

***“Developing and Sustaining Teaching and Learning Practices to
meet Higher Education Needs”***

**Proceedings of the 16th Annual SLAIHEE Conference
on Higher Education in Sri Lanka**

organised by

**Sri Lanka Association for Improving Higher Education Effectiveness
(SLAIHEE)**



Friday 24 July 2020

DEDICATION

Dedicated to the ever-reminiscent memory of Dr Shrinika Weerakoon

BSc, MSc, MBA(Perth), DBA (Bath, UK), SEDA Accredited Teacher, ASTHE

- an irreplaceable Higher Educational Developer
- a colleague, a friend, a guide, a change agent: who always found time to be there for you
- who epitomised a life that: "what you leave behind is not what is engraved in stone monuments, but what is woven into the lives of others" (Pericles)

and

- in whose memory SLAIHEE has instituted an annual Award:
"Dr Shrinika Weerakoon Memorial Award for the Best Paper in
Changing HE student skills"

SDC - SLAIHEE Conference 2020

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16th SLAIHEE Higher Education Conference

on

**“Developing and Sustaining Teaching and Learning Practices
to meet Higher Education Needs”**

Friday, 24 July 2020, 9.00 a.m. to 12.15 p.m.

Held online via Zoom (the materials of this conference are available at www.slaihee.org)

A WARM WELCOME TO THE CONFERENCE

This is the sixteenth year since SLAIHEE was established as a non-profit voluntary organisation. From its establishment in 2005, SLAIHEE (Sri Lanka Association for Improving Higher Education Effectiveness) has organised an annual conference, taking pleasure to provide the only opportunity in Sri Lanka for our university staff to document and discuss the learning enhancements that they have been able to achieve through their subject-related teaching. For the first eleven years, the SDC at the University of Colombo was the organisational partner hosting this annual conference. Then, in its 12th year, the SLAIHEE-SDC conference was hosted by the Staff Development Centre, Wayamba University of Sri Lanka and in the 13th year, was hosted by the Open University of Sri Lanka. 14th year, the host became a private HEI, the Sri Lanka Technological Campus with its newly established Centre of Excellence in Teaching, Learning & Innovation (CETLI). Last year, the 15th conference was hosted by the Staff Development Centre, Moratuwa University of Sri Lanka. This conference has become a Community of Practice and the only national conference in Sri Lanka that focuses exclusively on learning and teaching in the Higher Education (HE) context (SoTL, Scholarship of Teaching and Learning). This year’s conference celebrates sixteen years of SLAIHEE and 22 years since the first SDC was established in Sri Lanka (at University of Colombo). Our 22-year history gives us the opportunity to look back and use that experience to question our ‘maturity’ and where we are, specially with the untimely death of Dr Shrinika Weerakoon who stood, with immense credibility among academics, at the forefront of HE change and improvement in Sri Lanka. She played her role excellently and moved on, much to our disbelief and sorrow. What we will have to say, and do, over the next ten to twenty years is now up to you all and to SLAIHEE. As pioneers in striving to maintain the quality enhancement of HE in Sri Lanka, SLAIHEE has faced and traversed huge challenges and our simple beginnings have enabled us to face these. What challenges the future holds are already palpable, specially with a change in training quality offered at the HE institutions, ethical questions besetting the provision of HE including online teaching provisions faced globally.

This year’s conference theme, **“Developing and Sustaining Teaching and Learning Practices to meet Higher Education Needs”** (for previous conference themes and proceedings, see: www.slaihee.org) is relevant because the quality of HE teaching, as well as the quality of training programmes for HE teachers, seem to be severely challenged at present. This theme is therefore meant to gather evidence and show convincingly to others that, with a changed mindset to offer quality training, we can make change happen that all quality-conscious people would value. The conference also shows how we can objectively capture evidence of what some of us achieve in making quality improvements to HE. Due to the COVID 19, global pandemic, the SLAIHEE Ex-Co decided to hold this year’s conference online via Zoom.

We take great pleasure in welcoming you, and our Keynote speaker, Dr Panduka Karunanayake, Senior Lecturer in Clinical Medicine, University of Colombo.

The conference is of particular interest to all those with a concern and commitment to the quality and fate of future Higher Education in Sri Lanka, including;

- lecturers, managers and administrators in Higher Education
- educational and staff developers

- policy makers

We hope you have an extremely enjoyable experience that will motivate all of us to enhance the quality and usefulness of the higher education experience, mainly to our students.

From SLAIHEE – a big thank you;

- for your participation,
- to the presenters, reporting how they develop and sustain teaching and learning practices to overcome challenges and meet higher education needs,
- specially to Dr Panduka Karunanayake for the Keynote speech,
- to all the special invitees,
- to the reviewers for their speedy and efficient reviews with helpful feedback,
- to Dr Lasith Gunawardena for efficient and effective technical assistance.

The Conference Organising Committee;

Dr Thillaiampalam Sivakumar, University of Moratuwa

Professor Suki Ekaratne, SLTC / CETLI

Dr Sunethra Perera, University of Colombo

Dr Prasanna Ratnaweera, The Open University of Sri Lanka

Dr Jinendra Dissanayake, University of Colombo

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The Conference Papers Committee;

Dr Sunethra Perera, University of Colombo

Dr Prasanna Ratnaweera, The Open University of Sri Lanka

Professor Suki Ekaratne, SLTC / CETLI

This Proceedings Volume edited by;

Chief Editor: Dr Sunethra Perera, University of Colombo

Associate Editor: Dr Prasanna Ratnaweera, The Open University of Sri Lanka

Assistance of Professor Suki Ekaratne is gratefully acknowledged

PROGRAMME

08:30 – 08:55 : Registration

Inauguration [Zoom link: inauguration.slaihee.org]

09:00 – 09:05 : ‘Housekeeping/ Technical Announcements’

09:05 – 09:10 : Welcome address by Dr T. Sivakumar, President, SLAIHEE

09:10 – 09:15 : Announcement of 2019 winners: Dr Shrinika Weerakoon Memorial Award

09:15 – 09:45 : Keynote Address by Chief guest, Dr Panduka Karunanayake,
Senior Lecturer in Clinical Medicine, University of Colombo

09:45 – 09:50 : Vote of Thanks by Dr Sunethra Perera, President Elect, SLAIHEE

Parallel Technical Sessions [as: Session 1 & Session 2]

Zoom Link for Session 1: inauguration.slaihee.org

Zoom Link for Session 2: Session2.slaihee.org

09:50 – 12:10 : Presentations & discussions of peer-reviewed papers
[in two online parallel session, as 7 papers x 2 parallel sessions]

12:10 – 12:15 : Filling online Feedback form [link: feedback.slaihee.org]

12:15 : Conference Closure

AGM of SLAIHEE: Only for SLAIHEE 2020 members [Virtual Room1]

12:15 – 01:00 : Annual General Meeting (AGM) 2020 - for members only
Zoom Link: inauguration.slaihee.org

SLAIHEE Conference, July 24th 2020 - Session Timetable (for Paper Presentations)

(page #s refer to pages in Conference Proceedings Book: to plan attending presentations, you can use the ‘conference time-planner’ on p viii)

Sessions: Paper Presentations		
Session sub-theme Venue:	"Assessment & Blended Learning" (Session 1) [Virtual Room 1: Zoom Link inauguration.slaihee.org]	Other Learning & Teaching Related sub-themes (Session 2) [Virtual Room 2: Zoom Link Session2.slaihee.org]
Session Chairs:	<u>Dr Iroja Caldera</u>	<u>Dr Sunethra Perera</u>
Time	Paper #, page numbers, author(s), <i>Paper Title</i>	Paper #, page numbers, author(s), <i>Paper Title</i>
9.50– 10.10 a.m.	# <u>1.1</u> – on pp. 1-5 (by) Surangika Ranathunga & Manoj Ranaweera <i>Assessing the success of an online system for collecting student feedback</i>	# 2.1 – on pp. 37-42 (by) R. M. P. S. Bandara & W. C. D. K. Fernando <i>Positive perceptions and improved engineering undergraduate course design following a staff development session on constructive alignment</i>
10.10 – 10.30 a.m.	<u>1.2</u> – on pp. 6-10 (by) Shalini A. Abayasekara <i>Inclusive assessment: Designing assessment according to student needs and abilities</i>	2.2 – on pp. 43-47 (by) Thilini A. Perera <i>Use of constructive alignment to enhance student perception and learning</i>
10.30 – 10.50 a.m.	<u>1.3</u> – on pp. 11-15 (by) Migara Karunarathne <i>Effectiveness of a Blended Learning Tool for Improving Student Centered Learning in a Second-Year Humanities Course</i>	2.3 – on pp. 48-52 (by) W.R.V.Wathsala Anuradhi <i>Undergraduate Students’ Perception on Enhancement of writing skills through 4Cs of learning</i>
10.50 – 11.10 a.m.	<u>1.4</u> – on pp. 16-20 (by) Anuradha C. Senanayake <i>Changing traditional assessment methods to enhance student active learning: The perception and performance</i>	<u>2.4</u> – on pp. 53-58 (by) R.L.P. Ramasinghe <i>Use of Unannounced Quizzes at lectures to enhance academic performance, alongside increased lecture attendance in a second year Engineering course</i>

SLAIHEE Conference, July 24th 2020 - Session Timetable for Papers (Cont....)

(page #s refer to pages in Conference Proceedings Book: to plan attending presentations, you can use the 'conference time-planner' on p vii)

Sessions: Paper Presentations (contd)		
Session sub-theme Venue:	"Assessment & Blended Learning" (Session 1) [Virtual Room1: Zoom Link inauguration.slaihee.org]	Other Learning & Teaching Related sub-themes (Session 2) [Virtual Room 2: Zoom Link Session2.slaihee.org]
Session Chairs:	<u>Dr Iroja Caldera</u>	Dr Sunethra Perera
Time	Paper #, page numbers, author(s), <i>Paper Title</i>	Paper #, page numbers, author(s), <i>Paper Title</i>
11.10 – 11.30 a.m.	# 1.5 – on pp. 21-26 (by) M. Y. A. Perera <i>Redesign of a laboratory class assessment strategy for fair assessment and discouraging plagiarism and free riding</i>	2.5 – on pp. 59-63 (by) Wimansha Abeyawickrama, Vasuki Jayasinghe & Aloka Ekanayaka <i>Applying Barrie’s model to effectively develop graduate attributes for the Faculty of Management, Social Sciences and Humanities</i>
11.30 – 11.50 a.m.	1.6 – on pp. 27-31 (by) Jayani Harischandra, Janani Harischandra & Theja Perera <i>Assessment and feedback-driven learning platform to improve the attendance of undergraduates in tutorial lab sessions</i>	2.6 – on pp. 64-68 (by) V.P.N Senadhi <i>Student perception on the use of team-based learning activities to enhance students’ skills and knowledge</i>
11.50 – 12.10 p.m.	1.7 – on pp. 32-36 (by) V. G. P. Pabasara & M. Y. A. Perera <i>Use of unannounced quizzes as a formative assessment tool to improve engineering technology student attainment</i>	2.7 – on pp. 69-73 (by) Neranjala Sumathipala <i>Lesson plans as a tool to facilitate student-centred learning in discussion class activities: Student perceptions and teacher observations</i>

12:10 Feedback form online link: feedback.slaihee.org

Useful notes and contacts;

Conference Time Planner

Session 1 at Virtual Room 1, **Zoom link:** inauguration.slaihee.org & **Session 2** at Virtual Room -2, **Zoom link:** Session2.slaihee.org

Time	Session 1 or 2	Paper No. (e.g. 1.1, 2.1, etc.)	Pages of paper (in book)	Title /key words /authors	What aspect I can use in my work or explore in this paper
9.50– 10.10 a.m.					
10.10 – 10.30 a.m.					
10.30 – 10.50 a.m.					
10.50 – 11.10 a.m.					
11.10 – 11.30 a.m.					
11.30 – 11.50 a.m.					
11.50 – 12.10 p.m.					
12.10 p.m.	Fill feedback form – online link: feedback.slaihee.org				

Thank you

Reviewers of papers;

Dr Sunethra Perera, University of Colombo
Dr Prasanna Ratnaweera, The Open University of Sri Lanka
Professor Suki Ekaratne, SLTC / CETLI
Dr Thillaiampalam Sivakumar, University of Moratuwa
Dr Iroja Caldera, University of Colombo
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Ms Ruwani Mayakaduwa, University of Colombo
Ms Abarnah Kirupananda, Informatics Institute of Technology (IIT Campus)
Dr Lasith Gunawardena, University of Sri Jayewardenepura

The paper submission and peer-review process: papers that appear in this Book of Proceedings are in the form of 'Full Papers', made up of sections comprised of Background / Purpose (i.e. Introduction), Methodology, Results, Discussion and Conclusions, References. Each paper has been accepted and printed after having undergone a thorough and rigorous peer-review process. In this process, a Short Abstract had first been submitted together with a Self-assessment Scoring Sheet. These abstracts were reviewed by the "Papers Committee", and relevant authors were invited to submit Full Papers. Each 'Full Paper' then underwent a double-refereeing process by two independent reviewers who provided referee reports and supportive feedback to be sent to authors justifying acceptance, improvement or rejection of each submission. A third referee was used whenever the first two referees were in disagreement. The reports of both referees were discussed, and the feedback was sent to authors to accept, reject or to do modifications, if any, to the Full Papers as recommended by both referees to meet the 'quality standards'. Authors had the option of not making the changes if they were able to justify why the referee-recommended modifications were not acceptable. Abstracts that were rejected, or not received by the deadline with the recommended modifications, were not 'accepted' and so, do not appear in this Book of Abstracts.

Abstracts plagiarised from others' work, when not acknowledged in the submitted Abstract or have a substantial component of plagiarised material, are in general rejected and followed-up by formally writing to the authors, through their institution heads, as practices that are unacceptable and looked down by the entire academic community worldwide.

All referees and presenters have, in this way, collaboratively contributed to enhancing the quality of Higher Education in our motherland. Even where papers were not accepted, we hope the detailed feedback given would have helped authors to improve their subsequent writing and submissions.

Assessing the success of an online system for collecting student feedback

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Abstract

Student feedback is an important evaluation that can be done to improve a lecturer's teaching. The Faculty of Engineering of the University of Moratuwa has been collecting student feedback by distributing printed feedback forms during lectures, guaranteeing all lecture attendees give feedback. However, this method had limitations: (1) a large volume of printed papers are used, which increases the carbon footprint in relation to teaching, (2) student feedback has to be manually digitized and feedback forms are not received in a timely manner, and (3) written comments by students are not typed in, thus lecturers cannot identify specific student concerns. Instead of distributing a printed version, the anonymised feedback form was added to every course in the university Learning Management System. At first, department Quality Assurance coordinators encouraged students to give feedback. In the following semester, through a face-to-face meeting, student batch representatives were asked to encourage fellow students. In the third semester, a survey was conducted on a sample of 120 students of one department to measure their motivation to give online feedback. In the first semester, the feedback numbers were significantly low (30% response, from a total n=256). However, in the next semester, there was a noticeable increase in the responses to 44%. As per the survey (n=120), 1.7% of students gave online feedback without any reminder, however 86% gave feedback after the first reminder. Out of those who gave feedback, 75% gave feedback on all the modules. 30% and 50% of students think that all, or some of the lecturers (respectively) take student feedback positively, while 17.5% had no idea about the same. A lesser amount of feedback was collected by the online system, since the students do not get a designated time to give feedback. Thus, students should be informed that lecturers take their feedback positively, which would motivate the students to provide online feedback without explicit reminders.

Background

Openness to evaluation may indicate that the lecturer perceives that he/she always has the opportunity to improve. Evaluation helps in reflecting on the implemented changes to teaching/learning/assessment through different perspectives of different individuals, not only of the lecturer. If the feedback is good, it brings satisfaction to the lecturer. If there are any issues, the lecturer can then take corrective actions in the next courses he/she teaches. Thus, as noted in Fink (1995), evaluation is an inherent part of good teaching. Self-assessment, audiotape and videotape recording of lectures, student assessment through questionnaires and interviews, students' test results, and peer assessment are some evaluation types. Out of these, student evaluation can be considered as the most important - if one wants to find out how good one was with teaching, the best approach is to inquire from the learners.

The Faculty of Engineering of the University of Moratuwa has identified the importance of collecting student feedback and has been collecting the same via printed feedback forms. These forms were distributed during lectures and/or laboratory sessions at the end of a semester, thus ensuring those who attend the lecture would give feedback. Distribution and collection of feedback forms were handled by non-academic staff to eliminate possible interference by the lecturer. However, this method had limitations: (1) a large volume of printed papers are used, which increases the carbon footprint in relation to teaching, (2) student feedback has to be manually digitized, and lecturers do not receive the feedback in a timely manner, and (3) written comments by students are not typed in, thus lecturers cannot identify specific student concerns unless they go through the feedback forms themselves.

One solution is to use an online anonymous feedback form, which the student can fill at his/her convenience. The idea of using online forms is not new. There are reports of using such systems as early as 2000 (Handwerk, Carson, & Blackwell, 2000). According to Liu and Armatas (2016), online feedback collection has savings with respect to time and cost in administration and processing of feedback, enhances data integrity, and the ability to collect quality feedback as students can have more time to reflect on their responses when completing the evaluations in their own time at their own pace. Most importantly, research has shown that there is no significant difference in feedback rating (i.e. quality of feedback) between paper-based and online feedback collection methods (Liu & Armatas 2016). Studies have also shown that in online feedback collection, students tend to provide more formative feedback (Liu & Armatas 2016).

The main concern of online feedback collection is the low response rate. Fike, Doyle, and Connelly (2010) state that online surveys involve out-of-class time, hence students can be distracted and may not remember or may not take the time to complete the evaluation. There may also be technical problems with accessing surveys online or concerns over the anonymity of the feedback collection method. Some early research has reported that female students tend to prefer paper-based feedback, compared to males (Thorpe, 2002).

Methodology

As discussed above, online feedback collection has clear advantages without compromising the quality of feedback. Moreover, most of the aforementioned negative aspects may not be applicable in the context of the Faculty of Engineering of the University of Moratuwa. For example, for many years, the faculty has been using the Learning Management System (LMS) MOODLE, which is highly reliable. It has the in-built capability of managing anonymous surveys. The LMS can be accessed by learners via department computer laboratories, University's free Wi-Fi facility, and using their personal mobile devices. Moreover, unlike the students in the past, all students are heavily relying on computers and technology.

Since the prospects of successfully using an online feedback collection mechanism through MOODLE were promising, the faculty decided to implement it from the first semester of 2019. The Quality Assurance Cell (QAC) of the faculty was responsible for implementing this change. The feedback form was added as an anonymous survey to every course page in MOODLE. If a course was conducted by more than one lecturer, a form was added per each lecturer,

where a lecturer could not access the form of any other co-lecturer. The lecturer could check the feedback given to him anytime. The feedback form was made available after a few weeks of the start of the semester, and it was available until the commencement of the semester exams. Students were informed of the change to online feedback by the department representatives of the QAC via emails. The academic staff was also informed about the change. While the staff was not involved in collecting feedback; they encouraged students to give feedback.

At the end of the feedback collection period an administrative assistant of the faculty QAC generated results, and each staff member was provided a feedback summary of results with formative comments. A copy of the same was given to the respective heads of departments. The QAC analysed the summary statistics in depth. Based on the observations, it was decided to get the students more involved in the feedback collection process. In the following semester, a meeting with student representatives of each department was organized by the QAC. These students were made aware of the importance of the feedback process and how learners could benefit from the same. The anonymity of their feedback was demonstrated to them in order to eliminate any doubt they had. Later, department representatives of the QAC coordinated with the student representatives to motivate learners to give feedback. As before, the QAC analysed the summary statistics in detail. In addition, in the third semester, Questionnaire 1 (refer Fig. 1) was given to a set of students in one department (n=120) in order to find out their motivation to give online feedback.

Results and Observation

Although summary statistics were collected for all the departments in the faculty, this study reports results obtained for a single department, which was selected to conduct the survey. When considering students from two semesters (n=256), in the first round, 30% provided online feedback. In the second semester, 44% gave feedback. However, these numbers are significantly lower than that of paper-based feedback collection. As per the survey (n=120), 1.7% of students gave online feedback without a reminder, while 86% gave feedback after the first reminder. Out of those who gave feedback, 75% gave feedback on all the modules. 30% of students think that all lecturers take student feedback positively; 50% think that only some lecturers do so; 17.5% had not expressed any opinion. Only 30 and 63 students respectively, had answered the last two questions of Questionnaire 1. Out of those who gave a meaningful answer to the fourth question (some have just written 'I do not know'), except for three students, all others have stated that they believe lecturers take the student feedback positively and improve their teaching methods. Responses to the last question are summarized in Table 1 (note that some comments had more than one suggestion). It is noted that students think that the best way to collect more feedback is by requesting lecturers to motivate students to do so.

