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Conference on Higher Education in Sri Lanka

Jointly organized by

Staff Development Centre (SDC)

University of Colombo

and

Sri Lanka Association for Improving Higher Education Effectiveness (SLAIHEE)

Conference Theme: **"Teaching and Learning in Higher Education in Sri Lanka: A Decade of Achievements"**

Friday 20th June 2014

8.30 am to 4.30 pm

University of Colombo

SDC – SLAIHEE Conference 2014

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10th SDC - SLAIHEE Conference
on
"Teaching and Learning in Higher Education in Sri Lanka: A Decade of Achievements"
Friday 20 June 2014, 8.30am to 4.30pm

at FGS Auditorium, University of Colombo, Colombo 3.

(the documents / materials of this conference are available at www.slaihee.org)

WELCOME TO THE CONFERENCE

This is the tenth year since SLAIHEE was established as a non-profit voluntary organisation. From its establishment in 2005, SDC (Staff Development Centre, University of Colombo) and SLAIHEE (Sri Lanka Association for Improvement of Higher Education Effectiveness) have jointly organized 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 in their subject-related teaching. 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 context (SoTL, Scholarship of Teaching and Learning). This year's conference celebrates ten years and affords the opportunity to look back and to use that ten-years to experientially formulate where next we need to take Higher Education (HE) in Sri Lanka, say, over the next ten to twenty years. As pioneers in the quality enhancement of HE in Sri Lanka, SDC and SLAIHEE have jointly faced and traversed a huge challenge and this humble beginning has, we hope, laid the foundations for a journey which is nowhere near to where we need to take our motherland in the area of HE and which now has attracted many players and commercial interests.

This tenth SDC – SLAIHEE conference 2014 is, like previous conferences, being organized jointly by the SDC of the University of Colombo and SLAIHEE. The SDC was established in 1997, and pioneered training university staff in Sri Lanka to meet the challenges that emerged in HE at that time. These changes that the SDC initiated in training academics resulted in the formation of SLAIHEE as a national organization committed to facilitate improvement of life skills, performance capabilities and attitudes of university students and staff. HE has changed even since then and will keep doing so.

The theme of this year's conference is "Teaching and Learning in Higher Education in Sri Lanka: A Decade of Achievements" (for previous conference themes and proceedings, please visit www.slaihee.org).

We are pleased to have as our Keynote speaker Prof Suki Ekaratne of The University of Hong Kong, who was the founding Director SDC and founding President SLAIHEE.

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The Staff Development Centre is known for its relaxed, welcoming and positive atmosphere. This setting would be replicated in the conference, encouraging the sharing of ideas, experience and practice, with supportive, actionable feedback from the participating audience.

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.

From SDC and SLAIHEE – a big thank you for your participation, to the presenters and specially to Prof Suki Ekaratne for his Keynote speech in particular, Dr W. K. Hirimburegama Vice Chancellor University of Colombo, and all the special invitees. The reviewers are thanked for their speedy and efficient reviews. The Dean, Deputy Registrar and staff of the Faculty of Graduate Studies are thanked for their ready support in allowing us to benefit from their facilities.

The Conference Organising Committee;

Dr Enoka Corea – University of Colombo
Prof Nelun de Silva – SAITM (formerly at University of Ruhuna)
Dr Rapti de Silva – University of Moratuwa
Ms Jinendra Dissanayake - University of Colombo
Mr Mahesh Fernando – University of Sri Jayewardenepura
Mr Ajith Jayaweera - Wayamba University of Sri Lanka
Mr Dhanesh Liyanage – Wayamba University of Sri Lanka
Mr Chaminda Padmakumara - University of Colombo
Dr Prasanna Ratnaweera – Open University of Sri Lanka
Dr T Sivakumar – University of Moratuwa
Ms Shrinika Weerakoon - University of Colombo

Programme

8. 30 am – Registration

Session 1

09.00 – 09.05am - ***Welcome*** by Ms Shrinika Weerakoon,
President SLAIHEE

9.05 – 09.50am - ***Keynote*** Address by Prof Suki Ekaratne,
The University of Hong Kong
(Founding Director SDC, University of Colombo
Founding President SLAIHEE
Honorary Life Member, SLAIHEE)

09.50 – 10.00am - ***Address*** by Guest of Honour
Dr W. K. Hirimburegama,
Vice Chancellor, University of Colombo

10.00 – 10.10am - ***Vote of Thanks*** by Dr D. A. C. Suranga Silva,
Director, SDC, University of Colombo

10.15 – 10.35am - ***T e a***

Session 2

10.45am - ***Presentation & discussion:*** of peer-reviewed papers

– Parallel Sessions I A & I B

12.45pm - for non-members: ***L u n c h*** (at: FGS Library)

12.45pm - for members: ***Annual General Meeting*** of SLAIHEE
(at: FGS Auditorium) followed by lunch (FGS Library)

