Does anonymous peer feedback improve individual and collective learning? Evidence from a peer learning pedagogical experiment

Abstract

The peer learning experiment aims to help faculty to design peer learning component that integrates learning from anonymous peer feedback on individual case analysis through a learning management system and learning from face-to-face team case analysis conducted in a proctored setting. The treatment group output (353 students) was compared with control group output (124 students) which did not receive anonymous peer feedback but only analyzed the case in a proctored face-to-face team setting. The results show that anonymous peer feedback not only reduces free raider behavior among students but also has a significant impact on individual and collective learning.

Keywords: Peer Learning, Peer Assessment, Collective Learning.

Introduction

I employ traditional case method, a Socratic and Problem Method teaching, to illustrate ethical dilemma and ethical theories in Business Ethics course in an MBA program. During 2020 when university campus was closed due to the Covid19 pandemic, I engaged the students through polls, discussion forums and anonymous peer assessment of assignments through learning management system for effective offline engagement. When campus reopened during 2021, I was curious to assess the effectiveness of peer learning through a flipped learning pedagogical experiment which integrated learning from anonymous peer feedback on individual case analysis submitted through a learning management system and subsequent learning from face-to-face team case analysis conducted in a proctored setting later. The objective was the experiment was to understand the efficacy of peer learning in a flipped classroom setting without proctoring and with proctoring in two different phases. The insights from the peer learning pedagogical experiment could help faculty to design peer learning components using a learning management system where students analyze cases in their own pace and provide feedback to their co-learners within the stipulated time which results in increased levels of student interest, engagement and achievement. In addition, it provides faculty a great opportunity to use classroom time effectively to highlight decision making styles among different individuals and teams and discuss various principles and concepts related to the subject matter taught.

Theoretical Foundation / Teaching Implications

Herreid, C. F., & Schiller, N. A. (2013) highlight greater preparation time, student resistance to novel teaching methods and a concern about content coverage on the part of faculty as a greater price to be paid for case study teaching albeit the obvious benefit of developing critical thinking brought by case method. They also argue for using the flipped classroom for case study teaching, combining active, student-centered learning. Further, Bergmann and Sams (2014) argued for the need for faculty members to implement multiple learning strategies in their classroom in order to create a dynamic and interactive learning environment for students. Flipped classroom is advocated as effective alternative to replacing in-class lecturing with peer-to-peer interactions since peer learning is one of the significant student-centric-learning methods where the role of a teacher is to facilitate learning than disseminating knowledge.

However, peer learning is often not part of pedagogical experiments in higher educational institutions due to the effort required to design and execute peer learning components and the challenges that arise from the manual nature of peer assessment practices, which often prove to be a major detriment for teachers in courses with high student enrollment. Also, there is a high level of skepticism among faculty and academic administrators about the efficacy of peer learning due to free riding and social

loafing in team projects as well as the authenticity of peer assessment. Hall, D., & Buzwell, S. (2013) highlight the effect of "free rider" behavior on other students can make group work an unpleasant experience for some despite the increasing popularity of group work in higher education.

Russell Ackoff says, "The educational system is not dedicated to produce learning by students, but teaching by teachers—and teaching is a major obstruction to learning." Thus, the real challenge facing educators and educational system today is how to teach students without actually teaching them. Peer Learning as a pedagogy unleashes the creative potential of students who teach the other students as well as the instructor as what to learn and how to learn. The insights from peer learning pedagogical experiment could help faculty to design peer learning components in a course with large number of students using a learning management system that reduces the opportunity of free rider problem by anonymizing the student input and makes every student's input count towards peer learning and collective learning of all the students enrolled in the course. The session on peer learning experiment aims to focus on the importance of redesigning the traditional "evaluation components," which create hyper-competition between students to get better grades, to "learning components" which encourage to students to collaborate for collective learning. It could also help faculty to design in-class learning activities that stimulate higher order thinking among the students by identifying thought patterns and rationale behind the same while analyzing case studies before introducing the relevant concepts and theories related to the subject matter.

Learning Objectives

The following are the major learning objectives of the peer learning experiment session.

- Designing a peer learning component using Open Response Assessment in Learning Management System based on a customized Open edX® platform[1].
- Reducing the free rider behaivour by controlling individual submission and anonymous peer feedback through learning management system
- Enabling students to learn by synthesizing the learning from anonymous feedback received from their peers and the learning that occurred in a face-to-face team setting through discussion and debate.
- Creating a culture of collective learning by analyzing and presenting the meta decision data to get insights into the collective decision making.

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[1] Open edX® was created by the joint efforts of Harvard University and MIT for the well-known learning platform edX. It is an open-source, learning management system (LMS) that empowers organizations worldwide to design customized and engaging online learning platforms.

The teaching topics relevant for the session are Business Ethics theories such as Qualitative and Quantitative Utilitarianism, Virtue Ethics and Deontology in the context of trade secret, data theft, whistleblowing, disciplinary action, customer solicitation, restraint of trade and public policy.

Exercise Overview

The peer learning experiment has four distinct learning phases as elaborated below.

Phase 01 – Poll and Case Analysis: Students were provided with the case involving data theft by an employee and whistle blowing by the direct report. The case was shared through the Learning Management System where students are required to answer the poll question (Yes / No) and subsequently provide their justification for the same through open response assessment. It was a timed submission and students could not edit their responses after they submitted their responses.

Phase 02 – Anonymous Peer Evaluation and Feedback: Once all students submitted their response, each student was required to anonymously rate the case analysis of 5 students on a 5 point Likert scale and to provide qualitative feedback on the case analysis to justify their rating. Once they submitted their rating for 5 students and provided justification, they were able to see the rating and feedback for their own analysis from 5 anonymous co-learners.