During the analysis of student feedback summary statistics, the QAC identified that in departments that allocated a time slot for feedback collection while students were in a computer laboratory for practical sessions, it had been possible to collect more student feedback. It was also noted that while batch representatives were keen on collecting student feedback, they were not aware of what exactly should be done for the same.

Questionnaire 1

1. When did you give feedback in semester 2?
 - a. Before any request to give feedback
 - b. After the first request to give feedback
 - c. After many requests to give feedback
 - d. I did not give feedback
2. For how many modules did you give feedback?
 - a. All the modules in the semester
 - b. Some of the modules in the semester
 - c. No module
3. Do you think lectures positively consider your feedback and improve lecture content and /or delivery?
 - a. Yes, all of them
 - b. Yes, but few of them
 - c. Not at all
 - d. Not sure
4. How do you think student feedback is used within the Engineering Faculty?
5. In your opinion, what actions can be taken to motivate students to give online feedback?

Figure 1. Questionnaire 1

Table 1. Student suggestions to improve the amount of online student feedback

Action	Number of responses
Motivate students by explaining, and by showing by example that student feedback has been taken positively and acted upon	21
Give some incentive in the form of a gift or marks for the end examination	13
Remind students to give feedback and allocate some time from the lectures/labs for students to provide feedback	12
Make it a compulsory quiz	5
Develop a more interactive and aesthetically pleasing survey, and consider reducing the number and change the type of questions	3
Collect feedback in the middle of the semester	3
Make it more visible by adding to the top of course page or to Moodle dashboard	2
Other	8

Discussion and Conclusion

This paper presented the analysis of a MOODLE-based online student feedback collection mechanism. Currently the amount of feedback collected through an online system is significantly lower than the paper-based approach used by the faculties. Thus, this study confirms the observations of Liu and Armatas (2016), and Fike et al. (2010). However, due to the many benefits introduced by an online system, it is imperative that the response rate need to be improved.

Most suggestions given by students to improve feedback are in accordance with the findings of the literature reviewed. Offering incentives to students and encouraging staff members to

urge their students to respond to the surveys (Nulty, 2008), and 'closing the loop' – as students not seeing or believing that their feedback is being acted upon diminishes their willingness to participate in subsequent surveys (Powney & Hall, 1998) are some examples.

'Closing the loop' is very important, where students are made aware that their feedback has been taken positively and acted upon. Thus, individual lecturers and departments have to address this issue. When students are motivated to give feedback, they also become an integral part of elevating the quality of learning. As a short-term solution, all departments should consider allocating a specific time for students to provide online feedback. Feedback collection can be coordinated with the involvement of student representatives.

Acknowledgement

The authors thank the members of the QAC, Dean, and all the academic staff of the Faculty of Engineering, University of Moratuwa. They also thank the administrative officers who prepared the summary statistics, and the students who took their time to answer the questionnaire.

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Inclusive assessment: Designing assessment according to student needs and abilities

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Abstract

The course discussed here, *Rhetoric and Style*, has three assignments. The 3rd assignment, a group project, generally focuses on a spoken angle of rhetoric, with past assignments covering debates and panel discussions. However, this year a novel situation was faced in terms of having a student with hearing-impairment enrolled in the course. The student faced challenges in speech production, which meant she would be unfairly assessed if tested on oral presentation skills. Yet giving her a different assignment to the rest of the class would defy the group nature of the project, and more importantly, highlight distinctions among student abilities. To address this challenge, a component on advertising was included in the course and the students (n=6, divided into 2 groups of 3) were given the task of designing their own advertisement. The assignment would then not necessarily test speaking skills but assess elements such as product choice, target audience, and creativity. It would also carry the side benefit of course content development. The project was very successful, with all students participating enthusiastically. The group with the hearing-impaired student even included the condition as part of the advertisement; in the marketing process they highlighted that their chosen device catered to the hearing-impaired, thereby making the class, including myself, more aware than before of disability-inclusive features and products. Student performance and feedback emphasised the project's success. Student performance was at, or very close to, the 'A' level, an infrequent occurrence at the department, with one group obtaining 19/25 (76%=A) and the other 18/25 (72%=A-). Student feedback indicated a high level of enjoyment and learning. The assignment thus followed Ronald Mace's concept of "Universal Design" – a practice ensuring that all buildings and products can be used by virtually everyone regardless of level of dis/ability – and thereby, gave the class a meaningful pedagogical experience.

Background

Assessment could be considered the most powerful tool an educator has to influence student learning (Gibbs and Habeshaw, 1989/2011), and Biggs and Tang (2007) note that "what and how students learn depends to a major extent on how they think they will be assessed" (as cited in MaTE class handout, 2016, p. 5-8). Considering this powerful nature of assessment, Brown and Smith (1997) highlight the importance of reflecting on its purposes, some of which could be to provide feedback so students can learn from mistakes and build on achievements, classify and grade student achievement, and help students apply abstract principles to practical contexts. Brown and Smith also note that in making decisions regarding assessment, an educator must consider how well his/her choices fit in with the course's learning outcomes, who benefits from the assessment process, and whether one's purposes are compatible with other aspects of the learning programme (as cited in CTHE class handout, 2018, p. 2-5).

While assessment thus clearly requires careful consideration, when it comes to students with disabilities, even further deliberation is necessary. Mendis and Perera (2019) note that in today's society, disability is defined by the state of human beings' health in relation to their environment. Thereby, disability looks at a human being's functioning in daily life, categorised into three areas: 1). in terms of parts of a person's body such as eyes, ears, joints, and the mind, 2). in terms of how a person's body carries out day-to-day activities such as seeing, hearing, speaking, and learning, and 3). how a person performs a social role, for instance in areas such as employment, schooling, sports, and family/community (Mendis and Perera, 2019). They observe that an individual has difficulty carrying out a social role and is made disabled because of barriers in the environment. These barriers include both social attitudes and inaccessible buildings and public spaces.

These diverse ways of viewing disability are highlighted through different models of disability. Berghs et al. (2019) describe the charity model of disability which views disability as something to be pitied and in need of charitable aid. According to Chataika (2019), disabled individuals are viewed as those unable to do things for themselves, with need of protection and decisions made on their behalf (as cited in Berghs et al., 2019). Closely linked to this model is the medical model of disability, which views disability as a problem or aberration that can be medically cured. The focus is on the impairment, on how one "deviates" from the "norm", and how the gap can be narrowed (Oliver and Barnes, 2012; as cited in Berghs et al., 2019). Berghs et al (2019) note that in contrast, the social model of disability has developed "from the experiences of disabled people and their activism against the charity and medical models of disability, as well as the control that these professionals exerted over their lives" (p. 6), and highlight that the model suggests a person is disabled due to society's inability to adapt to the needs of those with disabilities. Berghs et al (2019) go on to note that in line with this argument, in the 1970s a group called the Union of Physically Impaired Against Segregation (UPIAS) distinguished between physical, sensory, or cognitive limitation, and the experience of oppression due to barriers, discriminatory attitudes, and exclusion, which they termed "disablement". Clearly then, there exist links between the social model of disability and the definition of disability Mendis and Perera (2019) highlight; a person may undergo difficulties engaging in day-to-day activities due to his/her state of health combined with barriers in society.

In light of the above definition and models of disability, one needs to ensure that lecturers do not abide by a charity or medical model of disability when designing assessment, viewing a disabled student as a helpless individual who cannot successfully complete education-related tasks. Instead, one needs to use the surrounding environment optimally, ensuring that the assessment does not impede the active participation of the student with disability due to any preventable external factor in the environment. In other words, the assessment needs to be equally accessible and abide by the principles of "Universal Design" – a term coined by Ronald Mace for a practice ensuring that all buildings and products can be used by virtually everyone regardless of level of dis/ability (The Center for Universal Design, North Carolina State University, 2008).

Environmental factors in assessment could cover components such as assessment type, duration given for preparation and/or execution, and in the case of a group project, fellow

group members. It could also include a consideration of the material needed to complete the assessment successfully. For instance, a student with visual impairment would not just need to find the relevant texts for an assignment but also find texts in an accessible format. A student with mobility restrictions may need additional time to obtain the material needed for an assignment. Especially considering that one purpose of assessment, as highlighted by Brown and Smith (1997), is grading and classifying student achievement, educators need to give careful thought as to how assessment could be implemented in a manner that evaluates all students in just and equitable ways. If not, students could feel disregarded, demotivated, and even incompetent.

The course *Rhetoric and Style* has three assessments focusing on various angles of rhetoric. The first tests general skills of rhetorical analysis, requiring students to comment on the rhetorical elements of a piece of work, written or audiovisual. The second assessment is an argumentative essay which tests both analytical capability and writing skills. The third assessment, a group project (the only group project in the course), generally focuses on a spoken angle of rhetoric, testing the student's speaking skills in addition to skills of analysis, especially in relation to persuasion. In the past, students have engaged in debates and panel discussions.

While these assessments thus evaluate rhetorical ability from multiple angles, they are also however designed with one's typical student in mind; they do not always account for students with disability. This paper discusses an instance where a student with hearing impairment (HI) enrolled in the course *Rhetoric and Style*. While the student was keen and engaged in class, she had issues in comprehending what was discussed at times, and in articulating her words clearly for the comprehension of the whole class. Apart from adjusting the manner in which course content was delivered, assessment required some revision in the case of assessment 3. Though as described, assessment 3 would generally evaluate rhetorical skills in relation to speech, doing so would be unfair when a student faced challenges in speech production. At the same time, I did not want to give her a different assessment. Such a step may have abided by certain principles of inclusive assessment, which refer to "incorporat[ing] diversity and flexibility in the overall assessment profile, supported by special provisions when deemed appropriate and fair" (The University of New South Wales, 2011, p. 1). Yet it would have defied the group nature of the project and eliminated the focus on teamwork, one of the graduate attributes listed in the course as well. Moreover, I did not want to differentiate between this particular student and the others, thereby highlighting differences in terms of ability.

Methodology

To overcome this challenge, I slightly changed the requirement of the assessment. Instead of asking students to persuasively argue through a debate or present on an issue in a panel discussion, I decided to test their skills of persuasive "production" through an advertisement. The assignment would then not necessarily test speaking skills, though students were welcome to use their own speech as part of the advertisement if they so wished, but assess elements such as product choice, target audience, and creativity. The assessment would also carry the side benefit of course content development, and to ensure that students engaged

with verbal rhetoric, an essential part of the course, I required that the verbal element of the advertisement (i.e. advertising strategies using words) be given considerable attention.

One may argue that even with this assessment, one's familiarity with audio components would be useful - even necessary - and that therefore the HI student would be disadvantaged regardless. However, several factors require consideration: 1). In a course that has rhetoric as its central focus, it is not possible to avoid the audio (or visual) altogether. Neither would it be fair by the other students to eliminate such a significant part of the course. 2). This student had chosen a video clip with sound to analyse for assessment 1, indicating her pre-existing engagement with audio elements and perhaps her wish to do so as well. 3). Since this was a group project the student would not have to handle aspects of sound on her own, and indeed, depending on the division of work, could leave it to her group members altogether if she so wished. 4). Colleagues who had taught the student formerly emphasised her keenness to engage in the same tasks as her peers. Based on all these factors, this project was deemed the best option for the course. The class (n=6) was divided into two groups, with three students per group.

Results and Discussion

As hoped, the project was very successful, with all students participating enthusiastically. The group with the HI student even included the condition as part of the advertisement, highlighting how their chosen product could cater to the HI population through an in-built feature. Thus, the assessment was not only disability-inclusive in the skills tested but also, through the students' innovation, helpful in making the class, including myself, more aware of disability-inclusive features and products than before. Student performance also indicated this success. Generally, the department is known for its strict grading and high standards; an A grade is not easily obtained. However, both examiners in the course felt the students deserved excellent grades, giving the two groups 19/25 (76%=A) and 18/25 (72%=A-) respectively.

Student feedback reinforced that the assessment had been both enjoyable and educational. Students reported having enjoyed the process of creating the advertisement and narrated the various (and at times humorous) challenges they had faced. They also mentioned having gained some video-editing skills, an unintended benefit of the task. Subsequent to the responses immediately after the screening of the advertisements I received further feedback, where several commented on the assessment's unique nature and the enhancement of their creativity through it. They also all stated that the assessment had given them an opportunity to broaden their knowledge by applying their theoretical learning in the course to practical situations, a key purpose of assessment identified by Brown and Smith (1997) and indeed a long-term objective identified by the faculty's overall degree programme as well.

One response is particularly relevant to this paper. To the question as to whether there was anything the student specifically liked about the assessment and if so what, the HI student answered as follows:

"This assessment gave us the opportunity to form close bonds with our team members. As [a] group we had to make several plans and come up with n (sic) unique product to advertise".

This statement is especially rewarding as one aim of the project, as explained, was avoiding highlighting student differences and instead giving a task to which all students could contribute. Moreover, significantly, this student was the only one to explicitly mention the forming of bonds. This response perhaps indicates that the group nature of the project was especially meaningful to her.

Conclusion

Though the class under discussion was relatively small, and therefore the change implemented may be open to the question of limited generalizability, it is important to note that ultimately, it is the generalizability of the *concept of inclusivity* that is crucial. Regardless of class size and indeed any other factor such as subject area, academic level, or even type and extent of disability, an inclusive learning environment needs to exist. Thus, the principle behind the change could be applied to any course, and this work could be developed to consider conditions besides hearing impairment. Moreover, inclusivity needs to pertain not just to assessment but to overall course content and delivery, a much larger area than the one highlighted in this paper, and one that, consequently, demands significantly more thought, planning, and adjustment. Yet engaging in the process of ensuring such inclusivity would help not just those with disability but all participants in the course, bringing increased awareness of a vital issue in Higher Education.

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Effectiveness of a Blended Learning Tool for Improving Student Centered Learning in a Second-Year Humanities Course

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Abstract

Traditional classroom arrangements create various issues related to teaching and student learning. Most often, current teaching strategies require some technical support. Further, students need some technical guidance and support to enhance their subject-based knowledge. Especially due to the current semester schedule and heavy workload, students are unable to complete their studies comprehensively. Blended learning is one of the tools that can be used to provide solutions to improve student's learning skills. The station-rotation blended learning tool was used to 'blend' learning in the second year 'Population and Poverty' course in 2019 (student n= 16). This was implemented in two stages using both in-class and computer laboratory environments. Two lecture hours and non-lecture hours were allocated for this blended learning activity. Learning Management System (LMS) was used to provide more opportunities for student learning. Outcomes were evaluated through self, student, and peer feedback. After the implementation, 90 % of students said that the activity helped to gain more knowledge on the given topics. More than 75 percent of students said that the activity provided learning opportunities and that it helped them to improve their English reading capacity as well. However, 36.5 % of students stated that they needed more directions to work on the LMS and the internet. Peer feedback suggested that more blended learning activities be done through the online teaching tools, via email, and online to enhance students' knowledge in each course unit. The study results suggest that blended learning tools can be used to enhance student-centered learning, after being improved to address the needs expressed by students. Given the workload and tight semester schedule, this study shows the potential of a station-rotation blended learning tool and will discuss ways how it can be made more effective and useful for both teachers and students to facilitate better learning and teaching.

Background

The world has become saturated with growing technological devices such as computers, laptops, smartphones and etc. However, in most of the fields, their possibilities still have not been used for the purposes of learning and teaching. Even so, with the effect of globalization and new experiments in education, blended learning has become a powerful tool. Blended learning represents a formal education program that brings together the best of lecture room experience and online learning.

In most government universities in Sri Lanka, particularly due to the current semester system, students do not have sufficient time to complete their lessons due to heavy workload of the course units and hence this situation limits learning and gaining comprehensive knowledge on their respective course units. It affects their knowledge and the practicality of being able to use that knowledge in the real world. Even though three teaching hours are allocated per week for a course, this is still not sufficient for facilitating student learning, because the

lecturer needs more time to discuss with students and provide further explanations.

As a lecturer in the Faculty of Arts, University of Colombo, I have encountered many such issues in my teaching especially when I teach the 'Population and Poverty course unit'. It is intended to provide a sound knowledge of population dynamics and poverty analysis, with students required to grasp literature at the national and global levels. This course is offered as an elective to second-year students following a General Degree Bachelor of Arts and students are required to grasp the demographic and economic dimensions of poverty. However, most students who follow the course unit, do not have the required academic background in economics. Therefore, students need extra time for reading and learning economic concepts related to poverty. Unfortunately, with 15 weeks semester schedule, the lecturer cannot find extra hours for in-class teaching for students. This affects negatively on students' final end-semester examination marks and their course-related knowledge.

However, with the objective of providing more learning opportunities for students who follow this DMG 2126 – Population and Poverty course, blended learning tools were integrated to teach poverty-based concepts. With blended learning, the teacher can change his or her role from a transmitter of subject matter content to a facilitator of learning, and the student can change his or her role from a passive receiver of information to a knowledge-builder through active learning (Garrison & Kanuka, 2004).

According to, Dziuban et al. (2018), blended learning can be defined as "A pedagogical approach that combines the effectiveness & socialization opportunities of the classroom with the technologically enhanced active learning possibilities of the online environment". Blended learning can be used as a solution that recognizes strengths and weaknesses in both environments and attempts to merge the strengths to provide a more engaged- learning environment for students (Dziuban et al., 2018).

The design of a blended learning environment is the responsibility of the teacher, who can decide which blended learning model suits their situation best. According to Eastman (2015), four types of blended learning environments can be identified: Rotational, Flex, Self-blend, and Enriched Virtual. The rotational environment includes four types of blended models such as Station-rotation, Lab-rotation, Flipped-classroom, and Individual-rotation model. Out of those four blended learning environments, I selected the station-rotation model that belongs to the rotational blended learning environment. It can be defined as a single space with students moving from station to station within set periods of time (Eastman, 2015).

Methodology

This study was implemented with 16 students who followed the 'DMG 2126 - Population and poverty' course unit in the second year in 2019. Specially station-rotation blended learning tool has been used through the LMS (Learning Management System) to offer more opportunities for students by engaging activities in the blended learning environment. This was implemented in two stages using both in-class and computer laboratory environments. Two lecture hours and non-lecture hours were allocated for this blended learning activity.

Therefore, with this theoretical background, I made a working map to use station-rotation

blended learning tools in the Population and Poverty course unit. This was implemented in two stages (as depicted in Figure 1). In the first stage, students were made aware of the blended learning mechanism and its advantages. After that, they were taught regarding the regional disparities of poverty and poverty measure-related gaps in Sri Lanka. This had been covered in the classroom session by taking two hours.