Session 3

2.00pm - ***Presentation & discussion:*** of peer-reviewed papers

– Parallel Sessions II A & II B

4.30pm - Feedback form, Conference ***Closure & T e a***

SDC – SLAIHEE Conference June 20th 2004 – Session Timetable

Venue	Hall A	Hall B	Abstract page #
Session #	Session 2		
Chairpersons	*Dr Enoka Corea* *Mr Chaminda Padmakumara*	*Dr T Sivakumar* *Dr Rapti de Silva*	
Time	Abstract #, Title and Author(s)	Abstract #, Title and Author(s)	
10.45 – 11.15am	**I A 1** **The BA Dissertation as a Measure of Evidence-Based Learning** Dushyanthi Mendis	**I B 1** **Achieving Student Centered Learning with Non-credit Courses: Lessons Learnt from a Case Study at Wayamba** DN Liyanage & BPA Jayaweera	IA1 on p. 8 IB1 on p. 39
11.15 – 11.45am	**I A 2** **Effect of Using English as the Medium of Instruction on the Academic Performance of First Year Medical Undergraduates** Dulika Sumathipala, Chaturaka Rodrigo, Shakira Banu & Senaka Rajapakse	**I B 2** **Utilizing Student Centered Seminars as a Student Centered Independent Learning Tool to Develop Transferable Skills in Students** Nuradhi K. Jayasiri	IA2 on p.12 IB2 on p.43
11.45 – 12.15pm	**I A 3** **Enhancing Problem Based Learning – Does It Need a Change?** NDNA Mendis , HJM Perera & SA Gunawardana	**I B 3** **Journey towards Student Centered Teaching and Learning in Universities: Introduction of Problem Based Learning** BS Habaragoda	IA3 on p.16 IB3 on p.47
12.15 – 12.45pm	**I A 4** **Relationship between Extracurricular Activities and Academic Performance of Medical Undergraduates: A Sri Lankan Experience** Sudharshani Wasalathanthri, Dinithi Fernando, Amali Manchanayake	**I B 4** **The Positive Effects of a Lecturer Training Course in Enhancing Student Centered Learning Alignment from Student-Levels to University-Wide Levels of Practice** Shrinika Weerakoon	IA4 on p.20 IB4 on p.51

12.45 – 2.00pm	**SLAIHEE AGM** and **LUNCH**		
Venue	**Hall A**	**Hall B**	
Session #	**Session 3**		
Chairpersons	***Dr Rapti de Silva*** ***Dr T Sivakumar***	***Dr Prasanna Ratnaweera*** ***Ms Jinendra Dissanayake***	
Time	**Title and Author(s)**	**Title and Author(s)**	
2.00 – 2.30pm	II A 5 **Students' Perceptions towards an Orientation Programme Designed to Develop Generic Competencies to Facilitate the Transition from School to Med. Faculty** Nimani de Lanerolle, Asela Olupeliyawa, Ashwini de Abrew & Indika Karunathilake	II B 5 **Exploratory Study of the Use of Research-Based Teaching to Develop Student Skills** A. Anton Arulrajah	IA5 on p.24 IB5 on p.55
2.30 – 3.00pm	**II A 6** **Learning Style Preference of a Group of Students Attached to the Faculty of Agriculture, Rajarata University of Sri Lanka** MC M Zakeel & AJ Fernando	**II B 6** **Use of Literature Sources for Undergraduate Research Projects among Physics Undergraduates** WAM Madhavi	IA6 on p.27 IB6 on p.59
3.00 – 3.30pm	**II A 7** **Using a Peer Evaluation Method to Assess the Individual Contribution to Group Learning during Clinical Appointments** Sameera Gunawardena, Kushlini Nimalasuria, Prasanga	**II B 7** **Redesign Assessment: from Summative to Formative** SUK Bandaranayake	IIA7 on p.31 IIB7 on p.63
3.30 – 4.00pm	**II A 8** **Effectiveness of Online versus Traditional Lectures** Vindya Perera , Nelun de Silva, Sachitra Wijetunga , AM Jawfer, Nalaka Kanakaratne		IIA8 on p.35
4.30pm	**Feedback form, Conference Closure & T ea**		

The BA Dissertation as a Measure of Evidence-Based Learning

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Introduction

The objective of this paper is to explore the question of whether the undergraduate dissertation, a requirement of all Special Degree programs of study in the Faculties of Arts in Sri Lankan Universities, can be used as part of an evidence-based approach to investigate and measure student learning. The research question is situated in the area of the Scholarship of Teaching and Learning, (SoTL), and is in keeping with the SoTL practice of combining scholarly inquiry to any of the intellectual tasks that comprise the work of teaching - designing a course, facilitating classroom activities, or evaluating programs (Schulman, 1998).

SoTL is a fairly recent area of research and interest, stemming from the work of Ernest Boyer, in his seminal work *Scholarship Reconsidered: Priorities of the Professiorate* (1990), who challenged the views that to be a scholar is to be a researcher and that publication is the primary yardstick by which scholarly productivity is measured. Boyer turned the lens of scholarship back onto teaching, focusing on the classroom and its pedagogical practices - in particular, the reciprocal relationship between teaching and learning at the post-secondary level - arguing that the scholarship of teaching is one element of a four-part paradigm of scholarship that also includes inquiry, engagement and interpretation.

The critical and reflective nature of SoTL inquiry is captured in a more recent definition offered by Hutchings, Huber and Ciccione (2011), as "the scholarship of teaching and learning encompasses a broad set of practices that engage teachers in looking closely and critically at student learning in order to improve their own courses and programs, and to share insights with other educators who can evaluate and build on their efforts" (p. xix). Such inquiry is particularly important because, probably due to the increasing reliance of higher education institutes (HEIs) on external sources of funding and fee-levying programs of study, there are "calls for greater theoretical and methodological rigour", and significant educational reforms are taking place in research-intensive universities around the world (Hubball, Pearson and Clarke, 2013, p. 41).

