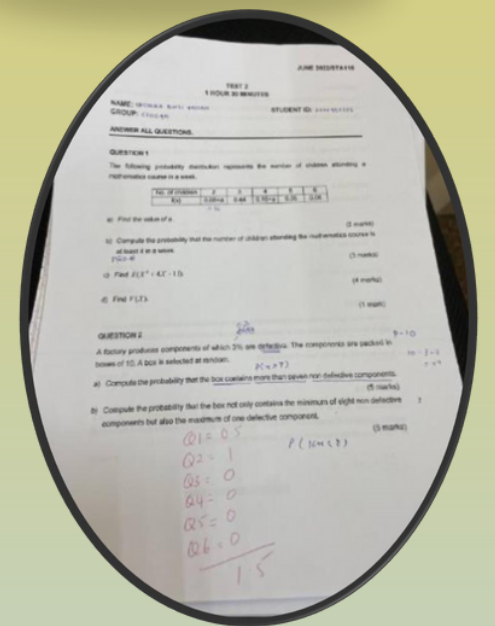
OBJECTIVES

- To investigate the effectiveness of applying the Co-Teaching project by assessing STA116 performance.
- To assess students' satisfaction and perception of learning STA116 through the Co-Teachingproject.

ADVANTAGES

Co-Teaching in terms of STA116 **content development** allowing lecturers to create a more comprehensive collection of teaching materials, including multimedia resources and hands-on materials and able to suit the diverse needs of students, ensuring alignment with the STA116 curriculum and catering to different learning styles and abilities.

Co-Teaching enhances STA116 **delivery**through shared responsibility.

Co-Teaching in STA116 **assessment** offers a complete view of student progress through joint evaluation, timely feedback for students to make improvements and monitor their progress, and diverse assessment methods to accommodate various learning styles and preferences.

USEFULNESS

Note	Prepared by
Topic 1	Dr. Nor Aslily bt Sarkam
Topic 2	Mrs. Nurul Husna bt Jamian
Topic 3	Dr. Nortazi bt Sanusi
Topic 4	Mrs. Nurul Husna bt Jamian

Content development:
Resource sharing and tailored materials.

Time	8.00	9.00	10.00	11.00	12.00	1.00	2.00	3.00	4.00	5.00
Monday			A4CS1104A, A4CS1104C							
Tuesday										
Wednesday	A4CS1104B, A4CS1104D									
Thursday		A4CS1104B, A4CS1104D					A4CS1104A, A4CS1104C			
Friday										

Delivery:
Diverse teaching styles, increased student engagement, and effective classroom management.

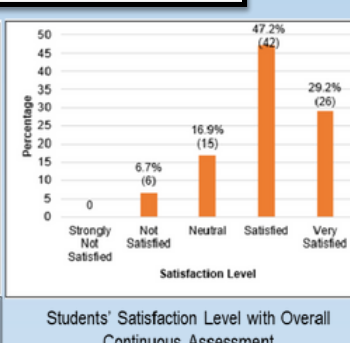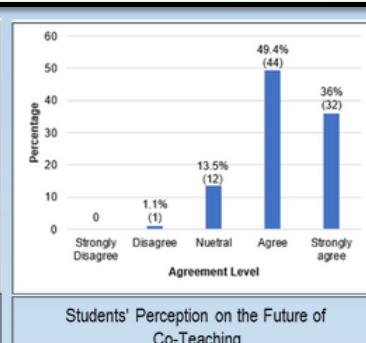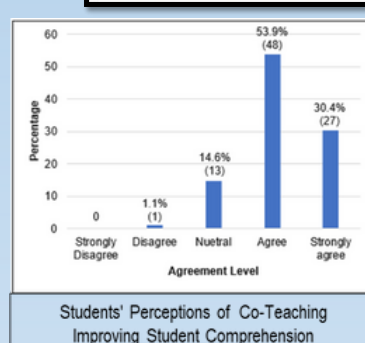| Assignment	Prepared by	Evaluated by
Project	• Consulted by all three lecturers	• Dr. Nor Aslily bt Sarkam (A4CS1104A, A4CS1104B) • Mrs. Nurul Husna bt Jamian (A4CS1104C, A4CS1104D)
Test	• Dr. Nor Aslily bt Sarkam (Question 1 and 2 – Topic 1) • Mrs. Nurul Husna bt Jamian (Question 3, 4 and 5 – Topic 2)	• Dr. Nor Aslily bt Sarkam (A4CS1104A, A4CS1104B) • Mrs. Nurul Husna bt Jamian (A4CS1104C, A4CS1104D)
Assignment	• Dr. Nortazi bt Sanusi (Question 1, 2 and 3 – Topic 3) • Mrs. Nurul Husna bt Jamian (Question 4 and 5 – Topic 4)	• Dr. Nortazi bt Sanusi (A4CS1104A, A4CS1104B) • Mrs. Nurul Husna bt Jamian (A4CS1104C, A4CS1104D)

Assessment:
Comprehensive assessment, timely feedback, and varied assessment methods

NOVELTY

Introducing Co-Teaching into the realm of STA116 is a first-time and pioneering effort that seeks to revolutionize the way students engage and master this course. This innovative approach harnesses the power of teamwork among lecturers to provide students with a dynamic and enriched learning experience, fostering a deeper understanding of the concepts of probability and statistics while nurturing their problem-solving abilities.

PROJECT SIGNIFICANT

Semester	Total students	Percentage of Pass	Percentage of Fail
Mar – Aug 2022	96	94.8% (91 students)	5.2% (5 students)
Oct 2021 – Feb 2022	29	93.1% (27 students)	6.9% (2 students)
Mar – Aug 2021	143	92.3%(132 students)	7.7% (11 students)
Oct 2020 – Feb 2021	12	91.7% (11 students)	8.3% (1 students)

Students' Perceptions of Co-Teaching Improving Student Comprehension

Students' Perception on the Future of Co-Teaching

Students' Satisfaction Level with Overall Continuous Assessment

It was found that the pass rate was the highest compared to other semesters, while the failure rate was the lowest. Furthermore, students expressed satisfaction and a positive perception of Co-Teaching, indicating an improved understanding of STA116. Therefore, the Co-Teaching project can be continued for STA116 in the future, and the Co-Teaching method used in STA116 can serve as a reference for other basic statistics courses.

INVENTORS

Nurul Husna Jamian | Nor Aslily Sarkam | Nortazi Sanusi

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Tarikh : 20 Januari 2023

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Prof. Madya Dr. Nur Hisham Ibrahim
Rektor
Universiti Teknologi MARA
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Tuan,

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Kelulusan daripada pihak tuan dalam perkara ini amat dihargai.

Sekian, terima kasih.

"BERKHIDMAT UNTUK NEGARA"

Saya yang menjalankan amanah,

Setuju.

27·1·2023

PROF. MADYA DR. NUR HISHAM IBRAHIM
REKTOR
UNIVERSITI TEKNOLOGI MARA
CAWANGAN PERAK
KAMPUS SERI ISKANDAR

SITI BASRIYAH SHAIK BAHARUDIN
Timbalan Ketua Pustakawan

nar