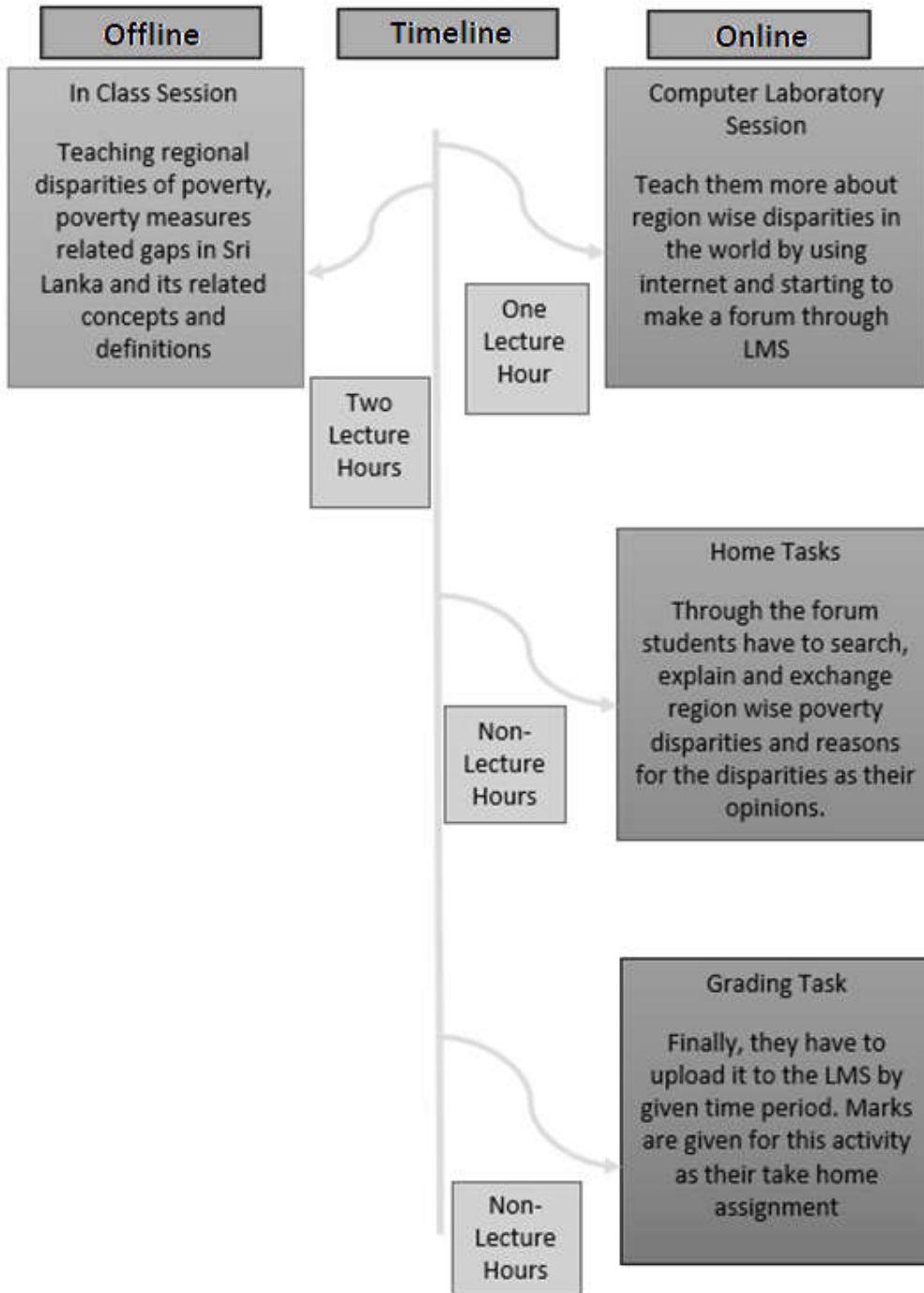


Figure 1. Working Map for implementation of station-rotational model

In the second stage, students were taken to the computer lab and taught, using the internet, about more regional disparities both globally and nationally. In order to provide more opportunities for students, a forum was made through the LMS so that they could exchange their opinions regarding poverty disparities in Sri Lanka. They were to upload it to the LMS within a given time period. Marks were given for this activity as their take-home assignment. One lecture hour and non-lecture hours were allocated for this blended activity.

I instructed students to do the activity through the LMS, it provided them with the activity outcome, deadline for the submission, allocated marks for the activity, how to upload their opinions and answers to the LMS, and an explanation of how they have to use the internet to search for activity-related data and facts. They were further guided by providing some example links of web pages and YouTube videos relevant to the activity.

After this implementation, outcomes were evaluated through self, student, and peer feedback. Student and peer feedback were collected through a questionnaire. As a co evaluation method students' take-home assignments have been evaluated on how they have gained their population and poverty-based knowledge.

Results

Before implementing the blended learning activity, most students were not aware of blended learning and how it works. They thought of it as conceptually similar to doing practical sessions such as field training, discussions, guest lecturers, reading sessions etc. Table 1 shows that after the implementation, more than 90% of students said that the activity helped as a tool to gain more knowledge regarding the given topics. More than 75% of students said this activity provided more time to do their studies more easily, and that it helped them to improve their English reading capacity as well.

However, 36.5% of students also stated that they needed more directions to work on the LMS and the internet. They suggested (nearly 40%) that a lecture series or workshops should be conducted for students to teach them how to work online and upload their work through the LMS. As significant feedback, more than 65% of students requested that they should not be given more activities through the LMS due to heavy workload, lack of computer laboratory facilities, and low-speed internet facilities at the Faculty of Arts.

Table 1. Student feedback on the blended learning activity (n= 16)

Statements	Agree (%)	Disagree (%)	Total (%)
I used this activity as a tool to gain more knowledge regarding the given course related topics.	93.75	6.25	100.00
These activities provided more time to do my studies more easily.	75.00	25.00	100.00
These activities helped me to improve my English reading skills.	81.25	18.75	100.00
These activities helped me to improve my ICT related skills.	68.75	31.25	100.00

Peer feedback suggested that if students have more laboratory sessions, they will gain more knowledge from each unit, and further requested more blended learning activities through the LMS, online teaching tools, via email, and online to enhance students' knowledge regarding each course unit. The peer feedback was appreciative of my implementing blended learning activities to improve students' learning. It is suggested in particular that if I can be more prepared in my laboratory sessions, it could be easier for students to clarify how blended learning works.

My observation was that majority of students actively participated in laboratory sessions more than in the usual lecture room sessions. Students were expected to upload their answers to the LMS, and most students had done that activity very successfully. As a self-reflection, blended learning activities can be used for most course units provided by the Faculty of Arts; it will help both teachers and students to do their teaching and studies very effectively.

Discussion and Conclusion

The study results suggest that blended learning tools can be used to enhance student-centered learning, after being improved to address the needs expressed by students. Given the workload and tight semester schedule, this study shows the potential of a station-rotation blended learning tool and discuss ways how it can be made more effective and useful for both teachers and students to facilitate better learning and teaching.

As a summation, blended learning activities are most useful to enhance students' subject-based knowledge using online resources, because most students do not have additional time to spend studying under this tight semester schedule. However, station-rotation blended learning can be used as a tool to enhance their subject-based knowledge without creating an additional burden on their studies. As a suggestion, with the given workload and tight semester schedule, blended learning tools can be particularly useful for both teachers and students as a mid-semester examination method.

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Changing traditional assessment methods to enhance student active learning: the perception and performance

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Abstract

It is well-known that we are quite skeptical about changing traditions. When I was given the task of planning the first assessment for one of the enhancement courses in the Faculty, which is solely based on continuous assessments, as per my previous experiences, I knew the practice has always been to give importance to summative assessments over formative assessments. Hence, I wanted to evaluate whether a changed design of the traditional assessment practice could enhance active learning in students. I utilized theories of active learning, zones of proximal development, and the syndicate group style to implement my intervention. The assignment was designed to make students learn something new. The students, following the course on Law and Society (2019), were asked to submit a report on a selected topic and to present a skit on the summarized core of the written report in 15 minutes. In execution, the students (n=80) were divided into 10 groups (with 8 in each), and every week a one-hour lecture was allocated to discuss matters related to the assessment for 4 weeks. Student performances were evaluated based on a rubric, and the success of the intervention was evaluated based on students' feedback. However, it would have been better if a proper evaluation method was utilized for providing feedback for the presentations. The group skits were interesting, and 4 groups even presented it in the form of short movies. Sharing the rubric with students was beneficial for their performances and 20% of them scored A+ grades. The majority was thankful for allowing them to be creative (91%); however, some were of the opinion that I should have allowed them to select their own groups (14%). This study indicates that appropriate designing and conduct of assessments can be effectively used to overcome passive learning of students that had resulted in traditional assessment practices.

Background

As a Lecturer in Sociology with a degree of Bachelor of Laws, I have been privileged with the opportunity of conducting lectures of one of the enhancement courses in the Faculty related to the relationship between Law and Society. The main learning objectives of the said Enhancement course is to allow students to gain knowledge on laws which are applicable to them in day to day life and also to understand the vital role played by the society in shaping the legal structure. Something important to be noted about the course outline of this unit is that it is solely based on continuous assessment and there is no end examination opposed to the typical assessment structure of the Faculty which is 60% given for the final examination, 30% for the mid-semester examination and 10% for class participation.

Given the importance of planning the assessments for the said unit, I had to give much thought to the students' first assessment. As per my previous experiences, the practice has always been to give importance to summative assessments over formative assessments. On,

the other hand, the practice has always been to follow traditional assessments such as presentations, mid semester papers and assignments. According to Saljo (1979) and Marton et al (1993), a majority of academics perceive learning to be passive and incremental rather than active and transformational. This is further reinforced by the findings of Samuelowicz & Bain (2002) where the majority of academics from a selected Australian University believed assessment to be a reproduction of knowledge than transformation of knowledge. This is exactly what I wanted to change in my classroom.

I wanted to take my students' learning from the surface approach to the deep approach. According to Biggs & Tang (2011), a deep approach to learning is where the intention is to understand through active constructivist engagement to knowledge, as opposed to a surface approach to learning where the intention is to reproduce knowledge in a passive view of knowledge. In this attempt, I utilized 3 main theoretical backgrounds in planning out the assignment. The said theoretical orientations were:

1. Active learning – This is a process of involving students in the learning process through more than just listening. Active learning techniques can be reading, writing, discussing, and engaging in problem-solving (Bonwell & Eison, 1991).
2. Vygotsky's Zone of Proximal Development (ZPD) – Vygotsky who emphasised the importance of social and cultural contexts of teaching, talked about the gap between what individuals can understand by themselves and what can be understood with help (Vygotsky, 1978). He has further emphasised that a learner can be taken more quickly up a learning curve with appropriate help. This notion is supported by the concept of 'scaffolding' learning that is providing help and support (Fry, Ketteridge & Marshall, 2009).
3. Lave and Wenger's Situated Learning (1991) - Situated learning focuses on understanding knowledge and learning in context, and emphasises that the learner engages with others to develop collective understanding as part of a community of practice. Their view of learning is thus relational and shows the importance of the continuous reformation and transformation of knowledge by single effort alone or within individuals, or of learning certain types of things through books or out of context. Situated learning views learning as a social practice and considers that new knowledge can be generated from practice" (Fry, Ketteridge & Marshall, 2009, p: 21).

The above theoretical basis allowed me to design my assessment based on the following main issues I was encountering at that time: 1. Traditional assessment styles - not to make the assessment a traditional presentation or an assignment as I wanted the students to learn something new through the assessment and to be more creative. I did not want them to repeat what had already been taught in class for the sake of scoring marks and 2. Passive learning method - I also did not want them to be passive and write something simply to get marks. I wanted them to actively participate in the assessment process.

Methodology

Therefore, the assignment was designed to give the opportunity for students to learn something new rather than which has already been taught in the class. The theme for the assessment was law and sexuality which had not been covered as a lesson in class. Out of the

said theme the students were given topics of sexual offenses, homosexuality, and abortion; they were asked to select one and to submit a report on it covering the following aspects: laws applicable to the given areas in Sri Lanka, existing advantages of the said laws, existing gaps in the said laws, and their stance on the selected topic (e.g. legalising homosexuality). The next challenge given to the students was to present the general idea of the written report as a skit in 15 minutes. This was the opportunity for the students to be creative.

With regard to the execution of the said assessment following Griffiths et al. (1996) and their explanation on the advantages of small group learning such as peer support, high concentration, and the opportunity to develop skills, the students (n=80) were divided into 10 groups with 8 members each. The syndicate group style was adopted to conduct the assessment as explained by Gibbs & Habeshaw (2001). The syndicate group method was utilized in such a way that every Tuesday 10 am to 11 am, a one- hour lecture was allocated to discuss matters related to the assessment for 4 weeks. The students were expected to get into their groups and discuss the matters in the following schedule: Week 1 – the selection of topics, getting know the groups and appointment of the group leaders, Week 2 – discussion on the laws applicable in Sri Lanka, Week 3 – existing gaps and recommendations, and Week 4 – planning the skit. The students were given 40 minutes to discuss in groups, and in the next 20 minutes I had a general discussion on the task. The students were advised to do their research at home before coming to the class for discussion. Finally, on the 5th week, the students were asked to present their skits and submit their reports.

The evaluation of the assessment was based on this rubric which was shared with the students at the beginning when the assessment was explained to them. The rubric was formulated as per the structure explained by Steven & Levi (2005). On the other hand, to discourage free riders, I requested the students to share a task table highlighting which member did what task to make sure that every member has done their task. Further, 5 marks were allocated to class participation activities which had been continuing from the beginning of the semester. That was marked individually and based on that, each student's marks differed from his other group members' marks. This was another strategy to avoid free riders as explained by Brooks & Ammons (2003). Following the importance of e-learning discussed by Fry, Ketteridge, & Marshall (2009), the Learning Management System was utilized to share the list of groups, assessment guidelines, and the marking rubric.

Results

To share insights of my experience of this intervention, even though I was a bit nervous about the reaction of students regarding the assessment as it has a big workload, the students did like the assessment mainly due to the reason of the skit. Out of all, 93% of the students claimed that they found the assessment interesting due to the skit. Further, 91% was also thankful for allowing them to be creative. They were keen on finding facts on the selected topic and converting it into interesting skits. The skits were very creative and varied from television programmes, classrooms, debates to lunchroom discussions. Out of the 10 teams, 4 teams even went to the extent of presenting their skits as short films.

A majority of the students (92%) also pointed out that having access to the rubric from the very beginning of the assessment process was very helpful. A majority (83%) further pointed out that it was one of the first instances where they had planned out an assessment based on a shared rubric. It was further evident that sharing the rubric with students was beneficial for their performances as 20% of them obtained an A+ grade. Further, 65% was also thankful for attempting to prevent free riders as much as possible.

About 80% mentioned that they did learn something new in the class through the given tasks. The majority also pointed out that their earlier assignments were about reproducing the knowledge that they already studied in the class. On the other hand, 62% was also of the opinion that they prefer assignments where they can learn something new as it keeps their interest in the assignment throughout. Based on the facts they had learned throughout in the assessment, the reports also had interesting arguments. I was impressed by the opinions they had mentioned in the reports on the selected laws. One group had also conducted an opinion survey on legalizing homosexuality in Sri Lanka and had analyzed the factors for and against legalizing homosexuality in Sri Lanka based on its findings.

Turning my classroom into an active classroom was one of the main objectives of this assessment. In this attempt, I did see a positive change in my students. The active learning aspect of this assessment could be analyzed based on two aspects. First, it could be analyzed based on the weekly class discussions and secondly, the group activity element attached to this assessment. With regard to the weekly discussions, 72% pointed out that it was useful that I shared a schedule with them, and further 75% claimed that the general 20 minutes discussion we had at the end was very useful. In inquiring further why they found these 20 minutes useful, a common response was that it gave them a platform to compare and contrast their opinions with others' points of view. Secondly, and most importantly, in reviewing the group element, 86% pointed out that they liked working in a group. The reasons for liking such were given as development of people skills, development of leadership skills, the skill of coming to a consensus among various opinions and the opportunity to learn from each others' experiences and knowledge. However, 14% was of the opinion that I should have allowed them to select their own groups for the reason that they find it hard to work with a set of unfamiliar classmates.

Discussion and Conclusion

The findings prove that my attempt of taking the students from surface learning to deep learning has been satisfactory. As per the definition of Bonwell & Eison (1991) definition on active, this assignment has used techniques of active learning where students were involved beyond just listening in the class. The use of syndicate group discussions was evident to be helpful for the students to learn things better with the help of others as explained by Vygotsky in ZPD and Lave and Wenger's Situated Learning. However, I believe it would have been even better if I could have a more organized mechanism of providing feedback. I did give feedback at the end of every skit and also on the reports. However, it would have been better if a peer feedback element was also involved and a feedback format was utilized in giving feedback as explained by Fry, Ketteridge, & Marshall (2009) as I feel my rubric was only for assessing. I did not utilize an adequate platform to give feedback for their performance in the overall assessment and I am looking forward to developing this in my next attempt. On the other hand, when considering whether this attempt is general enough to apply in various teaching

contexts, I believe that there is a possibility of converting assessments towards active learning. In conclusion, this attempt of transforming a traditional assessment method into an active learning method, gave me a lot of courage that such changes can actually benefit the students. It made me see a group of passive listeners turning into active fact finders, good writers with solid arguments and interestingly good actors, scriptwriters and directors. It was solely led by the students with my guidance. If you are worried about how passive and shy your students are and how to make assessments more useful than just a grade, please take a chance and make such creative changes. You will be surprised by the change.

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Redesign of a laboratory class assessment strategy for fair assessment and discouraging plagiarism and free riding

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Abstract

Evaluating laboratory classwork through take-home coursework has nourished a culture of copying coursework from peers and seniors. This plagiarism is hard to police and grading may not reflect fair and accurate assessment. This can also further motivate some students to become free riders in the laboratory class. By redesigning the assessment strategy, I explored whether the laboratory classwork assessments could be made fair while discouraging plagiarism and free riding. Out of five laboratory classes conducted for students following Principles of Yarn Manufacture module (54 students) in semester 3, three were assessed with coursework records while two were assessed with closed-book quizzes designed to assess the same Intended Learning Outcomes. The quizzes were answered a week after all groups finished one practical. Laboratory classes were observed for free-riding and coursework was checked for plagiarism. The range of marks from both assessment techniques was compared for a fair assessment. Student feedback was taken via classroom discussion to record their perception of the change. Marks for the three laboratory classes with coursework ranged from 4 to 8.5, 4 to 10, and 3.5 to 9 (on a scale with 10 as maximum), respectively. Plagiarism was perceived in the coursework and marks for the two quizzes ranged from 1.1 to 10 and 2.6 to 10, respectively, showing that students who plagiarised previously had obtained lower marks in the quizzes and assessment was fair. Students over 80% voted in favour of the quiz and stated that it reduced their workload and measured their attainment accurately. Better student engagement was observed in the laboratory class when the assessment method was a quiz. Bad assessment can take away the learning opportunities available to a student and cultivate negative learning cultures. The study showed that assessment can be redesigned to be fair for the learner and to encourage being responsible for own learning while discouraging negative cultures of plagiarising and free riding.

Purpose/Background

In engineering education, laboratory classes have become an integral part of the curriculum as they provide enhanced learning opportunities to the students to develop a variety of skills (Platova & Walpuski, 2014). Often engineering laboratory classes are designed to be conducted in groups to develop non-technical generic skills (Swaray, 2012) and/or due to resource constraints in the institution. Even though laboratory classes are conducted in groups and students learn collaboratively, the assessment is individual to assess the achievement of the Intended Learning Outcomes (ILOs) by each student. In the context of this study, laboratory classes are assessed as take-home coursework which is due within two weeks' time and requires the students to identify details/ parts of machinery and process, make process calculations using their experimental data, and discuss their findings. However,

academic dishonesty in coursework submitted with content plagiarised from peers and seniors have made this assessment unfair and unproductive.

Despite being educated on plagiarism and warned of its consequences, students continue to copy as these are not high-stakes assessments (Roberts, 2008) and chances of getting caught are low. Peers and seniors could be supporting this due to their highly valued moral principles which might include loyalty to their friends or cultural norms (Carnegie Mellon University, 2020) which supersede ethical academic conduct. This plagiarism and its difficulty in policing are described and analysed in detail by Parameswaran and Devi (2006) in their article titled "Student plagiarism and faculty responsibility in undergraduate engineering labs". Since student learning behaviour largely depends on how they think they will be assessed, students easily fall into this culture. Another negative impact of this is, when the students realise that they can get away with plagiarism, they are motivated to free-ride in the laboratory group work. When the student free-rides, since there is no learning (Swaray, 2012), he/she is compelled to plagiarise the coursework. This continues as a cycle and demotivates creating the sucker effect (Kerr, 2009) lowering the effectiveness of the learning activity.

In this context, the grading of the coursework is inaccurate and unfair for the students who genuinely attempt to complete coursework, the reward is the same or not significant from that of the plagiarising students and discourages their commitment to continued learning. For the plagiarised students, this gives an incorrect picture of their learning status and they lose the opportunity of learning from their mistakes. In a study by Hraskey and Kronenberg (2011), assessment redesign is identified as a key component in countering plagiarism by minimising the possibility to plagiarise. Preventing the ability to plagiarise by redesigning assessment, making cheating difficult and counterproductive for the student to attempt, is a better approach than detecting and punishing (Roberts, 2008). Since free-riding of the students in the laboratory class is largely associated with their subsequent ability to plagiarise in the assessment, it is reasonable to assume that blocking the possibility of plagiarising will discourage the free-riding behaviour in the laboratory class. Thus, in this study, by redesigning the assessment strategy it is explored whether the laboratory classwork evaluation could be made fair while discouraging plagiarism and free riding.

Methodology

An experiment was designed to use quizzes as an alternative to coursework for evaluating laboratory classwork. The quizzes were designed to assess the same ILO's as the coursework in a closed-book environment. The experiment was conducted with the students taking Principles of Yarn Manufacture module in semester 3 where the class size was 54. Five different laboratory classes were conducted for the semester. Due to resource constraints the students were divided into three groups with two laboratory classes running parallel in one practical session allocated for the week. Thus, it took three weeks' time for the entire class to complete two laboratory classes. Out of the five laboratory classes, three were evaluated using coursework and the other two were evaluated as closed-book quizzes each of one-hour duration. Students were informed of this change at the beginning of the semester. Laboratory classwork is compulsory for all the students and they had the choice of rescheduling if they missed any.