Traditionally, assessment of learning in Sri Lankan HEIs has been, and for the most part still is, done by means of paper-based end-of-semester examinations and some form of continuous assessment during the semester. There are at least two weaknesses in this method. First, continuous assessments have a very narrow focus as they tend to be based on the content taught in the first 6-7 weeks of the semester; the end-of-semester final examination has a wider focus, but due to large student numbers in the Faculty of Arts at the University of Colombo, is restricted to a two-hour paper test, which severely limits the assessment of multiple intelligences, critical inquiry and lateral thinking. Second, in terms of SoTL, which as Hubball, Pearson and Clarke state, "has the potential to make substantial contributions to institutional-level education reforms,

curriculum renewal, educational leadership practices, and most importantly, the quality of undergraduate and graduate degree programs" (2013, pp. 41-42), attempting to assess learning outcomes of a degree program through individual courses is both ineffective and woefully inadequate.

The research question of this paper, therefore, is whether the undergraduate dissertation is a better measurement of evidence-based learning at the end of four years of study, for the following reasons: the dissertation is the end product of a rigorous program of study in a particular academic discipline; it is an opportunity for interdisciplinary inquiry and exploration - not merely between different courses within the subject discipline but also across subject disciplines - for instance, English and Sociology, Geography and Demography, Political Science and International Relations, etc.; as an independent piece of research undertaken by a student it is the first step for those contemplating a research-oriented career, whether in an HEI or elsewhere; and perhaps most importantly from the point of view of the reciprocal relationship between teaching and learning mentioned by Boyer (1990), it is an instance of close collaboration between a student and his/her supervisor and is therefore a unique learning experience for both individuals. Unlike in other course units in the Faculty of Arts curriculum, where student-teacher contact and learning is often limited to the classroom, the step-by-step monitoring mechanisms and close supervisory contact which are part of the process of writing a dissertation allow for opportunities of observing closely and in depth, the processes of student learning and cognitive development. More significantly, completing a dissertation is a strong argument for evidence-based learning at the tertiary level since students do not produce anything close to a dissertation during the learning process at secondary school (GCE A/L).

Methodology

In keeping with the notion of evidence-based learning, this paper examines a 4th year Special Degree course offered by the Department of English, University of Colombo, which has the specific objectives of introducing students to research methodology and the process of writing a dissertation. This course, titled *ENG 4197 - Dissertation I: Introduction to Research Methodology*, was first introduced to the Department's curriculum over ten years ago, but the data for this paper will be drawn primarily from the years 2008 - 2011, which is when I taught the course. Elements of the course including the course description, content and learning outcomes, the scheme of assessment (devised by the Department of English), the scheme of work, the dissertation topics selected by students and the process of selection, the effects of peer review, and the final grades obtained by students for their dissertation, are the bases for assessing student learning.

Results and Discussion

The principal findings listed in this abstract are based on four of the above, which are considered the most important indicators of student learning. These are the dissertation topics chosen by students, student feedback on the course, external examiner reports, and the final grades obtained by students for their dissertations during the years 2008-2012.

At the end of three years of fairly intense and focused study of English literature and linguistics, students have a wide range of topics to choose from for their dissertations. Many students choose a topic that is directly aligned with the content of one or more

courses; however, true examples of learning can be seen in the selection of topics that go beyond the set curriculum, as it is in these dissertations that learning and scholarly training as represented by a spirit of inquiry and lateral thinking is most evident. For instance, the topics below are indications of students' willingness to transcend syllabus boundaries, and also the confidence students have to venture beyond the set curriculum to explore topics and research questions that they have developed a personal or individual interest in.

- A Space of Conformity: Representation of Female Sex Workers in Bollywood Cinema
- Gendered Use of SMS
- An analysis of the usage and politeness strategies in a sample of interviews broadcast on two English television channels in Sri Lanka

The exploration of such topics results in value-added learning, as it takes a student beyond areas covered by both the GCE A/L curriculum and the tertiary level curriculum.

Student feedback is a vital element in gauging learning and the achievement of course objectives. The following are some responses to the question "Learning outcomes achieved", extracted from course evaluations completed by students at the end of the semester:

- "It provided step by step guidance for the write up of the proposal, about a lit review"
- "Understanding of how to conduct research in a more organized way and a good training to organize our ideas"
- "Lit review – how to write one, read for it, organize one"
- "The course is not just about academic work"

While examiner comments from within the institution - especially a supervisor's comments - can be sometimes overly favourable to a student, in the case of an external examiner, the views are much more objective, as the student is unknown. It is in this light that the following extract, from an external (i.e., not University of Colombo) examiner's report on a Department of English undergraduate dissertation, should be read:

> This dissertation is a delight to read. The candidate explores the film and textual representations of Daphne Du Maurier's core text Rebecca to provide an insightful understanding of the chosen topic of transgressive sexualities. By referring to a number of critical and cultural theories (especially feminism, poststructuralism and queer theory), she / he traverses across literary forms and genres to give a dynamic reading of the selected works.[1]

The final grades obtained for the dissertation by Department of English students at the end of the 4th year (ENG – Dissertation II) are given below.

[1] Author name not given due to issues of confidentiality relating to examiners' reports.

Table 1: Final grades obtained for dissertation

Year	A's	B's	C's
2008	07	10	--
2009	01	05	--
2010	04	10	--
2011	02	04	--
2012	06	03	--

These grades show that for the past five years, no Special Degree student from the Department of English has obtained a grade less than B- for their dissertation. While this in itself can be considered to be an indication of successful learning outcomes, since the number of B's are higher than the number of A's (with the exception of 2012), it can also be argued that there is still room for improvement in terms of the curriculum and teaching methodology of *ENG 4197*.