Students must complete Phase 01 and Phase 02 activities in the LMS within the stipulated time to be eligible to participate in Phase 03.

Phase 03 – Team Discussion, Debate and Voting: A face-to-face team exercise involving 5 to 6 students per team with involving 60 teams in 2 different leagues (30 teams per league) was carried out in a proctored setting. The team members were required to discuss, debate, vote on the poll question and provide justification based on their learning from Phase 01 and Phase 02. While team members were encouraged to persuade other members through critical reasoning, all students were given to autonomy to retain their own views and record the same irrespective of majority or minority consensus within the team.

Phase 04 – Insights into Collective Learning: Analyzing and presenting the decision data to get insights into the collective decision making. The team outputs were presented in the classroom to facilitate greater understanding of the problem formulated by the teams. Qualitative analysis of team outputs to provide greater understanding of decision rational among different teams. The structure of the peer learning experiment is depicted in Figure 01.
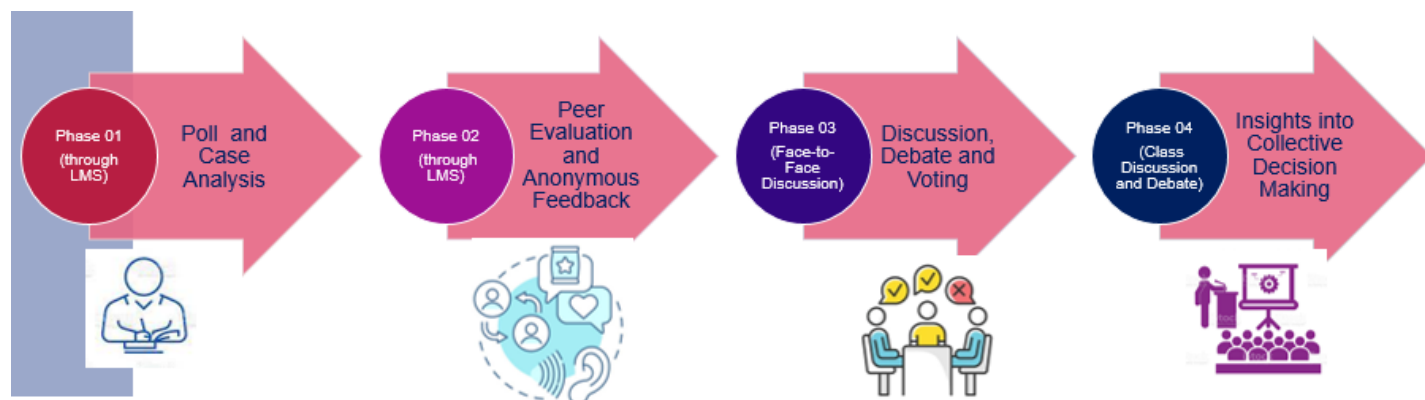
Figure 01 – Structure of Peer Learning Experiment

While the treatment group (353 students) completed all 04 phases mentioned above, the peer learning experiment with the control group (124 students) was carried out without Phase 02 to evaluate the efficacy of to evaluate the impact of anonymous peer feedback on individual and collective decision making rationale.

Session Description

I would take about 45 minutes to present the peer learning experiment design, process and the outcome as given below and spend about 15 minutes in answering the questions.

Activity	Time	Purpose
Introduction and context setting for peer learning experiment	5 Minutes	Sharing relevant questions and concerns about the efficacy of peer learning and peer assessment in higher education
Analyzing case study in a virtual setting	5 Minutes	Is there a difference between analyzing the case study in a classroom compared analyzing the case study in a virtual setting? What are the advantages and disadvantages?
Using learning management system for case analysis	5 Minutes	How does a learning management system helps capturing the output by all the students in the course? How does a learning management system help reduce the free rider problem?
Managing individual submissions and anonymous peer rating and feedback	5 Minutes	What needs to be communicated to students just before they commence their individual case analysis and peer rating and feedback? How to monitor student progress and help them complete the online assignment?

Activity	Time	Purpose
Creating case analysis teams and capturing team outputs in a proctored setting	5 Minutes	What instructions to be shared with students for face-to-face exercise in a proctored setting? How to capture the team output in a paper form to understand the decision pattern?
Presenting the meta data of individual and team case analysis in-class to stimulate critical thinking	10 Minutes	How do cross-sectional teams analyze the case study after learning from peer rating and feedback? How to present the meta data in classroom to provide greater understanding of decision rational among different teams?
Conducting Peer Learning Experiment without Anonymous Peer Rating and Feedback	10 Minutes	Does anonymous peer feedback help improve individual and collective learning? Highlighting the difference in team output for the control group to show the impact of anonymous peer feedback on individual and collective learning
Question and Answer	15 Minutes	What more can be done to improve peer learning and peer assessment? What process changes are required to have effective control and facilitation of open response assessment in Open edX® platform? Is it possible to assess the impact of formative learning facilitated through peer learning experiment in the final exam to understand individual learning outcomes? And other related questions by the participants

References

Ackoff, R.L. (1991). *Ackoff's fables: Irreverent reflections of business and bureaucracy.* John Wiley & Sons, Inc.

Bergmann, J., & Sams, A. (2014). Flipped learning: Gateway to student engagement. Washington, DC: International Society for Technology in Education.

Hall, D., & Buzwell, S. (2013). The problem of free-riding in group projects: Looking beyond social loafing as reason for non-contribution. Active Learning in Higher Education, 14(1), 37-49.

Herreid, C. F., & Schiller, N. A. (2013). Case Studies and the Flipped Classroom. Journal of College Science Teaching, 42(5), 62–66.

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