During all five laboratory classes, student's laboratory work was checked, and formative feedback was given. Further observations were made on students attempting to free-ride. When the assessment method was coursework, students were given guidelines and they were required to submit their coursework within two weeks time after completing each laboratory class. When the assessment method was a quiz, it was administered in a test environment a week after the entire class completed the respective laboratory class. The date for the quiz was fixed in agreement with all the students and students always had the choice to ask for a make-up assessment for any justifiable reason. The coursework was corrected and returned to students within two weeks time and, was also checked for plagiarism through observation while marking. Quizzes were also marked within two weeks time and returned to students. When the quizzes were returned to the students, the questions were discussed in the class and explained where they had failed to answer correctly, and the subject matter was revised as necessary. Regardless of the assessment technique, marks were offered out of ten and all the five laboratory classes carried similar weightage.

Mean, standard deviation, and range of marks for each laboratory class were calculated and the results are tabulated in Table 1. To further illustrate how individual students has performed when the format of the assessment is changed, the difference between average coursework mark and average quiz mark for each student was plotted in a graph in the descending order along with individual average coursework mark and average quiz mark (Figure 1). Further, end-semester student feedback was analysed to see how students evaluated the impact of the change activity and the results are tabulated in Table 2. The impact was evaluated in terms of laboratory class workload, their perception of accuracy of grading and usefulness of the feedback given on student's work using the 5-point Likert scale.

Results

According to Table 1, the class average of the marks for the laboratory class evaluation when the assessment method was a quiz is higher than the coursework method. Further, wider marks range is observable when assessment method was a quiz and a higher standard deviation indicates that marks are widespread; whereas in the coursework method standard deviation is more concentrated. Despite having the highest standard deviation and widest range, first quiz has the highest average. Figure 1 indicates that for about 20% percent of the students, the quiz has affected negatively compared to their average coursework marks. For about 80% of the students, the quiz has resulted in an increase in their average marks compared to the coursework method.

Table 1. Descriptive statistics for coursework and quiz marks

Assessment \ Statistic	Coursework			Quiz	
	1	2	3	1	2
Mean	7.074	7.713	6.731	8.013	7.889
Standard Deviation	0.839	1.189	1.178	1.750	1.415
Range	4 – 8.5	4 -10	3.5 – 9	1.1 – 10	2.6 - 10

Observations from the laboratory classes revealed the free-riding behaviour of some students

during laboratory work. Further, it was also observed when it was announced that the assessment method was a quiz, this free-riding behaviour was less prevalent. The marks from the five laboratory sessions are used for 20% (4% each) of the 30% continuous assessment component and the workload of writing coursework for all five laboratory classes would account for over 85% of the total take-home tasks for the module. End-semester feedback from the students in Table 2 shows that the majority of students (over 85%) agree that the laboratory class workload pertaining to the new intervention was reasonable, continuous assessment measured their ability and the feedback on continuous assessment was helpful to identify their weaknesses before the final examination.

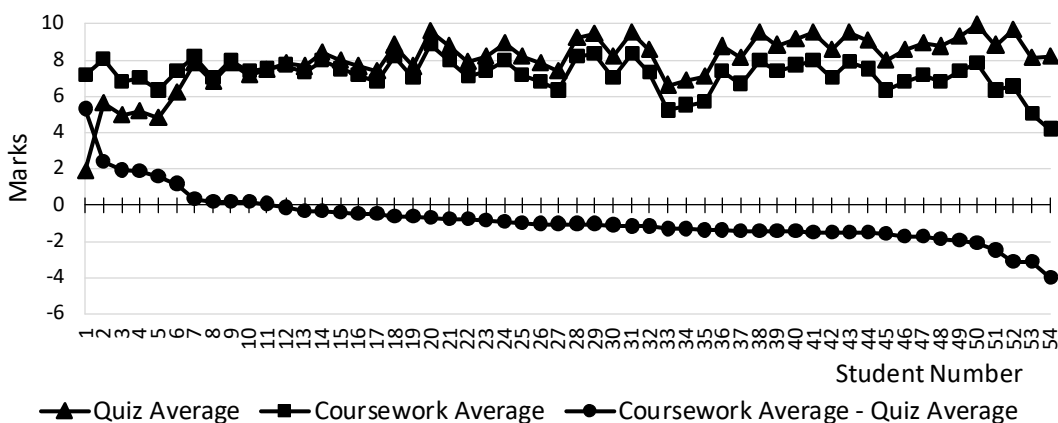


Figure 1. Average marks of individual students on quiz, coursework along with the difference between average marks of coursework and quiz

Table 2. Summary of student responses related to the intervention as extracted from student feedback collected at the end of semester

Feedback Question	Total responses received	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
Workload of this module was reasonable	41	20 (48.78%)	15 (36.59%)	1 (2.44%)	3 (7.32%)	2 (4.88%)
Continuous assessment measured my ability	41	22 (53.66%)	16 (39.02%)	3 (7.32%)	0 (0.00%)	0 (0.00%)
Feedback on continuous assessment was helpful to identify my weaknesses before the final examination	38	19 (50.00%)	14 (36.84%)	5 (13.16%)	0 (0.00%)	0 (0.00%)

Discussion and Conclusion

When assessment is coursework, it is difficult to detect plagiarism, especially in calculations as it is the same for everyone. This results in higher minimum marks for the coursework making the range and standard deviation narrowed. However, when the assessment was a quiz, students who used to free-ride and plagiarise their coursework could not obtain higher marks, and this resulted in a wider range in marks and higher standard deviation. This effect is further observable in Figure 1, where some students have obtained lower marks when the assessment mode was a quiz. These statistics positively aligned with the free-riding behaviour observed in some students in the laboratory classwork, and perceived plagiarism was observed in their submitted coursework. At the same time, a higher average in both quizzes indicates that test mentality, lack of sucker effect (Kerr, 2009), and preparation time of one week could have further motivated the students to study better. Figure 1 shows that this has been the case with the majority of students, and this is a positive sign that students are learning and taking the assessment seriously. The assessment seemed to be fair by all the students. Thus, for the students who have achieved the ILOs, the reward is significant and motivating while for the students who had less attainment, it is an opportunity to learn what they have missed. According to Angelo and Cross (2005) quizzes are very good learning tools if it is followed by proper feedback. Students plagiarise due to many reasons and one of them is a heavy workload (Roberts, 2008) arising from multiple submissions per week across different subject modules. Due to this, even the honest students may get motivated to plagiarise to survive the assessment. Since students only had to sit for a one-hour quiz workload had reduced and student feedback in Table 2 shows that over 85% of the students agree on this.

Bad assessment can take away the learning opportunities available to a student and cultivate negative learning cultures. The study showed that assessment can be redesigned to be fair for the learner and to encourage being responsible for their own learning while discouraging negative cultures of plagiarising and free-riding. It might take time for the students to give up on the prevailed negative culture and to get adopted to perform well by themselves. Therefore, despite some students receiving lower marks, the continuation of such practice is suggested. Wider applicability of this method would depend on the ILOs of the laboratory class and adaptation could be considered when laboratory class assessment is of take-home nature. For further improvement, discussion questions can be given before the laboratory class and incorporated into the quiz where they have enough time to get prepared as homework but with answering to be done in the class.

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Assessment and feedback-driven learning platform to improve the attendance of undergraduates in tutorial lab sessions

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Abstract

It has been observed that student attendance for tutorial lab sessions tend to decrease by 40% as the semester goes on since the tutorial components are not being assessed as part of the course. This has been noted as a critical factor by the institutional lecturers as at the end of the course, students will not have the required skills and experience on programming principles and fundamentals expected by the software industry. Therefore, this research discusses the usability of a platform designed to evaluate students' tutorial work on a weekly basis and investigates how assessment and feedback-driven learning platforms can improve undergraduate students' attendance for tutorial lab sessions. This study aimed at 3 tutorial classes in the Server-side web development module and each was attended by 35 software engineering undergraduates in the second year aligned with 3 tutorial classes. An assessment sheet for each tutorial lesson was maintained by the tutor and shared among students indicating leaderboard summary while providing each student with verbal feedback for tutorial work. The effectiveness of this method was evaluated by the pre and post tutorial attendance of all 105 students in the 3 selected tutorial classes. Further, student perceptions (n=105) on the implemented platform was recorded through an online 1-5 Likert scale questionnaire and analysed following the Pearson Correlation test using SPSS software (23). Analysis of pre and post student attendance showed an increase of attendance by 30%, 20% and 15% respectively for 3 tutorial classes. Results of the Pearson Correlation and analysis showed that the developed assessment and feedback platform have significant positive relationships ($r = 0.40-0.65$, $p < 0.05$) with the student attendance in the selected 3 tutorial classes. The study showed that assessment and feedback-driven platforms can successfully be used to improve the attendance of software engineering undergraduates in tutorial lab sessions.

Background

Mann (2001) depicts assessment as an important mediating factor in determining a student's relationship with the university. There are two major types of assessments, namely summative and formative (CERI, 2008). There are conditions under which these assessments support student learning (Gibbs & Simpson, 2004). These conditions mainly rely on the aspects of student engagement and feedback students receive for their assessments. According to Black & William (1998) and Sadler (2010), feedback on assessments can be defined as an integral feature of effective and efficient teaching techniques that enhance student learning. Pather (2017) emphasises that to get the maximum benefit from feedback, it should be constructive, timely and meaningful. Kottasz (2005) has found that motivation is an important issue in relation to the study of student absence. She further notes that tutors should embed new assessing techniques such as quizzes, feedback, continuous assessment,

and evaluations. A study conducted by Cole and Spence (2010) indicates an improvement of student tutorial attendance by having conducted an assessment as 10-minute tests in 25-30 student tutorial classes for undergraduates following aerospace, civil and mechanical engineering. The introduction of weekly assessments with the tutor's feedback in a course on Distributed Information Systems course has proven to increase students' participation in the learning process (Cano, 2011). Esposto and Weaver (2011) have introduced a strategy of continuous assessment consisting of a series of tests with ongoing feedback into tutorial classes for the undergraduates following a Business Degree Program in an Australian University. The authors showed that student attendance for tutorials had improved by two fold compared to that of the previous year. In the context of the Informatics Institute of Technology (IIT), it has been observed that student attendance for tutorial lab sessions tends to decrease by 40% when it comes to the second semester of the academic year. This situation has been noted as crucial by the institutional lecturers as at the end of the course, graduates will not have the required skill set and hands-on experience on programming principles expected by the software industry. Academic lectures point out that the evaluation of tutorials is one strategy that could solve this problem. Above literature further reinforces that assessment and feedback techniques can be used successfully to improve undergraduate students' attendance. Therefore, this study presents the usability of a platform designed to evaluate students' tutorial work on a weekly basis and investigates the research question on how assessment and feedback-driven learning platforms can improve undergraduate students' attendance for tutorial lab sessions.

Methodology

This study was conducted on 3 different tutorial classes in the Server-side web development module in the second year where 8 tutorial lessons to be completed before the end of the semester. Each tutorial class was attended by 35 software engineering undergraduates and conducted on 3 different time slots. The tutors assigned for the tutorial classes were responsible for maintaining an assessment sheet for each tutorial lesson and the assessment sheet was shared among the students. Each student's tutorial work was assessed by the tutors during the tutorial time based on the criteria of tutorial completion. The assessment sheet consisted of a leader board summary where each student's marks were recorded against the tutorial. In addition, each student was provided with formative verbal feedback for their tutorial work during the laboratory sessions. The effectiveness of this platform was evaluated by the pre and post tutorial attendance of all 105 students in the selected 3 tutorial classes for 6 lessons starting from second tutorial week. In order to assess student perception (n=105) on the implemented platform, a conceptual framework was developed (Figure 1). Assessment and feedback were conceptualized as independent variables while student attendance was considered as a dependent variable. Based on the conceptual framework following H1 and H2 hypotheses were derived and applied for each tutorial class context.

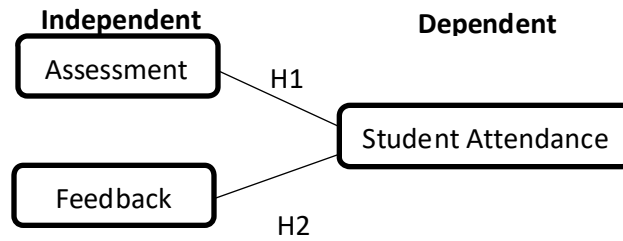


Figure 1. Conceptual Framework of independent and dependent variables with H1, H2 hypotheses

Hypothesis 1

H₁: There is a significant relationship between assessment and student attendance

H₁₋₀: There is no relationship between assessment and student attendance

Hypothesis 2

H₂: There is a significant relationship between feedback and student attendance

H₂₋₀: There is no relationship between feedback and student attendance

An online 1-5 Likert scale questionnaire was shared among the students of the 3 selected tutorial classes. The questions were based on the research work carried out by Black & William (1998) and Gibbs & Simpson (2003) including dimensions related to independent and dependent variables. To evaluate the level of relationship between independent and dependent variables for each tutorial class, hypothesis validation was carried out based on the Pearson Correlation test and significance (p) values using IBM SPSS software(23).

Results

Student pre and post attendance in each tutorial class were analysed before and after the implementation of the new platform. There existed a slight increase in student attendance after the 2nd week tutorial in all 3 tutorial classes as per Figure 2. Further, the analysis showed an increase of attendance by 30%, 20%, and 15% respectively for the 3 tutorial classes at the completion of the 8th week tutorial as shown in Figure 2.

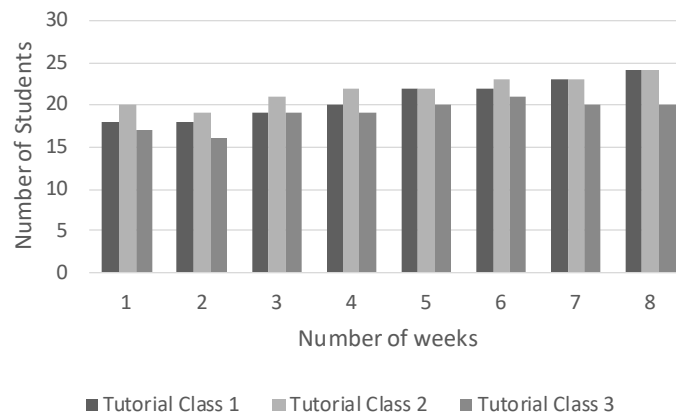


Figure 2. Student attendance increase rate of 3 tutorial classes during eight weeks

The reliability level of the questionnaire was established with a Cronbach's alpha value greater than 0.7. The significance of the relationship between the independent variable and the dependent variable was determined by the significance value. The alternative hypothesis was accepted if the value of significance level is below the standard value of (p) 0.05 whereas the null hypothesis was accepted if the value of the significance level is above the standard value of (p) 0.05. The results of the Pearson Correlation test between the independent variable and dependent variables for each tutorial class are provided in Table 1. The significance value of the assessment variable for each tutorial class is less than (p) 0.05. Therefore, the alternative hypothesis accepted by the authors and the null hypothesis has been rejected. This result determines that according to students' perceptions there is a significant relationship between students' assessment and attendance. The significance value of the feedback variable for each tutorial class is also less than (p) 0.05. Therefore, the alternative hypothesis accepted by the authors and the null hypothesis has been rejected. This result determines that there exists a significant relationship between providing feedback and student attendance.

Table 1. Pearson Correlation between independent variables (Assessment and Feedback) and dependent variable (student attendance)

Parameters	Tutorial Class 1 (10.30am - 12.30pm)		Tutorial Class 2 (10.30am - 12.30pm)		Tutorial Class 3 (1.30pm - 3.30pm)	
	Assessment	Feedback	Assessment	Feedback	Assessment	Feedback
Significance (2-tailed)	0.000	0.001	0.018	0.009	0.001	0.000
Pearson Correlation	0.641	0.512	0.399	0.435	0.557	0.608

Discussion and Conclusion

The main goal of this research was to identify whether assessment and feedback affected student attendance in tutorial lab sessions. This study has been identified that the two aspects (of assessment and feedback) have a positive relationship with student attendance in lab sessions. In general, the outcome of the research supports previous research findings [Cole and Spence (2010), Cano (2011), Esposto and Weaver (2011)]. Having analyzed the mean value of the correlation of the independent variables, the following conclusions can be made. There exists a moderate correlation between assessment and student attendance with a correlation of (r) 0.53%. Similarly, there is a moderate correlation of (r) 0.52 between feedback and student attendance. Therefore, analysis indicates that both aspects have an equal impact on student attendance. Authors have therefore identified that there is a high

probability of increasing the student attendance by introducing assessment and feedback platforms. Further, authors recommend that other learning techniques such as gamification, technology support with more conceptualization may merit similar exploration, along with increasing the number of participants in future iterations of this work.

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Use of unannounced quizzes as a formative assessment tool to improve engineering technology student attainment

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Abstract

In the traditional classroom, assessment is predominantly summative so that students are penalised for their mistakes. Thus, most students, unaware of their learning gaps tend to rote learn to hope to get better marks and end up with low attainment. Formative assessment creates opportunities for the students to learn from their mistakes with the feedback from the teacher. Here, students get to reflect on their mistakes and construct knowledge facilitating meaningful learning. Using this theory, we explored how student attainment could be improved using unannounced quizzes as a formative assessment tool. Second year Engineering Technology students studying Knitting Technology (58 students) were given unannounced quizzes from their previous lecture session learnings. Three open-book quizzes were given on three random days, and each quiz was fifteen minutes in duration. Answer scripts were corrected, marks and individual written constructive feedback were given with the scripts in two weeks' time. This activity was not accounted for the student's final grading. These marks and answers were compared with the marks and answers from the subsequent closed-book summative continuous assessment. Student feedback was also taken on the change activity. Average marks for the first, second and third quizzes were 48.5%, 49.0%, and 53.0% respectively. Answers revealed what students had failed to grasp from the lectures. However, students had performed better in the subsequent closed-book continuous assessment with an average mark of 60.7%. Analysis of the answers indicated that students had learned from their previous mistakes. Qualitative analysis of the student feedback showed that this activity had assisted the students to recognise and fill the gaps in their learning. The study showed that unannounced quizzes with feedback helped the students to identify their mistakes, construct knowledge and improve their attainment. Further, this activity could aid the teacher to identify the student needs better and to adjust teaching methods accordingly.

Background

In the traditional classroom, assessments are predominantly summative, and marks of the assessments affect the students' final grades. Students have very limited opportunities to learn through their mistakes with summative assessments. Summative assessment negatively affects students' deep learning approach since with recalled knowledge at the time of testing students can proceed to the focused results (Falchikov, 2005). Students are evaluated by the results of the final examination at the end of the learning period. They are used to studying at the last moment for the final examination, which also leads to surface learning. Results of

the final examination are published according to the standard grading system and answer scripts are confidential. Students are not allowed to check their mistakes and get feedback for their answers at these final examinations. Though there are continuous assessments, students are penalised for their mistakes as it affects their final grade. Alastair (2008) highlighted that the summative assessments do not allow the students to experience learning from their mistakes.

Formative assessment is a tool for identifying mistakes and learning gap which leads to self-evaluation and reflective learning. To detect the gaps or errors the student should have the freedom to make mistakes without regretting it and the provision for getting mistake corrected (Biggs & Tang, 2007). This study was conducted to evaluate the use of unannounced quizzes as a formative assessment tool to improve engineering technology student attainment. Unannounced quizzes, not contributing to the final grade, create a supportive and free environment for the student to learn through their mistakes. Janet and Judy (2018), experimentally investigated that learning from one's own errors with corrective feedback is more effective than listening to the correct answer or observing someone else's mistakes that had been corrected. Formative assessment results are used for formative feedback, which creates a passage for the student to reflect on their mistake, appreciate the results, and construct knowledge facilitating meaningful learning. This study helps to find the effectiveness of active engagement of the student's knowledge in the form of question answering and appraising themselves through corrective feedback while constructing knowledge. Formative assessment is also beneficial for the lecturers to reflect on the students' level of knowledge and engagement on the session so as to help change the teaching methods accordingly (Janet, 2017).