Conclusion

Taking into account the above findings, a strong case can be made for considering the undergraduate dissertation as a measure of student learning, if assessed not just in terms of a student's final grade but in terms of all the elements that contribute towards the final outcome. By conducting an in depth review of curricular and teaching practices, this paper demonstrates the value of the principal objectives of SoTL, which, as Bailey and Monroe put it, are to study instructional design and delivery strategies within our discipline, decide on new instructional approaches to increase student achievement, document our findings, analyze and reflect on it, and make our findings public (2012, p. 3) with the goal of instituting change in order to enhance and improve the quality of teaching and learning.

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Effect of Using English as the Medium of Instruction on the Academic Performance of First Year Medical Undergraduates

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Introduction

Language learning aptitude is a complex nexus of cognition, personality and affect, which plays a key role in academic learning (Ehrman, Leaver, & Oxford, 2003). In countries where the language of instruction remains the same throughout primary, secondary and university education, this does not pose a problem. However, in the Sri Lankan context, a significant problem is encountered when students, who were initially taught in a native language (i.e., Sinhala or Tamil) have to shift to English as the medium of instruction at the commencement of their tertiary education. Previous research has also shown that poor verbal working memory for a second language significantly affects the undergraduate performance of medical students (Mann, Canny, Reser, & Rajan, 2013). In a study in Sri Lanka, Ariyasinghe and Pallegama (Ariyasinghe & Pallegama, 2013) have shown that English language proficiency was one of the factors that determined Grade Point Average (GPA) of the first year students. Other factors that were associated with GPA were gender and previous academic performance.

First year medical undergraduates come from a variety of educational and social backgrounds, and the ability to speak good English is not a selection criterion for medical schools. The single factor that determines entry into a state–run medical school is the high academic excellence achieved at the General Certificate of Education Advanced Level (G.C. E. AL) examination, which students face in either Sinhala or Tamil. However, once they gain entry into medical school, everything is taught in English and those who have little fluency in English may find it difficult to cope. This could potentially lead to poor performance among students. Therefore it is important to study whether competency in English has an impact on the student performance in the first semester at medical school, as this is a crucial formative period in a medical student's life.

Objective

The objective of this study was to correlate the English language proficiency with the performance at the first semester assessments among the new entrants to the Faculty of Medicine, University of Colombo.

Methods

This was a cross sectional study; data was collected anonymously from first year medical students of the Faculty of Medicine, University of Colombo. After informing them of the purpose of the study, all consenting students of the 2011 intake batch were recruited for the study which was conducted in September 2013. Written consent was obtained prior to enrolment in the study. The study was approved by the Ethics Review Committee of Faculty of Medicine, University of Colombo.

The data collection instrument was a self-administered questionnaire and data was entered into an electronic database and was analyzed using the SPSS statistical package (Version 18). Descriptive statistics were used. Statistical significance was set at $p < 0.05$.

Establishment of adequate competency in English was done in two ways. The first method was to consider the performance of students by Ordinary Level (O/L) and A/L grades for English. The second method was to develop a scoring system which encompassed five items with equal weight. A score of one was allocated to each of the following items to calculate a cumulative score of English competence: a) ”A” or ”B” grade at the O/L for English, b) ”A” or ”B” grade at the A/L for English, c) using English as a language of communication at home, d) using English as a language of communication with peers and e) having taken formal courses to improve English skills.The minimum score of the scale was 0 and the maximum score was 5.

The first semester examination is called the Continuous Assessment Test–1 (CAT-1) and consists of three subjects, Anatomy, Physiology and Biochemistry. The entire examination is conducted in English. Marks are calculated out of hundred for each subject.

Results

Of the total 214 students the response rate was 132 (mean age 21.5 years, males 42%). All students had been educated in either Sinhala or Tamil during their primary and secondary school.

CAT-1 marks of student groups based on their performance in English at the G.C.E. examinations are shown in Table 1. Having a “A” or a “B” grade at either examination were considered as an adequate level of English competence. Those who had shown an inadequate level of competence at the O/L but improved to an adequate level of competence at the A/L were included in the adequate competence group. On this basis, 103/132 (78%) of students were considered as having adequate competence in English and 25/132 (19%) an inadequate level of competence. Data were missing for 4 students. Students categorized under inadequate competence of English performed significantly poorly in all subjects of the CAT-1 (Table 1).

Table 1. Comparison of CAT -1 marks for each subject against level of English competence demonstrated at G.C.E. examinations

Marks by subject	**Adequate level of English competence (n – 103)**	**Inadequate level of English competence (n – 25)**	**Mean difference (95% confidence interval)**	**T statistic**
	Mean ± SD			
Anatomy (%)	56.5± 10.0	50.3± 10.6	6.21 (1.51 – 10.9)	2.61*
Biochemistry (%)	61.6± 16.6	49.5± 16.4	12.03 (4.55 – 19.52)	3.18*
Physiology (%)	63.7± 13.0	52.5± 15.1	11.14 (5.09 – 17.2)	3.64**

*$p < 0.01$, **$p < 0.001$

The second method of English competency assessment discussed in the methods section had students allocated into two categories consisting of a low score group (0 – 2) indicating poor competence in English and a high score group (3 – 5) indicating a better competence in English. The CAT-1 results comparison in these two groups are summarized in Table 2.