Methodology

This study was conducted with second year (semester 3) engineering technology diploma students studying Knitting Technology. Fifty-eight students were given three unannounced quizzes from their previous lecture session learnings. All the quizzes were conducted as open-book tests on three random days and each quiz was fifteen minutes in duration. This created an opportunity for the student to make mistakes. The marks of the quizzes were not added to their final grades to make them feel free to make mistakes and learn through them. Answer scripts were collected at the end of the quiz and marked giving written constructive feedback on each student's answer script. Feedback was provided to guide the student, appreciating their answers and mentioning what was missing in the answers. The diagrams in the answers, which were awarded marks, were also corrected by mentioning important elements on the diagram. Marks were awarded to motivate the student and to reflect on their performance. Marked answer scripts were returned to students in two weeks. Commonly found mistakes were discussed in the class. With the feedback, students got an opportunity to reflect on their mistakes and get it corrected or fill the gap in their learning. At the end of all quizzes, a closed-book summative continuous assessment was held from the same area of the syllabus. Marks of the three unannounced quizzes were analysed and the average was compared with the average mark of the subsequent summative continuous assessment. At the end of all three unannounced quizzes, a formal feedback was taken on the quizzes to find the student perception on the change activity.

Results

Students' marks for the quizzes were analysed to find the progress of the students learning. Average marks for all three quizzes had increased progressively (refer table 1). When the first unannounced quiz was initiated, students had poor enthusiasm for that. The students had low average marks (48.5%) for the first quiz. Most of the students, who got low marks for the first quiz, were poor in constructing the answers according to the questions. Even though it was an open book examination, students missed very important points in the diagrams and in their answers. Students were more confident and keener for the second quiz with the feedback of the first quiz. The average marks for the second quiz were 49% and most of the students applied their learning from the feedback received on the first quiz. In the third quiz, the average marks achieved by students increased to 53%. The answers for the quiz were more focused on the questions and overall quality of answers had improved. Not only the average, the percentage of students who achieved higher marks than the average marks of the first quiz also increased. The average marks for the first quiz were 48.5% and 52.73% of the students ranked below the average marks. In the second quiz, students who were under the average marks in the first quiz performed well and only 35.14% of the students ranked below 48.5%. In the third quiz, only 30.43% of the students got lower marks than the average of the first quiz marks which is 48.5%.

Table 1. Marks (%) of students for three quizzes and assignment

Students performance	Open Book			Closed Book
	Quiz 1	Quiz 2	Quiz 3	Assignment
Mean	48.5	49.0%	53.0	60.7
Standard Deviation	2.98	2.90	2.11	4.18
Percentage of student who got less than Quiz 1 mean)	52.7	35.1	30.4	32.8

From the continuous assessment marks, it was confirmed that the students had filled the knowledge gaps in their learning through the unannounced quizzes. Students achieved an average mark of 60.7% for the continuous assessment (denoted as 'Assignment' in Table 1), though it was a closed book assignment. Students' answers to the continuous assessment questions revealed that with the given feedback, students had learned what they had failed to grasp from the lectures. The answers written for continuous assessment was more focused on the question and was well constructed. In the two quizzes a significant amount of the students failed to construct the answers according to the question. Most of the answers improved with the third quiz and continuous assessment. When considering the impact on individual students, most of the students showed improvement in marks going through the sequence of these quizzes. Students participated in the unannounced quizzes with great enthusiasm as they had an opportunity to test their knowledge and receive individual feedback without affecting their final grades.

The effectiveness of the quiz was also measured by the student feedback. Figure 1 shows feedback of 58 students on the unannounced quiz and formative feedback activity. 84.5% of students agreed that an unannounced quiz was a good method to evaluate themselves and 79.4% of students thought it helped them to remember theories. According to the student feedback, formative feedback on their quiz answers also helped students to recognize and fill the gap in their learning. The students very positively commented on the unannounced quizzes in the general feedback and they expressed the need to have that in other modules as well.

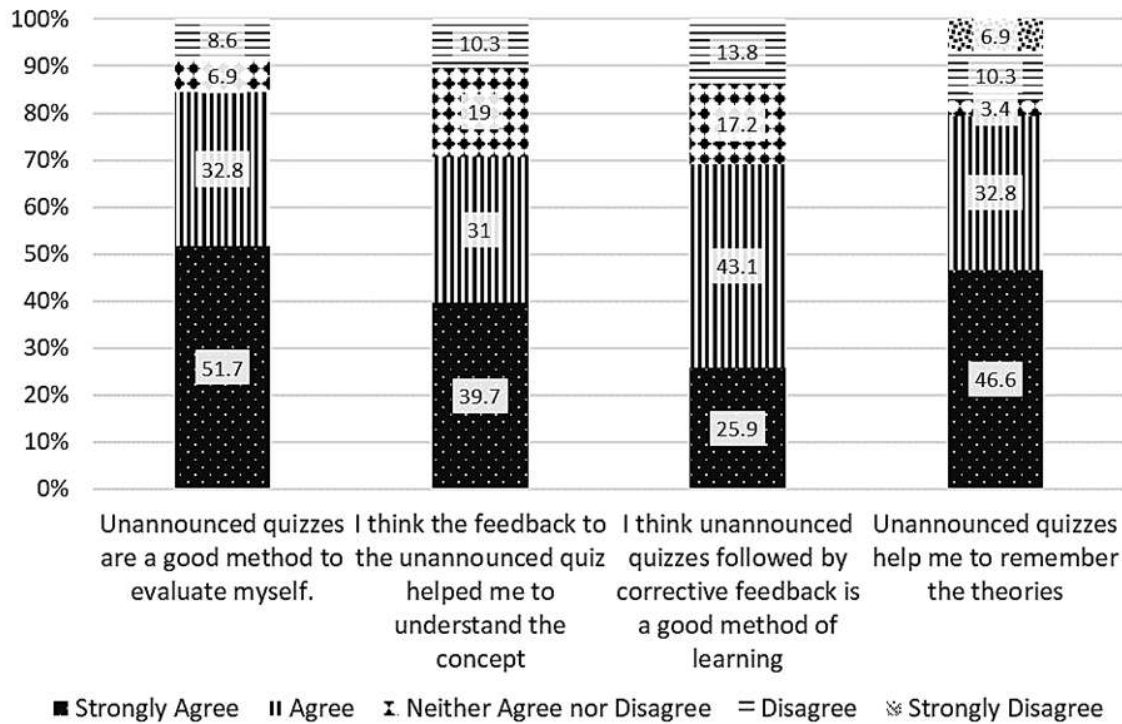


Figure 1. Student feedback on three quizzes

Discussion and Conclusion

This study shows the use of unannounced quizzes combined with feedback as a formative assessment tool, helping towards the identification of mistakes done by students and supporting them to construct knowledge and improve their performance in engineering technology education.

Students were welcomed to learn through their mistakes as marks of the quizzes were not counted for their final grades. In subsequent quizzes, common initial mistakes; poorly focused answers, poorly structured answers and missing components in the diagrams were improved. According to Janet (2017), mistakes helped students to actively engage with the problems and explore the knowledge. Unannounced quizzes also aided the teacher to identify the student needs better and to adjust the teaching methods accordingly. Application of this technique to a large class is challenging as providing individually written constructive feedback for each quiz may not be practical. However, this method can be improved by introducing a rubric so that students can exchange their answers with peers for marking and receiving feedback. But,

the effectiveness of peer feedback on unannounced quizzes needs to be explored. Here, each student gets to play the role of a learner and assessor which is beneficial for their learning (Boud, Cohen, & Sampson, 1999).

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Positive perceptions and improved engineering undergraduate course design following a staff development session on constructive alignment

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Abstract

External peer evaluation on the BSc Engineering programme offered by the Faculty of Engineering of Kotelawala Defence University highlighted the requirement for successful application of “Constructive Alignment” (CA) in developing the study modules through establishing Learning Outcomes (LOs), designing Teaching Learning Activities (TLAs) and conducting Assessment Tasks (ATs). Due to lack of awareness and/ or skill on using the CA concept, staff encountered difficulty in coherently developing LOs, TLAs and ATs, experiencing further difficulties in achieving all module LOs and subsequent Programme Outcomes (POs). We wanted to explore whether training of faculty staff on “Constructive Alignment” would enhance the perception of the staff on applying the concept for effective curriculum development. Initially the concept of “Constructive Alignment” was explained with the aid of a handout and a module descriptor using the “tell-show-do” strategy during the faculty curriculum development committee meeting. A total of 30 committee members were then grouped according to their specialization. Each group was requested to revisit and ensure that the respective module descriptors were constructively aligned by making appropriate amendments. Subsequently, amended module descriptors were shared among the groups and subjected to provide feedback in order to improve further. At the end of the session, committee members were asked to submit their feedback on the task completed. It was observed that 60% of the committee members were initially not aware of Constructive Alignment. Furthermore, 90% of the members expressed positive feedback regarding the task. Further, they had gained satisfactory insights to this concept, as revealed by their feedback. On a subsequent evaluation, external examiners expressed their satisfaction on amended module descriptors. The study showed that specific training activities, such as on Constructive Alignment, can be successfully used to enhance the positive perception of staff and their effectiveness in applying it for effective curriculum development.

Background

External peer evaluation is a key aspect applied for upgrading and maintaining the quality and relevance of an academic programme. This has been given high priority by the Institution of Engineers Sri Lanka, the national apex body of the Engineering profession, by emphasizing this aspect as one of the main quality assurance procedures of fully-fledged Engineering degree programmes offered in Sri Lanka (IESL, 2019). Faculty of Engineering of the General Sir John Kotelawala Defence University (KDU) produces Engineering graduates mainly for the Sri Lankan armed forces. The BSc Engineering programme offered by KDU is subjected to external peer evaluation on a regular basis as a continuous quality improvement (CQI) strategy. During this process, the requirement of successful application of the concept Constructive Alignment (CA) was highlighted in developing the study modules through establishing Intended Learning Outcomes (ILOs), designing Teaching Learning Activities (TLAs)

and conducting Assessment Tasks (ATs). Due to lack of awareness and/ or skill on using the concept, staff encountered difficulty in coherently developing ILOs, TLAs and ATs, experiencing further difficulties in achieving all module ILOs and subsequent Programme Outcomes (POs). Hence, it was explored whether training of faculty staff on Constructive Alignment would enhance the perception of the staff in applying the concept for effective curriculum development.

The term “Constructive” emerges from the constructivist theory that learners use their activities to construct their own knowledge whereas “Alignment” is a principle in the curriculum theory that emphasises TLAs and ATs to be aligned to what is intended to be learned (Biggs & Tang, 2011). According to Biggs and Tang (2011), Constructive Alignment refers to the establishment of systematic alignment among ILOs, TLAs and ATs in an academic programme. It is further elaborated by stating that in CA, connections between ILOs, TLAs and ATs are aligned intrinsically (Biggs & Tang, 2011). Figure 1 illustrates the general framework for CA.

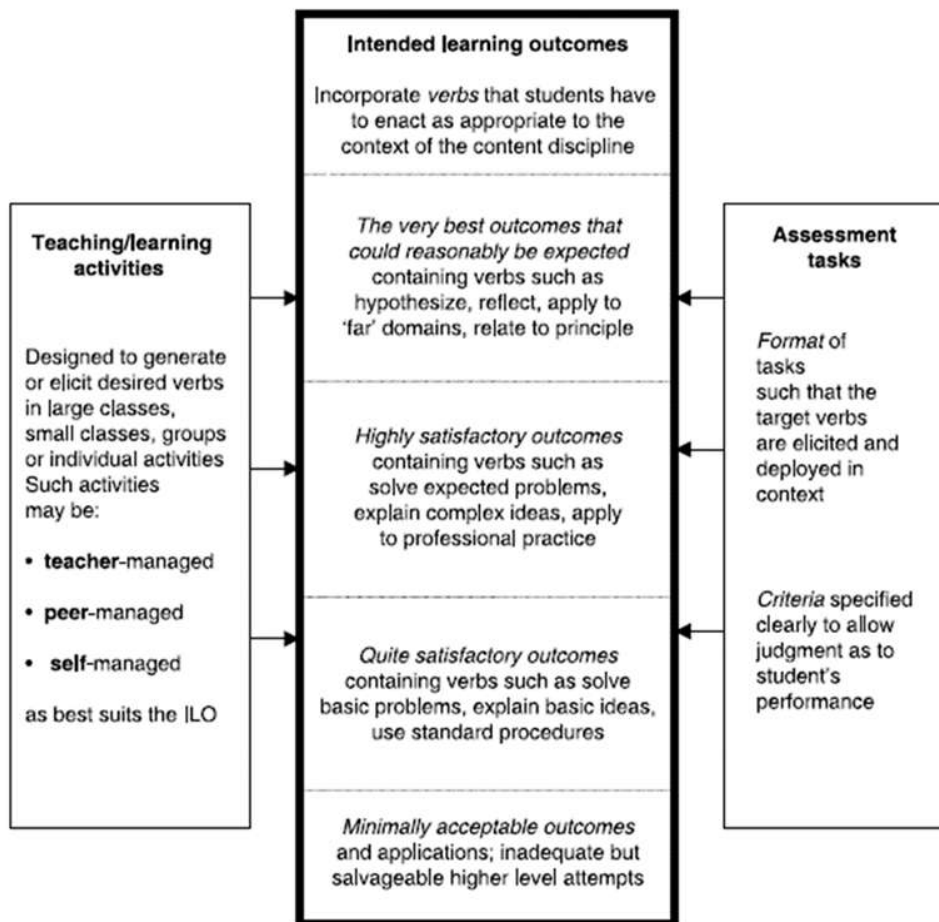


Figure 1. General framework for constructive alignment (Biggs & Tang, 2011, p. 105)

CA establishes a conceptual framework for reflecting on the following questions that need to

be answered at the key stages of teaching (Biggs & Tang, 2011): *What do I want my students to learn? What is the best way in my circumstances and within available resources of getting them to learn it? How can I know when or how well they have learned it?* CA moves one step further than most outcome-based approaches, enabling students to achieve learning outcomes more effectively (Biggs & Tang, 2011).

Methodology

In the training session, the concept of Constructive Alignment was initially explained with the aid of a handout and a sample module descriptor using the “tell-show-do” strategy during the faculty curriculum development committee meeting. A total of 30 committee members were then grouped according to their specialization as shown in Table 1.

Table 1. Grouping of committee members

Group No.	Field of Specialization	No. of committee members
1	Aeronautical/Aircraft Maintenance Engineering	04
2	Biomedical Engineering	03
3	Civil Engineering	05
4	Electrical Engineering	05
5	Electronic and Telecommunication Engineering	05
6	Marine Engineering	03
7	Mechanical/ Mechatronic Engineering	05
Total	Total	30



Figure 2. Training session in progress at Faculty curriculum revision committee meeting

First, each group was requested to revisit and ensure that the respective module descriptors were constructively aligned by making appropriate amendments. Subsequently, amended module descriptors were shared among the groups who were required to provide feedback in order to improve further. Furthermore, the process of mapping between ILOs and POs for a given module was explained to the committee in detail using a sample mapping matrix as illustrated in Table 2.

Table 2. The sample mapping matrix used to explain mapping of module LOs and POs

<u>ILO #</u>	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO1 1	PO1 2
LO1	H	M	H	M	M	M	L	L	M	M	L	M
LO2	H	M	H	M	M	M	L	L	M	M	L	M
LO3	H	M	H	M	M	M	M	M	H	H	M	M
LO4	H	M	H	M	H	M	M	M	H	H	M	M
Module	H	M	H	M	M	M	M	L	M	H	M	M

Emphasis that a LO placed on a PO was rated as: H (High), M (Moderate), L (Low) or Empty (None)

Then, the groups were requested to carry out this task and come up with relevant mapping matrices for their respective modules in the curriculum. Active discussions took place (Figure 2) and at the end of the session, participants were asked to submit feedback on aspects related to the training session using a structured 5-step Likert-scale questionnaire.

Results

The analysis of responses from the 5-step Likert-scale (soaring of responses was recorded as 1-strongly disagree to 5 - strongly agree) questionnaire is shown in Table 3.

Table 3. Analysis of questionnaire responses

#	Statement	Distribution of scores					Mean score
		1	2	3	4	5	
1	I am familiar with Bloom's taxonomy and able to set LOs with appropriate action verbs	2	5	6	9	8	3.53
2	Before attending the session, I had been aware of the concept CA	10	8	3	5	4	2.50
3	I am self-motivated to use CA for my teaching in future	2	1	0	13	14	4.20
4	I am in a position to establish a link between LOs and POs in the form of a mapping matrix	2	3	12	10	3	3.30

The analysis showed that most lecturers had been able to set LOs in their respective modules but were not aware of the concept of CA which may have hindered the quality of teaching and learning. However, they recognized the need of CA in designing curricula to facilitate deep learning. Further, they contributed to fill mapping matrix as a CQI process to check whether the programme outcomes are achieved. Responses for the three open-ended questions (Q1 - In addition to the end-semester examination, what ATs did you use in the module?; Q2 - What TLAs did you use as per ILOs?; Q3 - Which alignments did you achieve based on the concept of Constructive Alignment?) included in the questionnaire are shown in Figure 3. Although most lecturers (83%) aligned ATs with TLAs, only about one third had been able to align LOs with ATs (40%) and TLAs (33%), which determines attainment of programme outcomes.

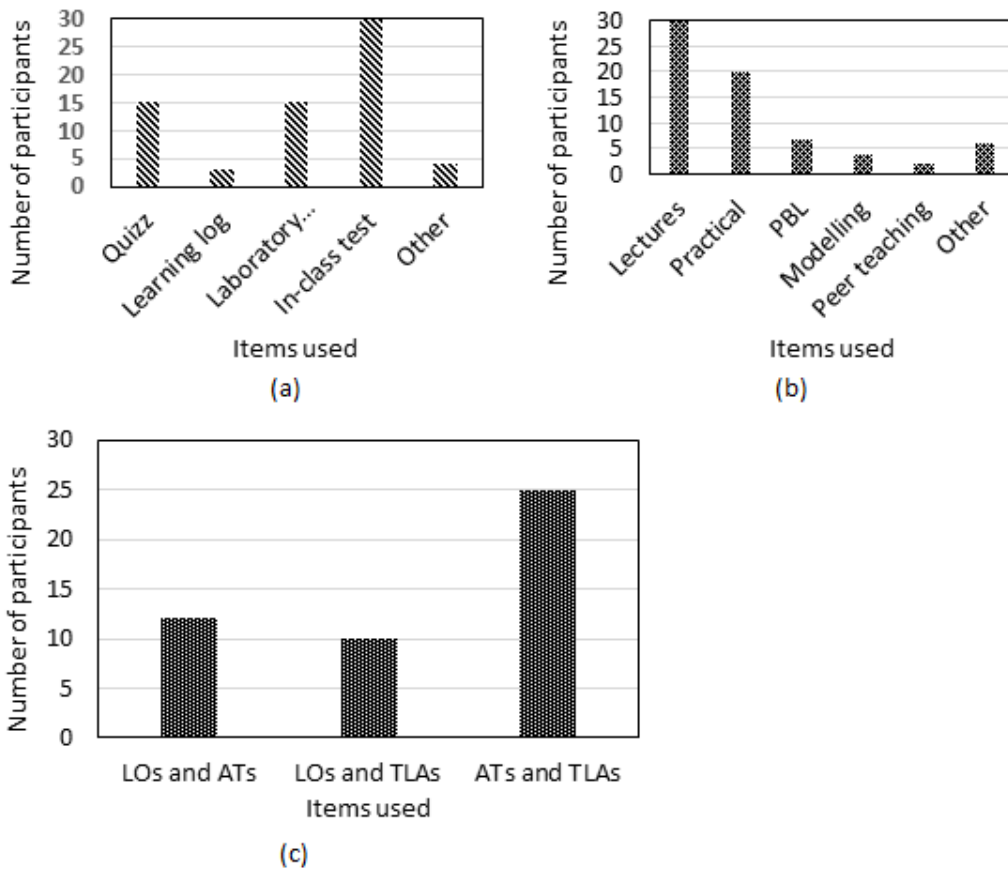


Figure 3. (a) ATs, (b) TLAs, (c) Lecturers' perceptions on the alignment among different items

Discussion and Conclusion

It was found that 60% of participants were not aware of the concept Constructive Alignment before the training session, explaining the low alignment of LOs with ATs and TLAs which, in turn, promoted conducting TLAs to meet ATs. Feedback showed participants had gained satisfactory insights into CA, with 90% becoming self-motivated to use CA in their future teaching. On a subsequent evaluation, external examiners expressed their satisfaction on amended module descriptors. The study showed that specific training activities on CA can be

successfully used to enhance positive perception of staff in applying it for effective curriculum development and to enhance better LO validation in courses.