Table 2. CAT – 1 results analysis according to the English competency score developed by authors

Marks by subject	**High score group (n – 83)**	**Low score group (n – 45)**	**Mean difference (95% confidence interval)**	**T statistic**
	Mean ± SD			
Anatomy (%)	57.3± 10.2	51.8± 9.7	-5.53 (-9.33 to – 1.72)	-2.87*
Biochemistry (%)	62.3± 17.2	53.3± 15.8	-8.96 (-15.3 to - 2.63)	-2.80*
Physiology (%)	64.3± 13.5	56.1± 13.7	-8.19 (-13.3 to - 3.10)	-3.18*

*p<0.01

Again, students with low scores in English competence had significantly lower marks in all subjects. Further analysis with one way ANOVA for marks in each subject showed a significant difference between groups of low scorers (0-2) vs. individual score categories of 3, 4 and 5 (Anatomy; df -3, F – 4.89, p = 0.003, Biochemistry; df -3, F – 3.89, p = 0.011, Physiology; df – 3, F – 5.73, p = 0.001). Bonferroni post hoc analysis showed a statistically significant difference ($p < 0.05$) in the marks between the low scorers (0-2) and those with the highest score (of 5) with respect to all subjects. There was no statistically significant difference in marks between the category with a score of 5 and categories with a score of 3 or 4 for any of the subjects. The low score (0-2) category had lower but statistically insignificant difference in marks for all subjects compared to categories with a score of 3 or 4 in the English competency scale.

Discussion

The results of the study show a clear correlation between the level of English competency and the percentage of marks obtained at the first examination of the medical faculty. First, the statistically significant difference of marks is not specific to a particular subject. Therefore it is unlikely to be due to deficiencies in teaching or related to subject matter. Second, students who are in the categories of having an adequate competence in English have scored well in all subjects across the disciplines. Third, competence in English was measured in two different ways. In both instances, a clear pattern of disadvantage was seen in inadequate English competency groups.

The low scoring categories (0-2) had a significantly lower mean percentage of marks compared to the highest scoring group in all subjects. This is strong evidence that students with better competency and exposure to English have an added advantage over other students in getting good marks in the first examination of the medical school. The alternative argument is that students who are good in English are also good in doing well in the medical subjects and therefore score higher in examinations. However it must be noted that entry to the Colombo Medical Faculty is based on the scores on the

A/L and considered on a country-wide basis. Students are selected on a merit order (based on Z-scores of their A/L marks) and all students are therefore high achievers with respect to learning capacity. Therefore the medium of instruction plays an important role in competence at exams.

In this sample there was no statistically significant difference in marks based on gender for any of the subjects. There are many other studies from across the globe which show that English speaking students outperform non-English speaking students in the first few years in medical / nursing schools, and such discrepancies are more prominent in settings where international students have to compete with native English speaking students (Mann, Canny, Lindley, & Rajan, 2010; Salamonson, Everett, Koch, Andrew, & Davidson, 2008). English language proficiency (as measured by TOEFL scores) emerged as a key predictor of academic success of international applicants entering in to dental study programmes in a study carried out in the United States (Pitigoi-Aron, King, & Chambers, 2011). In these studies, students who had lower scores for English also scored poorly in examinations that tested on core subject matter.

Since the students included in this study were high achievers in their schools, sudden exposure to this language disadvantage may lead to depression and anxiety resulting in a vicious downward spiral in terms of performance. This problem needs to be addressed by medical educationists to ensure a level playing field for all students entering the medical faculty.

Conclusions

Academic performance of students in medical school is influenced by competence in English, leaving a proportion of students disadvantaged. Remedial measures are therefore required.

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Enhancing Problem Based Learning – Does It Need a Change?

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Introduction

In problem based learning (PBL) students use "triggers" from the problem case or scenario to define learning objectives. Subsequently they do independent, self-directed study before returning to the group to discuss and refine their acquired knowledge. There are different ways of presenting the problem but they all have a similar series of steps. Schmidt, Dauphinee and Patel (1987) stated that PBL provides a student-centered learning environment, encourages curiosity and involves a multistep process.PBL also enhances students' intrinsic interest in the subject matter, strengthens students' self-directed learning skills (Albanese &Mitchell, 1993) and is more nurturing and enjoyable (Norman & Schmidt, 1992).

PBL is an interactive method of learning used in many medical faculties throughout the world. The Medical Faculty, University of Colombo has used PBL as a teaching tool for more than a decade. Traditionally PBL consist of several triggers with case history and scenarios. Students are expected to develop objectives for each trigger. However, it seems that the approach in presenting the problem to the undergraduate has not changed much from its traditional format. If the presentation and procedure become monotonous, students fall into a habit of disengaging from the overall 'big picture' concepts and interactive problem solving attitude. Some institutions have found the PBL method used over the years has become stale. In learning Forensic Medicine, students also need to develop the ability to analyze a given problem and formulate opinion about various probable questions that are likely to be asked in a court of law.

Objectives

This study is aimed at determining the effect of using a new structure for PBL in the medico-legal module. In particular the objective is to determine whether the PBL format needs to be changed and,if so, to provide recommended changes.

Method

PBL consists of two 2-hour sessions which are scheduled two weeks apart within the medico-legal module. A case scenario was given and each group of 20 students were sub-divided into 5 groups and instructed to focus on one aspect of the problem and to develop objectives. However, they were given the opportunity to express their views on other aspects as well as allowed to make suggestions with regard to the latter.

Instruction sheets were distributed among all individuals and they were allowed to clarify any unclear area before starting the PBL. Procedures like appointing a chairperson and secretary for the two sessions were retained from the old format. At the end of the first day, learning objectives, reduced to 4-6 per group, were distributed to the groups, and subgroups were made responsible for leading discussions on specific learning objectives in the following session.

Facilitators were instructed to note students who do not participate in the discussion and warn them accordingly. An additional list of information about the case was given to the facilitatorswho were asked to use them to answer any questions made by students. Facilitators were told to direct any further clarification to the department.

On the second day students were not allowed to use any kind of references or to use whiteboards or multimedia during the discussion. Each group was asked to prove their point of view and other groups were allowed to challenge, leading to an analytical discussion on important issues.

At the end of the second session students completed an evaluation form consisting of twelve questions based on a 5 point Likert scale: 1. Strongly disagree, 2. Disagree, 3. Neutral, 4. Agree and 5. Strongly agree.

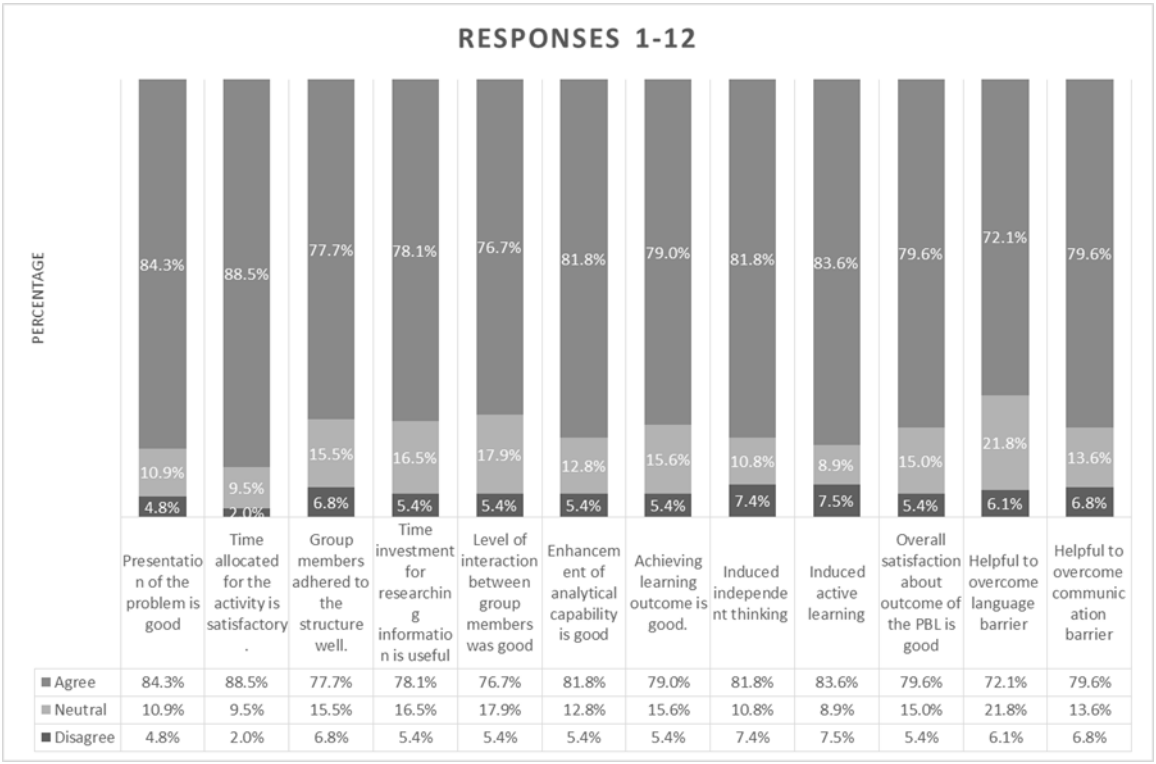
Questions asked in the survey compared the new format to the traditional format: 1. Presentation of the problem is good, 2. Structure of the new PBL is better, 3. Time allocated for the activity is satisfactory, 4. Time investment for researching information is useful, 5. Level of interaction between group members was good, 6. Enhancement of analytical capability is better, 7. Achieving learning outcome is good, 8. Induced independent thinking, 9. Induced active learning, 10. Overall satisfaction about outcome of the PBL is good, 11. Helpful to overcome language barrier, 12. Helpful to overcome communication barrier.

Analysis

A total number of 148 evaluation forms were received. This was a response rate of 73.6%. Each questioned area was analyzed according to the 5 point scale. In the analysis, responses of 1 and 2 were grouped together as were responses of 4 and 5 thus converting them to 3 responses: disagree, neutral and agree. As some students did not answerall questions there was a slight variation in the number of the responses to different questions.

Results

All areas showed a similar trend as indicated in Figure 1. About the presentation structure of the PBL, 84.3% agreed it was structured better than the previous PBLs. Regarding the allocation of time, 88.5% agreed it was better compared to the traditional format. Considering the usefulness of time investment for the activity, 78.1% said it was much better than the earlier format. 76.7% agreed that this form induced better group work. 81.8% agreed that the new format enhanced the analytical capability of the participants. Efficacy of learning process was also better according to 79% of students. 79.6% and 72.1% respectively indicated that they were able to overcome communication and language barriers better with this format. The overall satisfaction with the activity was also much higher with 79.6% agreeing that it was better than the previous PBLs. Results showed that even the interaction among the group members was thought to be higher than in previous activities.