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Use of constructive alignment to enhance student perception and learning

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Abstract

As the lecturer of the course BT3002, it was evident to me that there was a negative perception of the soil management section of BT 3002 (Horticulture) from the last batch of students. Lack of enthusiasm and attention shown in-class activities (Question and Answer sessions [Q&A] and verbal pop quizzes) by student were observed. Constructive alignment, which makes the learner self-construct knowledge by building on their own activities is an established theory in teaching-learning. This study attempts to determine whether it is possible to improve student perception on the soil management section through constructive alignment. The method used comprised of two steps. First, during a practical class, all the students (n=33) were given an opportunity to recall their knowledge on soil using a deck of cards of "Soil Families" with references and discussions. Students were asked to prepare and present posters on the knowledge gathered during this activity. Student feedback on the practical class was also collected. As the second step, the posters prepared by students were used in subsequent lectures to constructively align advanced concepts in soil management. Student feedback was obtained at the end of this exercise. The feedback gained for both questionnaires were analysed, the percentage of positive and negative responses were calculated and tabulated. The student participation on in-class activities was also tabulated. The student feedback was 100% positive. They had enjoyed the class with complete attention and their learning skills had improved compared to the previous batch (evident through verbal pop quizzes, Q&A sessions, and student feedback). Theories of constructive alignment coupled with appropriate teaching methods have transformed the negative student perception towards the soil management section to a positive one.

Background

BT3002, Horticulture is a module being offered to the third-year students of the Faculty of Science, University of Colombo. As the lecturer of BT3002, it was evident to me from the previous batch of students that there was a negative perception on the "soil management" section. This section was taught earlier with three traditional face-to-face lectures where students are expected to be attentive and to take down notes. Students not being attentive, their inability to answer a simple question asked during verbal pop-up quizzes, and their silence in the Question and Answer (Q&A) sessions were evidence of their negative perceptions towards this section. Lack of deep and critical understanding of this section adversely affected their understanding of the entire module, since this is an important section which lays the foundation for other sections. I analysed the situation critically and identified two probable reasons for the existing problem. The disparity between my expectation of student basic knowledge (gained from first and second-year basic courses) and their actual knowledge and the unimpressive passive way of my teaching was identified as the possible causes for the problem. The method of teaching needed a transformation to

change the negative perception and passive engagement of the students. The transformation was done based on the theory of constructive alignment.

Constructive alignment or letting the learner construct self-knowledge with building on their own activities is a well-known and highly advantageous theory in teaching and lecturing (Biggs & Tang, 2007). The process depends on how the information that needs to be taught is structured. Also, the use of different constructively aligned activities to teach the students to make students deep and enthusiastic learners (Brabrand, 2008; Wang et al., 2013). Brabrand (2008) also states that the real training on competence takes place not during the lectures but during the student-centred activities. A teacher must make sure that the outcomes of her teaching are attained by the students. When the information gained is structured to make 'sense', the process of learning becomes easy and logical (Biggs and Tang, 2007). In this study, my target was to assess whether transforming the content of the soil management section into several small activities that are constructively aligned can be used to improve active learning and student perception.

Methodology

The methodology used had several activities to teach the concepts and was conducted in two sessions. The main objective of session 1 was to provide the opportunity for the students to recall what they already know and brainstorm about novel concepts and facts related to the subject. All 33 students taking the course participated in the activity. They were divided into 5 groups. The main prop used was a deck of cards captioned "Soil Families - The hidden life of Soils" (Figure 1[a]). This deck of cards is designed and published by the Scientists in France under the GESSOL research programme, funded by the French Ministry of Ecology. This card game provided the opportunity to recall some basics about soil in an interesting manner. The demonstrators were instructed with the playing rules before the commencement of the practical session. Students played the card game (Figure 1[b]) (the activity took about an hour) and after that, keeping the content of the cards as the basis, each group was instructed to prepare a poster about one "Soil family". They were allowed to use the internet, reference material and books to search more details. One student from each group was asked to present the poster (Figure 1[c]) (the activity took about an hour). After the poster presentations, I summarised the content of all the presentations to the class (the activity took about an hour). The posters were collected for the next session. Feedback was collected from the students to evaluate the success of the introduced set of activities (Figure 2: Questionnaire 1).

The second session of the method contained two one-hour lectures. During the second session, the student prepared posters were displayed in the lecture room. The main objective of this session was to teach students advanced concepts. During the lecture, the content taught was constructively aligned with what students already knew. After the lectures, a verbal pop quiz was done to check whether the students have understood the content. Also, Q&A sessions was carried out at the end of the class, where the students were given time to clarify any doubts or express their feelings towards the lecture. Student feedback was collected from the students to evaluate the success of the introduced set of activities (Figure 2: Questionnaire 2). The feedback gained for both questionnaires were analysed, the percentage of positive and negative responses were calculated. The student participation in

the in-class activities (i.e. verbal pop quizzes and the Q&A sessions) were also analysed.



Figure 1. (a) The deck of cards used – “Soil families –Hidden life of soils”, (b) Students enjoying the class and playing the card game, and (c) A representative student from a group presenting the poster

Feedback /Questionnaire (Q 1) – Given after session 1	
Q 1-1	Do you think you were able to brush up your memory on scientific fact you knew?
Q 1-2	Do you think you found the class interesting?
Q 1-3	What do you think of me using your sheets in the lectures to come to teach you to some new facts from the basic facts you know?
Q 1-4	Would you like to do more sessions like this? and why?

Feedback /Questionnaire (Q 2) – Given after session 2	
Q 2-1	Were you able to learn the new facts that I taught during the lecture without difficulty?
Q 2-2	Was it helpful that I used the fact sheets you designed?
Q 2-3	Did you fall asleep in class?
Q 2-4	Do you think you found the lesson interesting and easy to follow? The reasons?

Figure 2. Feedback forms/ Questionnaires given after the sessions 1 & 2

Results

Students responded positively to the Questionnaires (Figure 3). Student feedback 1 indicated that the main objective of conducting session 1 was met. All the students had been able to recall what they already knew (Q 1-1 - 100% positive feedback). All agreed that the class was interesting and wished for more sessions of the same kind (Q 1-2 & Q1-4 - 100% positive feedback).

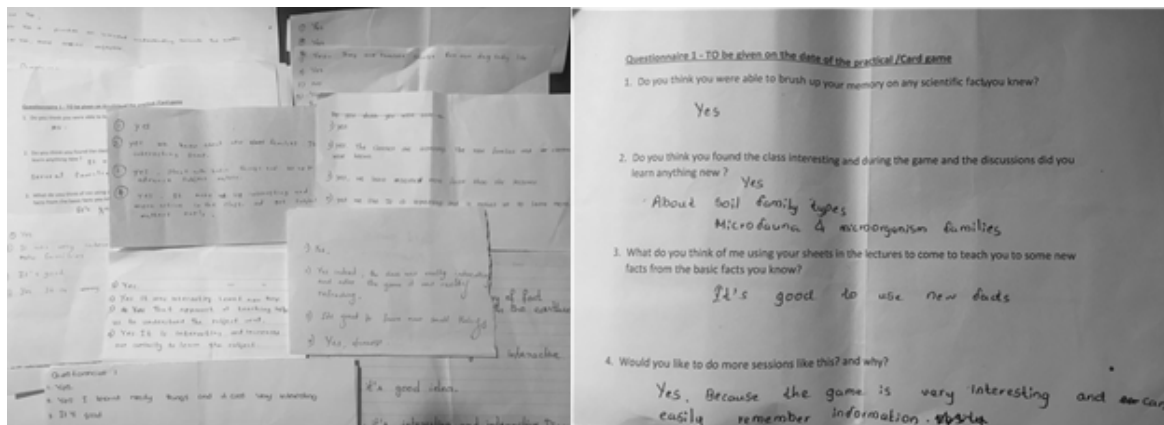


Figure 3. Some student responses to the Questionnaire 1 /Feedback forms

Students have stated that it will be helpful in using the posters (Q 1-3 - 100% positive feedback) prepared by them as basic supporting materials in teaching advanced concepts (posters prepared and presented by the students contained facts they have come across related to the advanced concepts). This indicates that I have ignited their inquisitive minds to learn advanced concepts or to achieve the main objective of session 2. Feedback 2, Q&A and pop quiz results gathered after session 2 provided concrete evidence to support the success of the new approach taken to teach. All the students agreed that they had learnt the novel facts without difficulty, Fact sheets were helpful, they were attentive in class, and the lessons were interesting (Q 2-1, Q 2-1, Q 2-3. Q 2-4 -100% positive results). The Q&A session and the pop quizzes assessed the student learning and the grasping of the concepts. Student participation in the Q&A session and the pop quiz had improved by 97% and 95% respectively compared to the previous batch. This is another evidence manifesting the success of the new approach taken to teach the content.

Discussion and Conclusion

This study confirms that student learning of 'advanced scientific concepts' can be significantly improved through the use of strategically designed activities that are constructively aligned. These implemented strategies succeeded in transforming a negative perception that existed on the "Soil management section" into a positive one. A deep understanding of the concepts taught followed by a creatively elicited response to a related question is expected by a student from the lecturer (Biggs, 2003). But attaining the expected outcome stated above subsequent to teaching advanced concepts is challenging. As an educator, after facing this challenge, the actions mentioned were taken as discussed to overcome the challenge.

Few major factors that contributed to the overall positive outcome of the study are discussed below. First, the essence of the elucidation of theories of constructive alignment by Brabrand (2008) and Biggs & Tang (2007) were incorporated into the activities designed. Secondly, strategic and creative planning of activities had been able to acquire optimal engagement of the students making them active learners. Thirdly, an opportunity was provided to the student to demonstrate their attainment of the learning through the poster preparation,

presenting, Q&A sessions, quizzes. These assessments are extremely important as stated by many authors.

Cain et al. (2017) state that the success of a lecturer is quantified by the success that is gained through the assessment. Brabrand and Dhal (2008) identifies examinations as a powerful motivational tool for the students in their learning.

One of the major challenges encountered in the overall process was related to the aspect of time management. All activities (student activities and lectures) claimed more time than stipulated. This challenge can be overcome by asking students to do certain activities like homework and being more vigilant about the time.

Overall, the actions taken to enhance student learning have been extremely successful. This method of teaching can be recommended to educators struggling with teaching advanced concepts to the students.

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Undergraduate Students' Perception on Enhancement of writing skills through 4Cs of learning

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Abstract

Writing has been identified as an essential skill that brings many advantages for learners. The basic advantage of better writing among undergraduates is the ability to score higher marks at mid or end semester examinations. When examining the existing situation among the undergraduates, most of them fail to write focussed answers and the answers are filled with general ideas without critical analysis. The common issue identified in the answer scripts is the relatively high number of pages with unnecessary facts. The possible reasons for the existing situation are less practice in writing or seeking new knowledge and not having a proper training in building the structure of the answers. Therefore, the main objective of this study was to examine how to improve undergraduates' writing skills through 4C's learning. The problem-solving intervention is the 4Cs education method that includes critical thinking, creativity, collaboration, and communication skills. As a problem-solving intervention, writing activity was conducted for third-year undergraduates who followed DMG-3245: Human Resource Development for Labour Market Planning (n = 24). Students were grouped into small groups with four students per group and activity was conducted by giving instructions on how to write the answer for a question using relevant reading materials. Guidelines for building a structure for the answer were also given. At the end of the activity, one member from each group was given the opportunity to read the group-answer. Students' feedback and marks obtained for the activity were used to identify the success of this intervention. More than 80 percent of students obtained marks over 65 percent for the second activity, compared with the first activity. 70% have identified that the activity enhanced their writing skills. About 96% have indicated that as a group they were able to overcome their individual writing issues. By considering the students' perceptions, it is identified that incorporating a 4Cs strategy helps to overcome writing issues of undergraduates.

Background

There are various types of skills and currently, several essential skills have been identified for people to work and learn. Among those essential skills, writing has been identified as one of the key essential skills for humans (Kilimova, 2013). Writing brings a lot of advantages to express one's personality, foster communication, develop thinking skills, make logical and persuasive arguments, give a person a chance to later reflect on his/her ideas and re-evaluate them, provide and receive feedback and prepare for school and employment (Klimova, 2013). Writing is an important and effective skill for self-expression, communication, and information gathering (Grabe & Kaplan, 2014). Improved writing is important to give clear and accurate ideas. In higher education, writing is extensively used by students. Most of the undergraduates face various problems when writing and lead to score low marks at their end-examinations, mid-examinations, and dissertations. When examining the current situation, most of the undergraduates write a general idea rather than writing critically focussed

answers to the questions. The other issue is adding unnecessary facts or paragraphs with the intention of increasing the number of pages for their answer scripts. Less practice on writing can be identified as another adverse issue that leads to failure in keeping the consistency and linkages with each written paragraph or sentence. When focusing on the writing at the examination, it is often seen that in the last ten minutes of the examination, most students started writing very fast and continuously knock on the desk asking for writing papers. The practice of depending on the lecturer's notes, and the reduced emphasis on seeking new knowledge, is another issue. The ability to grasp knowledge and absorbing new information that can be gained by reading, as well as applying facts, are revealed by the writing (Hutchison, 2016). The question types are also different such as multiple-choice questions, short answer questions, and essay type questions, and so on. Undergraduates fail to identify the type of the question and mark allocation for the particular question.

In academic writing, twelve core competencies of scholarly writing have been identified by the researchers (Ondrusek, 2012). However, few studies have focused on writing at the examinations. When writing an assignment, the process of writing includes some steps such as prewriting, outlining a structure or idea, writing a rough draft, revising the editing. The 4Cs imply that reading, writing, and arithmetic are not sufficient and higher education should focus on the workforce and employees' critical thinking, ability to solve problems, collaborate; or effective communication (National Education Association, 2019). Applying 4Cs for writing is very important when addressing writing issues. It helps to write critical ideas beyond the general ideas, address the issues related to the failure of writing, collaborate and share ideas with colleagues for the improvement of writing and improve the ability to communicate one's opinions with others successfully. However, most of the teachers and undergraduates face the dilemma of improving writing at the examinations. So, the main objective of this study is to examine how to improve undergraduates' writing skills through 4C's learning.

Methodology

The 4Cs education method, that includes critical thinking, creativity, collaboration and communication skills was used to enhance students' writing skills. The activity was conducted for third-year students who followed the 'DMG 3245 Human Resource Development for Labour Market Planning'. Twenty-four undergraduates (n=24) participated in this activity. Students were grouped into six groups, with four students per group, so that the Teaching and Learning Activity (TLA) was conducted as a small group activity. The instructions were given on how to write the answer to the given questions. Before the activity was conducted, guidelines for building a structure, an answer were given to the students. The relevant reading materials were also provided to write answers to those questions. Everyone was given an hour to write the answer. At the end of the activity, one group member of each group was asked to present the answer to the class. Student feedback and marks obtained for the activity were used to identify the success of this intervention.

Results

As shown in Table 1, it is clear that undergraduates have faced different issues in writing. Among the reported responses, the main issue was the error of sources which is 91.7%. That means most of the undergraduates do not have a proper skill of adding the sources as part of their written communication. When writing citations from books, the internet, journal, or any

other sources, it should be cited in the correct manner; otherwise, it can even be regarded as plagiarism. The second highest recorded responses of 83.3% were the issues of building the end of the answer. That means undergraduates lack the skill of concluding the facts at the end of the answer. The same number of responses was recorded as 79.2% and there were issues of building the start of the answer and unclear handwriting. However, these data indicate that the undergraduates do not have proper skill of building the structure of the answers. The lowest responses were reported as 16.7% and it was the lack of extra readings for writing.

Table 1. Writing related issues before conducting the writing activity (n=24)

Writing issues	Responses	
	N* (out of 24 total students)	Percent (%)
Difficulties in identifying necessary facts	5	20.8
Difficulties in identifying the limits of writing	10	41.7
Issues in building the start of the answer	19	79.2
Issues in building the body of the answer	11	45.8
Issues in building the end of the answer	20	83.3
Time management issues	18	75.0
Lack of extra reading for writing	4	16.7
Error of sources	22	91.7
No idea of adding a critical view on facts	17	70.8
Difficulties of adding examples	9	37.5
Unclear handwriting	19	79.2
Inconsistencies between lines or graphs	15	62.5

* Multiple responses

When considering the responses, the majority of the responses (87.5%) indicated that building the structure was useful to manage the time and 75.0% of responses indicated that it was useful to build the body/content of the answer (Table 2). About 62.5% of the responses indicated that undergraduates were able to identify how to formulate the end of the answer and another considerable number of responses 54.2% were recorded mentioning the activity was useful to identify how to start the writing of the answer. Building a structure for a question is a useful approach to minimize the writing related issues such as removing unorganized facts, unclear structure, inconsistencies in the answer scripts. For a good answer, it is equally important that the start, body/content and conclusion as a structure or framework to minimize the errors of writing.

Table 2. Undergraduates’ opinions of the building structure for a question (N=24)

Undergraduates’ opinions of the building structure	Responses	
	N*	Percent (%)
Useful to identify how to start the answer	13	54.2
Useful to identify how to build the body of the answer	18	75.0
Useful to identify how to end the answer	15	62.5
Useful to keep the consistency of each paragraph	5	20.8
Useful to manage the time	21	87.5
Useful to identify the important facts for the answer	11	45.8

Source: Based on student feedback

* Multiple responses

Figure 1 indicates the marks obtained by the students for the two writing activities. It is clear that in the second activity 80 % of the groups had obtained marks that exceeded 65.

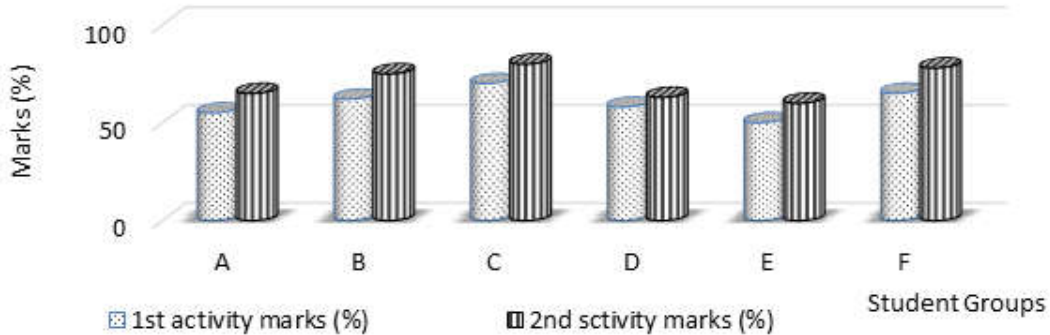


Figure 1. Undergraduates’ marks for the writing activities, based on student feedback

The majority of the undergraduates (96%) had a positive (good side) opinion of the activity. As a reason for the positive opinions, 70% of undergraduates indicated that they were able to enhance their writing skills through this activity and 30% suggested having similar activities throughout the semester.

Table 3 shows that the highest responses were 95.8% which indicated that the group activity was helpful to share ideas among group members and other groups. 83.3% of the responses indicated that they were able to manage their time.

Table 3. Student feedback on the conduct of the writing activity as groups

Opinion of conducting the writing activity as groups	Responses	
	N*	Percent (%)
Identify how to manage time for writing	20	83.3
Able to avoid language issues of writing	8	33.3
Useful to identify individual capabilities and weakness	19	79.2
Easy to build critical answer among the discussion with friends	10	41.7
Able to share ideas within the group members and other groups that are useful to identify individual writing issues	23	95.8
Useful to identify others' strategies for similar (individual) writing issues	15	62.5

Source: Based on student feedback

* Multiple responses

Discussion and conclusion

By considering the students' perception, it is clear that 4c's help to overcome the writing issues of students. In this activity, each undergraduate was able to identify writing issues, and strategies for addressing those issues in order for them to overcome the writing issues. The activity was effective for undergraduates to enhance their writing skills and further indicated that these kinds of activities should be continued throughout the semester in order to facilitate student learning.