	Presentation of the problem is good	Time allocated for the activity is satisfactory.	Group members adhered to the structure well.	Time investment for researching information is useful	Level of interaction between group members was good	Enhancement of analytical capability is good	Achieving learning outcome is good.	Induced independent thinking	Induced active learning	Overall satisfaction about outcome of the PBL is good	Helpful to overcome language barrier	Helpful to overcome communication barrier
Agree	84.3%	88.5%	77.7%	78.1%	76.7%	81.8%	79.0%	81.8%	83.6%	79.6%	72.1%	79.6%
Neutral	10.9%	9.5%	15.5%	16.5%	17.9%	12.8%	15.6%	10.8%	8.9%	15.0%	21.8%	13.6%
Disagree	4.8%	2.0%	6.8%	5.4%	5.4%	5.4%	5.4%	7.4%	7.5%	5.4%	6.1%	6.8%

Figure 1 – Percentages of responses to questions asked

Discussion and Recommendations

In this study, we implemented several changes to the PBL format in an effort to make it more interesting and interactive. The results indicate that students were more satisfied with the outcome of the new format. It seems to help in reviving the stagnated and stale format of existing PBL structure. The principal findings are that students felt the new PBL format was more interactive, students invested more time in learning and preparing the material, and they also thought that the group process worked better. One important advantage we observe is that students were able to overcome the language and communication difficulties with greater ease. Students were also automatically pushed towards reading and analyzing probable findings of other groups. This helped the students to have a holistic approach to the problem. We think this is very helpful in developing an analytical mind which is very useful in dealing with medico-legal issues. We also think that this activity promoted much more coordinated group work among all participants. This is again very useful in real life forensic investigations.

However our study has some drawbacks. First, there was no way to assess the variation between different groups. Therefore variation of performance and acquisition of knowledge and skills by students among different groups cannot be assessed. Second, we think that even the new structure may not be perfect. Considering the twelve aspects analyzed, there was a group of individuals (5.9%) who totally disagreed with the changes we made. Also there was a group of individuals (15%) who were neutral in their responses. Further study is needed to decide on definitive changes that we should make in using this valuable teaching tool. We believe the changes we introduced were useful and could be taken as an exemplar in developing even better PBLs in the future.

The other limitation of this analysis was that students compared the new format with a PBL session of conventional format which had been done some time ago. Wiznia, Koromand Marzuk, (2012) found that this introduces a recall bias based on a past year

comparison which might affect the results of this study. However, we do not believe that PBL has to be conducted with thesame methodology developed several years ago to remain effective. Curriculum administrators need to be willing to make PBL flexible and dynamic, as PBL should evolve to meet the needs of the curriculum, especially at a time when information services are rapidly changing. As a method of improving student participation and learning we can even introduce grading incentives to facilitate a better outcome.

PBL might also be a good tool to teach postgraduate students and we feel it can help in developing an analytical mind especially in a discipline like Forensic Medicine. We believe the changes we made to our PBL curriculum are critical for the success of PBL as a learning modality.

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Relationship between Extracurricular Activities and Academic Performance of Medical Undergraduates: A Sri Lankan Experience

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Introduction

Extracurricular activities (ECA), also known as co- curricular activities are loosely defined as educational activities that do not fall within the scope of, but usually complement the activities of the regular curriculum. Often, educational institutes use the term without properly defining it. It is generally agreed that ECAs provide opportunities for learners to develop multiple skills through active participation. ECAs in most educational institutes include music and performing arts, sports, and participation in student organizations and clubs. Utilization of arts by the students is believed to be beneficial in enhancing student well-being, improving academic performance and promoting humanism (Rodenhauser, Strickland & Gambala, 2004). Universities in the USA have recognized the importance of incorporating ECAs as a part of their premedical education. In 2001, 10-15% of medical schools required semester time to be spent on pre-medical requirements in humanities and social and behavioural sciences, presumably to attract well-rounded, well-adjusted candidates who are equipped to respond to human and social dimensions of medicine (The Association of American Medical Colleges, 2001). Reede (1999) noted that admission to medical school should not be based solely on grade point average (GPA) and the Medical College Admission Test (MCAT) scores because these offer no measure of extremely important non-cognitive attributes. Reede (1999) also notes that even though student performance during pre-clinical years is predicted by GPA and MCAT scores, such a prediction is not possible for achievements during clinical years for postgraduate training, or as physicians. While aspects of ECAs have been studied among middle school and high school students, studies are sparse among medical students and undergraduate students of other specialties. ECAs such as sports and music have been described as coping mechanisms to alleviate stress among medical students in Pakistan (Shaikh, Kahloon, Kazmi, Khalid, Nawaz, Khan & Khan, 2004). A nationally representative study examining the relationship of ECAs with education success in high school students in the USA has shown positive results (Mahoney, Cairns, Beverley, Farmer & Thomas, 2003).

The duration of the medical course in the Faculty of Medicine, University of Colombo (UCFM) is approximately 5 years and consists of 5 streams which run parallel. Each stream is assessed separately by way of continuous, end of module and end of stream assessments. Students engage in many forms of ECAs during their careers in spite of this strenuous medical course and the enormous examination burden. These are neither linked to the medical curriculum nor assessed except for the elective module in the final year where they may study and /or participate in any non- medical activity and present a report. This report is awarded a mark that is carried over to their final year result. However, ECAs are encouraged by the Faculty academic staff and the administration in recognition of their place in promoting student well-being. Better time management skills, mental and physical health and academic performance are some of the expected benefits of ECAs in UCFM. While recognizing the benefits, there is a serious concern

developing among medical teachers whether the medical undergraduates spend too much time and resources on extracurricular activities, at times neglecting the challenges of the heavy medical course.
This study was designed to look at the relationship of ECAs with academic performance in a batch of medical students who have completed the first year.