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Use of Unannounced Quizzes at lectures to enhance academic performance, alongside increased lecture attendance in a second year Engineering course

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Abstract

Student non-attendance of lectures is a growing trend in tertiary education in Sri Lanka. Many academics are planning and implementing different teaching and learning activities to encourage lecture attendance. However, lecture attendance does not certainly result in productive academic performance. Therefore, it is necessary to find ways of ensuring that effective learning takes place through actively engaging students. Thus, the aim of this study was to find out the effectiveness of unannounced quizzes on student attendance and academic performance in a single year-2 course in engineering, when compared with another similar course. Two sources of data were taken from the student database namely; attendance and academic performances of two modules. Two modules were utilised for this study, namely; 'Polymeric Materials and Degradation (PT 2304; n=28)', which assessed continuously by unannounced quizzes, while 'Polymer Science and Engineering (PT 2306; n=28)' was assessed continuously via announced quizzes. Academic performance was evaluated accounting for 30% of continuous assessment marks with 70% of final examination marks. Observations were conducted by the lecturer and observational notes were kept continually. A questionnaire survey was conducted to gauge the students' perceptions of the unannounced quiz initiative. The results indicate that without unannounced quizzes of PT 2306, the module pass percentage was 82.14% and average attendance was 70.56%. However, when unannounced quizzes were introduced the overall pass percentage was augmented to 92.86% and average attendance increased to 95.69% for module PT 2304. The observations noted the development of the lecturer-student relationship as a result of this initiative. Further, the majority of students agreed that unannounced quizzes were helpful not only to enhance the lecture attendance but also to inspire them on regular learning. These results clearly indicate that, in this course, unannounced quiz initiative enhanced quantitatively measured students' academic performance, while the attendance increase can be due to student realisation that marks can be lost if unannounced quizzes are conducted on such absent days, as it was stressed to them that repeat quiz tests would not be held.

Background

Most engineering technology disciplines aim to evaluate students' knowledge of subject learning continuously through one or more examinations during the semester and at end-of-course, via a comprehensive final examination. Many students prepare for announced examinations through an intensive study immediately before the examination, e.g., by-hearting or "cramming". Although this method has seemed to be successful from a student's perspective, its value for long-term retention is highly questionable. Generally, cramming places the learned material in short-term memory, which is often useful for last moment preparation for exams, but it is temporary and could be forgotten shortly thereafter. As higher education academics, our responsibility is to change the students' learning habits to facilitate

a change from short term to long term retention of the subject matter.

In the matter of students' attendance, lecture non-attendance is a growing trend at tertiary institutions (Massingham & Herrington, 2006). Many academics are planning and implementing different teaching and learning activities that encourage lecture attendance. This is because academics perceive that students would benefit from attending classes, consequently, improve academic performance. However, lecture attendance does not certainly mean that learning is taking place. According to Rodgers (Rodgers, 2002), physical presence and intellectual involvement are two different and separate phenomena. Therefore, it is necessary to find ways of ensuring that effective learning takes place through actively engaging students.

Many contemporary academic researchers have deployed different teaching and learning initiatives to overcome the discussed issues in higher education namely; lecture non-attendance and students' academic performance, simultaneously. Widely practiced initiatives include: unannounced quizzes, allocation of marks for class participation, and penalizing students for non-attendance of lectures which are directly linked to students' final module marks (Rodgers, 2002). Numerous studies have shown various characteristics of the unannounced quizzes technique from both students' and teachers' perspectives. Pioneering researches such as; Bloom (1956), Anderson (1984), Dempster (1988), Bell (1996), and Graham (1999), examined students' perceptions of study, stress and long-term memory retention. Contemporary researches such as; Ferguson (2004), Kamuche (2005), Koku et al (2004), Krohn et al (2005), Lawrence and Singhania (Lawrence & Singhania, 2004), have studied students' perception on major functions of the unannounced quizzes. Both positive and negative aspects of the unannounced quizzes were identified over the last decade. In terms of positive aspects, unannounced quiz encourages students to study in more constructive ways instead of passive cramming of facts. On the other hand, in terms of negative impact, the unannounced quizzes could increase the examination tension and stress and did not offer a fair examination throughout the learning period. Consequently, education researches have confirmed that frequent quizzes do yield benefits. Therefore, the aim of this study was to discover the effectiveness of unannounced quizzes on students' attendance and academic performance in a course related to engineering education in Sri Lanka.

Methodology

This study used exploratory and mixed methods and data that were collected over one semester of the 2019 academic year. Three methods of data collection were used namely: university database, observations and a questionnaire survey.

Observations were conducted by the lecturer and recorded continually throughout the semester. Students' perception on the use of unannounced quizzes technique was obtained via conducting a questionnaire survey at the end of the semester. Two sources of data were taken from the university data base namely; attendance and academic performances of two modules which were conducted during semester 3 for polymer technology students. Attendance was analyzed by comparing the students' attendance for both modules. Academic progress was analyzed by students' final examination marks for each module. Final

examination results were calculated considering 30 % from continuous assessment marks and 70 % from final examination results.

The administration of the unannounced quizzes for module PT 2304 was implemented as follows: Students were advised during the introductory lecture about the nature of the unannounced quizzes which they could face at any time during their lecture periods in order to encourage students for their regular learning. Moreover, it was thoroughly stressed to students that there were no make-up quizzes to those who would miss any single assessment. However, the students who have valid reasons were considered to be supported. Further, constant reminders were made by the lecturer, in an effort to emphasise the importance of regular learning and attendance. In the case of announced quiz sessions, these were continued as usual. Students were informed in advance about the date and time of the test, for module PT 2306. Both modules were conducted by the same lecturer (R.L.P. Ramasinghe) for the same student group (second-year Polymer Technology) during the same semester (semester 03). The only difference is PT 2304 module was continuously assessed by three unannounced quizzes; meantime, PT 2306 module was assessed via three announced quizzes.

Results and Discussion

The discussion is organized under three areas, namely; the effect of the unannounced quiz on lecture attendance; the effect of lecture attendance on academic performance; perceptions of the academic community towards unannounced quiz teaching and learning initiative.

Table 1 presents the average class attendance of students with and without the introduction of unannounced quizzes. The increased class attendance could be observed for module PT 2304 (95.69%) than that of module PT 2306 (70.56%). This is due to the implementation of an unannounced quiz initiative to the PT 2304 module. With the introduction of unannounced quizzes, the average class attendance increased by 25.13%. The empirical findings explicitly reveal that the implementation of unannounced quizzes enhanced class attendance. These findings are in line with research work of Derera & Naude (2014), who argued that such initiatives have a significant, positive impact on class attendance. Moreover, some additional benefits were perceived as a consequence of unannounced quiz initiative. Distinctly, communication between the lecturer and students increased over the semester, with regard to absences. Students started to inform in advance about their lecture nonattendance or late participation due to the uncertainty behaviour of the continuous assessment method. If they were not able to participate to the lecture due to an inevitable case, they immediately informed the absent reasons with valid evidences. Surprisingly, meantime, the same student group who followed PT 2306 module (without administering unannounced quiz) did not pre-inform about their lecture nonattendance except few students. Thus, this practice could instil in students not to miss any classes without an authentic reason. On the other hand, I had the opportunity to preconceive on particular factors which negatively affected the students' performance. The lecturer was privileged to get to know about some students beyond their academic performances. As a student counsellor, this additional benefit has helped me to improve the student-lecturer relationship.

Although the class attendance improved, one could argue that it is difficult to assess whether learning was taking place or not. According to Rodgers (Rodgers, 2002), physical presence and intellectual involvement are two different issues to address. Some students attended lectures

merely because they did not want to miss the quizzes. On the other hand, however, one could argue that because students attended class in anticipation of writing a quiz, learning may have taken place. In order to encourage student interaction during the lecture, different class activities were implemented. Students may have become encouraged to pay their attention during the lecture in order to face the upcoming quizzes. If an unannounced quiz was conducted at the end of the lecture, the lecture material covered during the lecture also would form a part of the quiz. Therefore, it could be assumed that the unannounced quizzes encouraged the students not only to revise their work regularly but also to pay attention to daily classes due to the anticipation of facing a quiz at any time.

Table 1 also includes the summary of module pass percentages with and without unannounced quizzes. Results reveal that the unannounced quizzes not only encouraged students to attend lectures but also enhanced their academic performance. With administration of unannounced quizzes initiative, the average attendance, module pass percentage, and average results increased by 25.13%, 10.72% and 9.65% respectively, when compared to without the administration of unannounced quizzes. The percentage of students with distinction increased to 14.3% with the introduction of unannounced quizzes. These results reveal that the use of unannounced quizzes encouraged class attendance and improved the module overall pass percentage. The number of students with distinctions also increased fourfold, from 3.57% to 14.28%. The results clearly show two outcomes; an improvement in the number of students successfully completing the module and the quality of student results.

Table 1. Lecture attendance and module overall pass percentages with unannounced quizzes and with announced quizzes (n = 28)

Attribute	With unannounced quizzes (%)	With announced quizzes (%)
Module	PT 2304	PT2306
Average Attendance	95.69	70.56
Module Pass percentage	92.86	82.14
Average Result	63.81	54.16
% of students with distinction (i.e. 70%<)	14.28	3.57

The findings are in line with numerous literature which claims that class attendance has an impact on students' performance (Nyamapfene, 2010; Rodgers, 2002; Massingham & Herrington, 2006). Moreover, I observed that the number of students who asked questions in the class also improved. In most cases, only few students, who excel in subject matter, are motivated to ask questions and perform in the class. Consequently, other students try to depend on the those performing students. This is very critical, especially within the Sri Lankan context, "KUPPI" culture has rapidly been thriving within the university students due to this behaviour. The fact that the quality of results increased implies that a greater number of students would qualify for their further education even up to postgraduate level.

Students' perceptions of the use of unannounced quiz as a teaching and learning initiative in order to stimulate the students' lecture attendance and academic performance, were evaluated via a questionnaire which was given during the final lecture. The majority of students agreed (Table 2) that unannounced quizzes were helpful not only to improve lecture attendance but also to inspire them on regular learning. Though, students showed reluctance to engage with unannounced quiz method initially, at the end of the semester, they stated that this initiative inspired them towards regular learning and consequently, it helped them to reduce the workload during tests and exams.

Table 2. Student perceptions on unannounced quiz initiative

Category	Agreed (%)
Unannounced quiz initiative encouraged me to attend the lectures	93.8
Unannounced quiz initiative and regular lecture attendance helped me to enhance the academic performance	91.1

Conclusion

The objective of this study was to examine the use of unannounced quizzes on students following an engineering course in an effect to enhance their lecture attendance and academic performance. The data collected using three sources showed that it increased average lecture attendance, module pass percentages and average results when compared to another similar course without the unannounced quiz. The majority of students (93.8%) stated that the use of unannounced quizzes as a teaching and learning initiative enhanced their class attendance and academic performance.

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Applying Barrie's model to effectively develop graduate attributes for the Faculty of Management, Social Sciences and Humanities

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Abstract

A graduate profile shows the qualities of a graduate passing from a particular institution. However, it does not inform the specific attributes that a graduate develops through studies. As a result, universities tend to develop Graduate Attributes (GAs) which are Intended Learning Outcomes (ILOs), focusing on what the graduates of a university are capable of doing, which provide essential information for potential employers. Although General Sir John Kotelawala Defence University was established in 1981 and had offered degrees since then, it did not have properly documented GAs until recent. Hence, the specific attributes or capabilities of graduates were not properly documented/exhibited. Therefore, the possibility of applying Barrie's model for developing GAs for the Faculty of Management, Social Sciences and Humanities (FMSH) was assessed. Barrie's model was used as the framework and its three main components: Scholarship, Global Citizenship, and Lifelong Learning were mainly considered to maintain the holistic nature of the academic requirements. Input from syllabus documents and student/peer contributions were used in the process. In addition, Sri Lanka Qualification Framework (SLQF) published by the University Grants Commission (UGC) in Sri Lanka was also consulted. Six GAs were identified to include academic and professional knowledge, lifelong and autonomous learning, practice of academic literacy, effective communication skills, ethics and values, logical application of knowledge, effective use of social networking, societal values, human nature, professional expectations and the ability to evaluate the learning process. Under each GA, benchmarks were also developed with an evaluation framework (including measures to obtain employer/student feedback), in order to execute and also evaluate the level of achievement of the GAs by graduates. This study indicates that Barrie's model supported by SLQF can be successfully used to design/develop specific GAs while further facilitating its execution and evaluation.

Purpose/Background

Although universities have set benchmarks to align teaching, learning and assessment, there seems to be a gap between the requirement of the job market and graduates' achievements. To overcome this gap, graduate profiles which depict the targeted qualities and expected behaviour of a graduate who pass from a university are developed. In this process, it is important to consider Graduate Attributes (GAs), which are Intended Learning Outcomes (ILOs) at institutional level, focusing on graduates' abilities to perform based on the skills and attitudes they would have developed (Biggs & Tang, 2009). Creating just a list of expectations

that students could achieve is not the real purpose of developing GAs. They should be matched with professional and societal expectations and also the expectations of the graduates. Barrie (2004) identifies Scholarship, Global Citizenship and Lifelong Learning as three facets that curriculum developers should focus on when considering the dynamic and unique nature of GAs. It identifies *research and inquiry, information literacy, personal and intellectual autonomy, ethical, social and professional understanding and communication as related sub-categories*. By addressing these interconnected features one by one or with a holistic approach, universities should be able to develop GAs that reflect skills and abilities that modern graduates need and should achieve at graduation. Biggs and Tang (2009) note that the graduates who achieve benchmarked status of well-designed GAs would become attractive to employers and will be well equipped with “creativity, independent problem solving [skills], professional skills, communication skills, [abilities in] teamwork, lifelong learning...” According to Star and Hammer (2008), GAs should reflect transferable skills or potentials needed for life-long education. Biggs and Tang (2009) illustrate a framework to be used when developing GAs at programme and course level. Accordingly, practical skills, skills required for the real life, relevant communication skills and skills needed to be an effective and ethical team member determine the scope of the GAs.

This paper discusses the process applied in identifying the GAs of the FMSH of General Sir John Kotelawala Defence University and its outcomes and focusses on addressing the question: What are the skills and abilities that a graduate of FMSH need to possess at the time of graduation to be highly successful in securing employment?

Methodology

As the first step of developing GAs for the FMSH, we analysed the existing documents. This included KDU mission, vision, objectives, Officer Cadets' Honour Code and other documents relating to developing a graduate profile for KDU. The analysis of these various documents highlighted that KDU graduates are expected to possess the following skills and abilities: Knowledge, Professionalism, Information Literacy, Communication Skills, Teamwork and Leadership, Ethics and Values, Lifelong learning, Management and Entrepreneurship, Creativity and Problem solving, Endurance, and Global Scholar and Researcher. These skills and abilities are to be acquired by learners via three bachelor of science degree programmes, in Logistics Management, Management and Technical Sciences and Social Science, offered by three academic departments: Management, Social Sciences and Languages. Department of Languages offer tailor made English courses for the three degree programmes. The Graduate Attributes were designed considering the above-mentioned aspects.

As the next step, we analysed requirements of the Sri Lanka Qualification Framework (SLQF) published by the University Grants Commission (UGC) (Ministry of Higher Education, 2015). SLQF identifies qualification descriptors under each qualification category based on twelve of

SLQF Levels. The descriptors were listed as Purpose and Scope of Qualification, Attributes of Qualification Holders, Minimum Admission Requirement, Volume of Learning, Designation, Qualifiers, Abbreviation and Progression (Ministry of Higher Education, 2015). Among these, Purpose and Scope of Qualification and Attributes of Qualification Holders are directly relevant to our context; therefore, those two subsets under SLQF Level 5 were analysed. Further, categories of LOs of SLQF Level 5 have also been analysed. We then analysed existing graduate profiles and GAs of universities in Sri Lanka and abroad. This include University of Edinburgh (University of Edinburgh, 2017), which also followed Barrie's model in developing GAs. We did not find many universities in Sri Lanka who had published their graduate profiles or GAs. The only documented evidence found was from Sri Lanka Institute of Information Technology (2017). Based on the above analysis, relevant features were collated. In order to filter them and identify the exact features relevant to FMSH, discussions were held with teachers and students of the faculty. Participants were enquired about specific skills and attributes that individual modules should address in order for learners to complete the respective modules, and to prepare them for employment. They were also asked about how individual modules contribute to the overall programme ILOs.

After the document analysis and discussions, we collated the information based on the categories in Barrie's model. As the process required to include features of three different disciplines, we developed descriptors under each GA to reflect the variations. These descriptors seem to be more user-friendly and more perceptible than the GAs which come as direct statements. Moreover, they are helpful for the academics in the faculty to deconstruct the GAs to create the programme ILOs, ILOs relevant to academic subjects and even the ILOs of a teaching session. After finalising the GAs and their descriptors, another round of discussions and analysis of the prepared GAs were done in order to revise the GAs. In this, we showed the sample GAs to participants to ensure if the skills and attributes that they mentioned in the previous round of discussions were incorporated in the GAs. We also went through individual programme ILOs to ensure that the features of those are reflected in newly developed GAs. In order to measure the effectiveness of using Barrie's model, we used a checklist which contained the content of the model. In each document analysis as well as discussions, we used the checklist to measure if the model can be applied to analyse the data.

Results

The final outcome was six GAs and their descriptors as mentioned below. These reflect the levels of Barrie's model. Relevant phrases from the model are underlined/given in brackets.

Table 1. Graduate Attributes of FMSH of KDU and their descriptors (KDU, 2018)

GA	Descriptor
<p>Graduate Attribute one: Critical acquisition of an in-depth academic and professional knowledge with a clear assimilation of its practice for a <u>lifelong autonomous learning</u></p>	<p>Graduates of FMSH of KDU should be knowledgeable about the analytical acquisition of concepts and principles relevant to Management, Social Sciences or Strategic and Defence, and the practical use of these concepts and principles scientifically analysing their pros and cons according to their applicability in realistic situations in the modern context. [Scholarship/Professional understanding]</p>
<p>Graduate Attribute two: Effective and realistic practice of <u>academic literacy</u> and macro and micro communication skills with the knowledge of using the appropriate discourse to solve any cropped-up issues or problems as a team</p>	<p>Graduates of FMSH of KDU should have the ability to handle complex issues systematically to make sound judgements confidently and effectively applying receptive and productive skills of verbal <u>communication</u> with the nuances of the nonverbal communication in academic and professional settings with the <u>ethical and social understanding</u> to be an effective team member and a leader to find effective, efficient and sustainable solutions with novel ideas and approaches as a team for the betterment of the corporate and academic world and the social environment. [Scholarship/Global citizenship]</p>
<p>Graduate Attribute three: Entrepreneurship for the sustainability of a better <u>social life</u> with the practice of <u>ethics and values</u> inculcated through the acquisition of academic and professional knowledge</p>	<p>Graduates of FMSH of KDU are capable of creating opportunities and solving problems to become <u>self-sufficient</u> entrepreneurs demonstrating unique academic disciplinary competencies in shouldering social, ethical and professional responsibilities with effective application of personal and intellectual autonomy as responsible citizens. [Scholarship/Lifelong learning]</p>
<p>Graduate Attribute four: Enthusiastic <u>communication</u> with the passion for the scientific <u>acquisition of information</u> and logical application of such information to manage social networking in the professional, academic and corporate settings.</p>	<p>Graduates of FMSH of KDU have high propensity to be disciplined, competent and intensified managers or military leaders accomplished with the profound respect for different cultures and acknowledgement for wider societal beliefs to be the trend setters for the feasibility of exercising actions with the cordial relationship with their subordinates as well as their superiors in professional establishments, academic institutes and corporate sectors with a great empathy and consciousness. [Global citizenship/Scholarship]</p>
<p>Graduate Attribute Five: Clear visions for lives with adaptability and flexibility to espouse the deep-seated beliefs and conscience for preserving <u>humane attitudes, societal values and professional expectations</u></p>	<p>Graduates of FMSH of KDU have had cumulative exposure to <u>research and inquiry</u> to identify wider ethical, social and professional beliefs to enhance their conscience of how to achieve academic, corporate or military goals with the application of flexible and adaptable mechanisms sharpening their visions [Scholarship]</p>
<p>Graduate Attribute Six: <u>Autonomous learning</u> focusing on up-to-date knowledge with diachronic and synchronic analysis to accomplish sustainable process of learning</p>	<p>Graduates of FMSH of KDU are capable in accomplishing the lifelong learning goals by adjusting their learning curves to acquire up-to-date knowledge and making the existing knowledge to generate new concepts relevant to unearthed knowledge and successful application of the existing theories to ground pragmatic theories to continue lifelong learning. [Lifelong learning]</p>

Discussion and Conclusion

We were able to identify and design six GAs for the FMSH of KDU based on both the document analysis and discussions as described in the methodology section. These GAs reflect the skills and abilities that graduates should possess. However, we were not able to collect data from the employers to analyse the skills and abilities that they would expect these graduates to possess. We encounter this as a limitation and hence further revision of these GAs based on data gathered from the employers is needed. This study also highlighted that Barrie's model can be successfully used in order to design and later develop GAs in the Sri Lankan context. It can also be used to categorise specific skills and attributes under broad categories. The successful application of the model is also recognised by Barrie et al. (2004) in a study that reviewed the integration and assessment of graduate attributes in 36 Australian universities. The checklist method in data analysis is found to be useful in categorising the data effectively.

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Student perception on the use of team-based learning activities to enhance students' skills and knowledge

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Abstract

Team-based learning enhances collaborative learning among students and encourages the students to achieve higher levels of skills and educational outcomes. After lectures are conducted, a discussion class is organized every week for the course unit and students provide answers to the questions from the previous lectures in the discussion class, but it was highlighted that all the answers provided by the students are based on the lecture note and they have not incorporated any of the new details and information. Therefore, the aim of this study was to examine whether the student engagement in team-based activities could provide a student-centered learning environment in the classroom enhancing new knowledge and skills. Dee Fink's activity learning cycle and Bloom's Taxonomy were applied in designing and facilitating the team-based learning activity. The study population consisted of 27 second year students who followed the course unit of 'Population and Environment' (DMG 2127). After conducting a lecture on environmental issues, six teams were formed and provided with the reading materials related to the lesson. Subsequently, they were guided to read these materials, prepare and present their posters in the classroom. Outcomes were assessed by using student feedback and through teacher's observation on the poster presented by student teams. Based on student feedback and presented posters, it was realised that almost all the students had shown a positive perception that the team-based activity enhanced students' learning skills and new knowledge. Student feedback indicated that the activity helped them to develop their skills such as unity (81 %), creativity (52 %), enhancement of new knowledge (70 %), time management (48 %), critical thinking(63%), presentation skills (41 %) and analytical skills (33 %). Findings suggest that team-based learning could be used as a method to encourage reading among the students and to improve student learning skills and new knowledge.

Background

Team-based learning is one of the most important features that students are required to develop as their initial skills (Zain et al. 2012). This team-based learning increases student engagement in the lesson, develops teamwork and stimulates students in active learning (Fink, 2004). Most studies indicate that active learning improves student learning and performance (Freeman et al. 2007; Knight & Wood 2005; Tessier 2007). Team-based learning (TBL) is an empirically grounded instructional strategy that utilizes small groups with the goal of promoting active and effective learning (Michaelsen, 2004). TBL helps students to achieve five main principle benefits such as respect for multiple perspectives, personal accountability, a willingness to share thoughts and opinions, teamwork skills, and interpersonal skill development (Quinn et al. 2011). Through team-based learning, students are required to think creatively, originally, and critically (Academic Development Center, 2013: p5). Students can enhance their knowledge and initial skills by engaging in teamwork in the practical

context. As a more interesting and a worthwhile method, team-based learning can be conducted as a component of developing a learning environment (Fink, 2004). It requires students and lecturers to think, participate in and learn in a new way (Quinn et al, 2011).

One of the common criticisms about university education in social science is that many undergraduates depend on lecture notes and they are less likely to engage in referencing other reading materials. As normal practice, after lectures are conducted every week, a discussion class is organized every week for the course unit and students provide answers to the questions from the previous lectures in the discussion class, but it was highlighted that all the answers provided by the students are based on the lecture note and they have not incorporated any knowledge acquired from readings. Therefore, the aim of this study was to investigate whether the student engagement in team-based activities could provide a student-centered learning environment in the classroom, helping to enhance the development of new knowledge and skills in these students.

Methodology

Dee Fink’s activity learning cycle and Bloom’s Taxonomy were applied in designing and facilitating the TBL activity. The methodology is summarised in Figure 1.

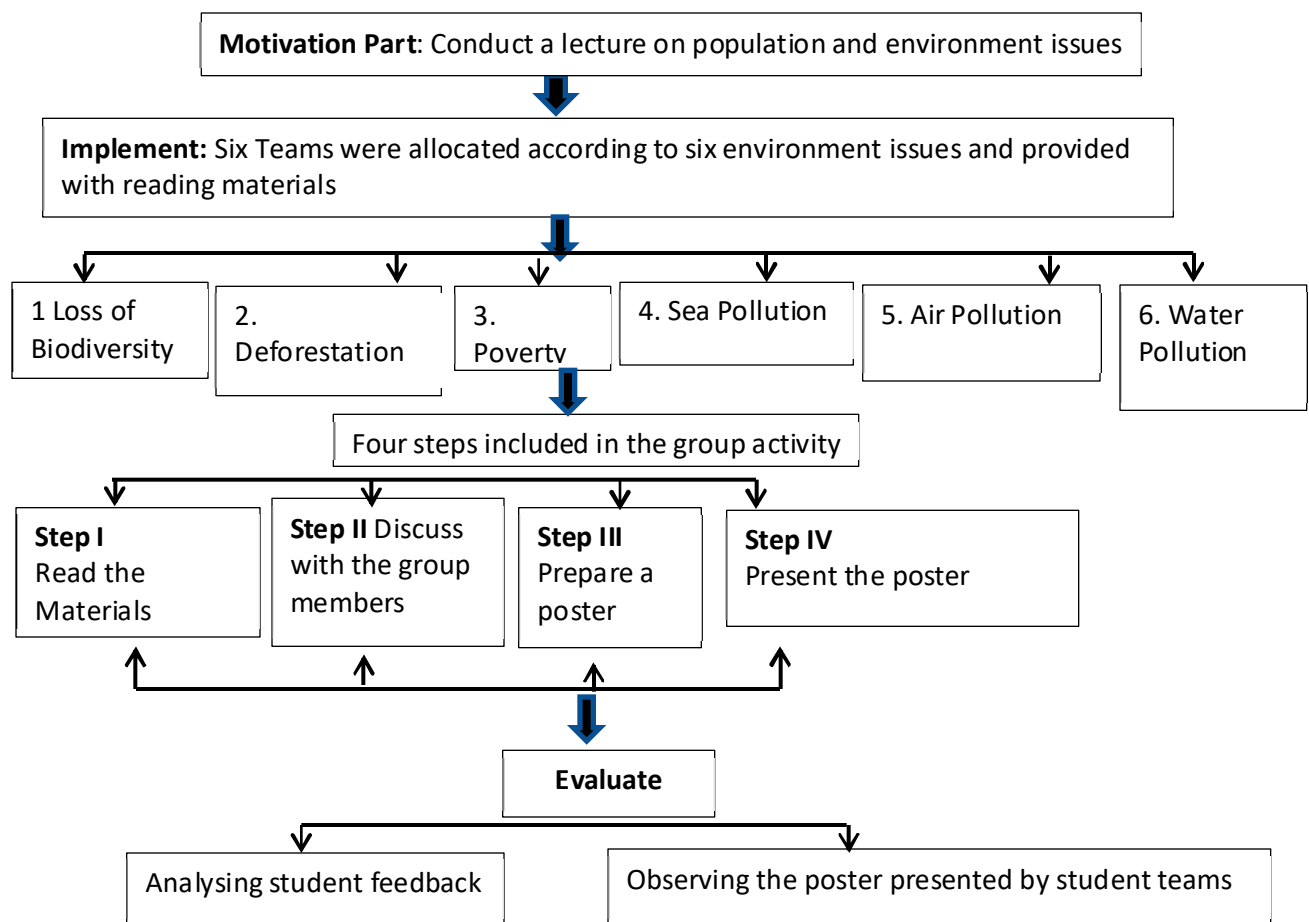


Figure 1. Summary of steps applied for the team-based activity

TBL was implemented as part of a research activity for second year students of the course

unit "Population and Environment" in the 3-year degree programme. The study population consisted of 27 students. After explaining the lesson on Environment Issues in the world as part of their lesson of the course, six teams were formed. After providing the reading materials to the groups that were relevant to the six environmental issues, they were provided with the instructions for the activity. First, the student teams were guided to read the reading materials, followed by analysing the data through discussions with group members and preparing and presenting their group posters. Outcomes of this activity were assessed using student feedback on a 5-point Likert scale which was taken after the implementation of the activity and through teacher's observation on the posters presented by the student teams.

Results

Based on the poster presentation and student feedback that was taken after completing the activity, students had shown a positive perception of the team-based activity to enhance their learning skills and new knowledge. According to student feedback, more than 70 % of the students rated "strongly agree" that team-based learning has facilitated to build up unity within the teams (Table 1), showing that in this context this activity has stimulated the students to build up unity with others. During the activity, it was realised that all the students had an enjoyable time being engaged in the activity with group members through debating, creating the posters and getting ready to present the posters as shown in Figure 2.



Figure 2. Student engagement during the Team Based Learning activity

In addition, 52 % of students felt that the team activity helped them to develop their creativity. Nearly 70 % of the students mentioned that through the activity they were able to enhance their knowledge. During the activity students had the opportunity to work with others who followed several other subjects in the university (Geography, Economics, International relationship, Sociology, Political Science, etc.). Students were able to improve their knowledge by having friendly debates within the groups and it helped them to look at the environmental issues in several aspects such as how these environmental issues affect the people and government harming the economy, how does political influence affect the environment etc. Also Quinn et al. (2011) mentioned that Teams compete in-class activities and projects and they debate and make decisions on difficult problems.

Table 1. Student perception on their skill enhancement through team-based activity (Multiple Responses)

Activity of team-based learning	Descriptive Statistics			Student feedback (%)				
	Number	Mean	SD	Strongly disagree	Disagree	Somewhat agree	Agree	Strongly agree
Made a genuine effort to build up unity in the team	27	4.56	0.80			18.5	7.5	74.0
Promoted creativity when designing the posters	27	3.89	0.93			48.0	15.0	37.0
Enhanced my new knowledge	27	4.07	0.92		3.7	25.9	29.7	40.7
Encouraged time management	27	3.74	1.02		7.4	44.4	14.9	33.3
Stimulated my critical thinking	27	4.07	0.92			37.0	18.6	44.4
Developed my presentation skills	27	3.67	0.96		3.7	55.5	11.2	29.6
Enhanced my analytical skills	27	3.52	0.80			66.6	14.9	18.5

The results from the feedback also showed that nearly 48 % of students developed time management skills through this activity. According to Johnson et al. (2000), through group work there can be several advantages that can be obtained such as project management, time management, conflict resolution and communication skills which are required for high performance. Further, the students were able to enhance their critical thinking (63 %), presentation skills (40.8 %), and analytical skills (33 %) by engaging in this activity. When the activity was conducted, only 30 minutes were allocated to one group, and during this time students read the materials, summarised their information, prepared the poster and presented the posters. In this context students mentioned that they became trained to manage their time. When observed, the poster presentations highlighted their creativity, presentation ability and analytical skills (Table 1).

Discussion / Conclusion

Findings suggest that student engagement in team-based activities facilitated the perception among students that it developed cooperative learning skills, initial skills such as critical thinking, analytical thinking, creative thinking, and knowledge. After the poster presentation, students mentioned that as a result of team based activity they were encouraged to look at several aspects and they felt the thirst to find new knowledge. The results further suggested that the TBL had stimulated students to be active, interactive, and become collaborative learners. It has also helped to improve skills in project management, time management, conflict resolution and communication through developing positive attitudes by working in a group. Further, through this study, it is recommended to introduce team-based activity as a method of guiding the referencing of other reading materials, not restricting only in relation

to the lecture notes, so as to enhance new knowledge and to improve the skills of undergraduates of social sciences faculties.

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Lesson plans as a tool to facilitate student-centred learning in discussion class activities: Student perceptions and teacher observations

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Abstract

Lesson plans are useful for planning effectiveness in facilitating student-centred learning. Usually, teachers give less attention to lesson plans when designing activities for discussion or tutorial classes. This study examines how the use of lesson plans can support student-centred learning in tutorial classes and thereby enhance teaching and learning effectiveness. The study population of this study was 45 first year students who followed a second semester 'Introduction to Data Analysis' course unit. Lesson plans with in-class activities were designed based on experiential learning (Kolb 1984) to include Teaching Learning Activities (TLAs). The outcomes of the lesson plan and in-class learning activities were analysed by using student-feedback and in-class observations during the planned activity. According to the designed lesson plan, the discussion class was divided into several groups and given the reading materials related to the lesson. The students were guided to read those materials and present them as small group presentations. In a student-centred discussion, the students themselves formulate and direct the discussion. One student serves as the facilitator of the discussion, but the discussion flows from student to student. Student perceptions based on feedback revealed that the planned tutorial activities helped students to develop more knowledge on the subject. In discussions, more than 80 % of students were observed participating actively. 65 % of students had recognized that they need to improve skills in time management, facilitating metacognition. More than 85 % of students stated that this activity encouraged them to read English articles and improve their knowledge as well. The findings suggest that lesson plans can be recommended as a tool to improve student-centred learning as well as develop teacher self-confidence and time management. When tutorial classes use lesson plans in this way to engage students in planned TLAs in class, students develop better learning.

Background

Undergraduate education should basically be based on student centred education. As a result of that an academic course is developed successfully based on clear statements of what can be achieved at the end of the course which are called the Learning Outcomes. Learning Outcomes are one of the guiding tools that help to have a conception about what can be achieved by following a particular course unit. Learning Outcomes also help the lecturer to design the path to be followed when making a lesson plan for their lessons. Making a lesson plan by using learning outcomes also enable to manage lecture time properly. Especially for newly appointed assistant lecturers who could be facing various unpredictable situations during their lectures or discussion classes, this lesson plan is a creative process which provides a guiding framework to facilitate purposeful learning. Not only that, but also a good lesson plan gives confidence to the lecturer when delivering the lesson.

In order to enhance the knowledge and the skills of the students, lecturer needs to guide

them step by step. Therefore, it is essential to have a lesson plan and before starting a lesson, it is essential to clarify the learning outcomes of the course unit, which also should be an identified activity of the lesson plan.

The literature reveals that the importance of lesson planning is emphasized in the education process of many countries. Many studies on learner centred teaching show that it is a process that engages learners and creates an environment of cooperation among peers to behave in a socially conscious manner to focus on group performance rather than individual performance (UNICEF, 2000). In comparison, a teacher-centred instruction compels students to go for rote memorization to pass the high stake testing rather than getting enough chances to work in smaller groups, focusing on their learning difficulties and discussing with their peers and teachers for their "powerful learning" (Hopkins, 2001; 2007; Kumandas & Kutlo, 2010).

Lesson plans affect not only the teacher's instruction but classroom management as well. Characteristics of a well-managed classroom are that (1) students are deeply engaged with their work; which would be possible if their roles are described and they have a goal as provided in a good lesson plan; (2) students know what is expected; which would be possible via routinely implemented good lesson plans; (3) there is little wasted time, confusion; which would be possible via effective implementation of a good lesson plan; and (4) the climate of such a classroom would be work-oriented, but relaxed and pleasant; which would be possible via good time management due to effective implementation of a good lesson plan (Wong 2009).

Borich (2007) states that as a combination of lesson objective designing, teaching, modelling, checking for understanding, re-teaching, and teacher's self-reflection, the lesson plan is a crucial element in the process of meeting national content standards and optimising the outcome of classroom teaching and learning. However, teaching focused theories like Bloom's Taxonomy (1954), experiential learning of Kolb (1984) based on John Dewey's, Kurt Lewin's and Jean Piaget's concepts of learning and flexible approach to teaching revealed that student - centred approach to teaching is a paradigm shift from teacher to learner-centred, a deliberative effort to facilitate learner to achieve learning outcomes by creating conducive learning environment using a variety of activities like activity-based teaching with effective interactive relations between learners and teachers (Gredler, 2009; Johnson & Johnson, 1998).

As the present practice, most lectures are conducted in a continuous process where the lecturer would come to the lecture hall, introduce the topic and deliver the lecture. Along with this traditional practice something which could be observed is that the lecturer would be unable to fulfil learning outcomes achievement and unable to manage the time. Sometimes the lecturer would be unable to cover the whole syllabus components in a given time period. It could be also observed that students are not attentive or focussed in this traditional lecture method.

The other side of the coin, the lecturer would go to the lecture with a rough sketch in his/her head which usually includes the main topic of the lesson, the sub-topics and the items to be discussed under each topic. When delivering the lecture, sometimes the lecturer finds it

difficult to cover all the aspects of the lesson and there is not enough time left to answer students' questions. On the contrary, there could be a lot of time left from the lecture hour when students become only passive listeners.

Methodology

This study is situated in a qualitative and quantitative mixed research design. The data were collected from 45 first-year students who had followed 'Introduction to Data Analysis' course unit. Lesson plans with in-class activities were designed based on experiential learning (Kolb 1984) to include Teaching Learning Activities (TLAs). The outcomes of the lesson plan and in-class learning activities were analysed by using student-feedback and in-class observations during the planned activity. According to the designed lesson plan, the discussion class was divided into several groups and given the reading materials related to the lesson. The students were guided to read those materials and present as small group presentations. In following the lesson plan for a student-centred discussion, the students themselves formulate and direct the discussion. One student serves as the facilitator of the discussion, but the discussion flows from student to student.

Results

The lesson plan was prepared according to the proper timeline. Table 1 shows the tutorial lesson plan designed for the discussion session.

Table 1. Tutorial Lesson Plan that was designed and followed for the discussion session

Time allocated	Activity
2 minutes	Discuss on the syllabus items completed up to now
5 minutes	Explanation on today's discussion class (i.e., "Different between facts, information and data" and the activities to be done)
3 minutes	As an initiation for the lesson recalling items related to above topic and given the reading materials related to the lesson
20 minutes	Guided Group discussion
20 minutes	Small Group presentation
5 minutes	Summary on the discussion class conducted and the clarifications

Student perceptions based on feedback revealed that the planned tutorial activities helped students to develop more knowledge on the subject. In discussions, more than 80% of students were observed participating actively.

Thus, a larger group of students (85 %) said that this activity encouraged them to read English articles and improve their subject knowledge as well. Also, 65 % of students recognised that they needed to improve skills in time management while the balance 35 % of students had improved skills in time management. In this way, 90 % of participants responded that they had improved their teamwork skills. But 10 % of students were unable to work with a team.

Discussion and Conclusion

The findings suggest that lesson plans can be recommended as a tool to improve student-centred learning as well as develop teachers' self-confidence and time management. When tutorial classes use lesson plans in this way to engage students in planned TLAs in class, students develop better learning. As a teacher observation, I realised that the small group concept is also a very important concept to learn academic knowledge by the student, at different learning levels. As a change in teaching and learning areas, Gibbs and Habeshaw's teaching small group concept has been used as the theoretical background (Gibbs & Habeshaw, 1989). As mentioned by Gibbs and Habeshaw (1989), learning as a group is the best way to learn. Bonwell and Eison (1991) also emphasized the concept of active learning and it is defined as "any activity that involves students in doing things and thinking about the things they are doing". With the use of techniques of the concept, small group presentations are beneficial to students to improve their self-esteem and to do their future work.

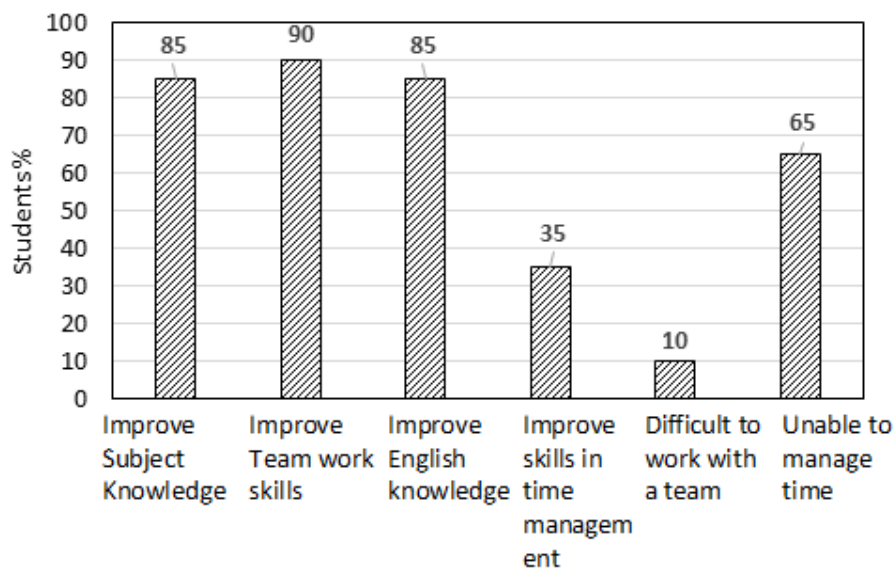


Figure 1. Student perceptions based on their feedback

The responses of the participants displayed a wide range of positive perceptions toward the student-centred learning that was made possible by using lesson plans. Overall, the study revealed that while it was beneficial in specific ways for many students, the student-centred learning method was motivating to effectively impact all participants of this tutorial class. As a summary, this report analysed a way of making a change in teaching and learning with a focus to enhance first year students' student-centred learning skills through implementing tutorials. According to the findings it can be summarised that this would be an effective method for improving student's positive perception of the tutorial class.

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