Methodology
This cross sectional descriptive study was carried out in 2012 in the UCFM. Having obtained approval from the Ethics Review Committee of the UCFM, 202 students who had just begun their second year after their first main examination, the Basic Sciences Stream (B.Sc.S) main examination, were recruited to this study. They were given a self-administered questionnaire on ECAs to be filled in 30 minutes. Prior to distributing the questionnaire, the process of filling it was explained. They were requested to state their UCFM index number in order to match their academic performance with their ECAs. The questionnaire contained 4 main domains: 1) general information, 2) types of ECAs they were involved in when they were in school and at the Medical Faculty and the amount of time dedicated for ECAs, 3) their perceptions regarding ECAs and 4) the perceived influence of ECAs on their academic performance at the Medical Faculty.

Data on their academic performance were obtained from the records of Examinations Unit, UCFM. The results were analysed by descriptive statistical methods using SPSS version 21. Frequencies and percentages were used to describe the demographic variables. Chi-square or Fisher's exact test were used where appropriate, to explore the association between study variables and the significance at alpha 0.05 level.

Results
The total number of students who responded was 183 (90.6%) with 52.5% (n = 96) males and 47.5% (n = 87) females. 96.2% (n = 176) had participated in ECAs at school level, out of which 49.4% (n = 88) had done so at zonal, provincial, national or international levels. 91.3% (n = 167) had participated in some form of ECAs as a medical undergraduate.

A majority of students (73.8%) reported to be involved in more than one type of activity with the numbers involved in aesthetics and sports were 134 (73.2%) and 107 (58.5%) respectively. 105 students (57.4%) reported that they were active members in various societies at Faculty and national level, while 32 (17.5%) students stated that they were involved in activities related to speaking skills such as announcing and debating. The three most popular aesthetic activities among medical students were dancing, music (vocal) and acting while the popular sports were board games (carom and chess), cricket and table tennis. The association between gender and type of activity involved was statistically significant with more female students engaging in aesthetic activities ($p = 0.001$) and more male students engaging in sports ($p = 0.000$).

Most medical undergraduates (78.14%, n = 143) participated in ECAs due to personal interest. 102 (61.8%) students spent less than 5 hours, 43 (26.1%) students 5 – 10 hours and 19 students (11.5%) more than 10 hours per week on ECAs. A significant association ($p = 0.003$) was observed between the gender and the time spent for ECAs with male students spending more time than female students.

When the influence of ECAs on academic work was assessed, only 53 (33.5%) students who engage in ECAs were found to have attended classes well prepared the following day. 53.8% (n = 85) were not prepared for classes and 12.6% (n=20) had missed classes due to their involvement in ECAs. A significant association (p = 0.001) was observed between the gender and the influence of ECAs on participation and preparedness in academic work. Females engaged in ECAs were more likely to attend academic work well prepared when compared to males.

The results of the final examination of the B.Sc.S were considered in order to group students according to their academic performance. There were 36 (19.7%) high (final mark 65 and above), 77 (42.1%) average (final mark between 64.9 and 49.9) and 70 (38.3%) low (final mark below 50) achievers in the sample studied. The only significant association (p = 0.009) with academic performance was seen in gender where female students were observed to have a tendency to be high achievers. None of the other factors such as the type of ECA or time duration spent on ECAs had a significant association with students' academic performance.
Students' attitudes towards ECAs were evaluated on a scale of 1 – 3. More than 75% of students believed that ECAs improve leadership, team work, time management, self confidence, social recognition and coping strategies for stress. However, 44% (n = 81) did not know whether ECAs help them to improve their academic performance. Only 15 students (8%) thought that engaging in ECAs was a waste of time.

Discussion and Conclusions
Almost all undergraduates entering the UCFM had participated in some form of ECA at school, and close to 50% of them had achieved a high standard in their respective ECAs representing their schools at least at education-zonal level. However, it is not known whether they participated in ECAs during their Advanced Level (AL) years. A large majority of undergraduates engage in some form of ECA in the medical school in spite of a strenuous and academically demanding course.

Aesthetics appear to be the most popular form of ECA. Close to 50% were involved in sports. It was interesting to note that board games were more popular than outdoor games. This could be due to geographical reasons such as the isolation of the UCFM from the main Colombo campus, the only university location where facilities for outdoor games exist.

Even though a great majority of students appear to be engaged in ECAs, the data showed that more than 50% had spent less than an hour a day on ECAs raising the question of whether this amount of time is adequate to make any significant impact on well-being and academic performance. Furthermore, not considering the qualitative aspect can be considered as a limitation of this study as it is suggested that the involvement should ideally be measured not only by the amount of time spent (Astin, 1999). Although the students who attended teaching activities without prior preparation had attributed that to their involvement in ECAs, the influence of other confounding factors such as lack of motivation and giving preference to social life cannot be ruled out.

In the batch of students studied, female students had a significant association with high academic achievements when compared to male students. The tendency for female students to attend academic activities well-prepared might have contributed to their

academic success. However, it was a positive finding to note that most medical undergraduates, irrespective of their gender, had positive attitudes to ECAs.

In conclusion, it was observed that the majority of medical undergraduates in the batch studied were involved in ECAs, with male students spending more time compared to female students. Aesthetics appear to be more popular among girls and sports among boys. Female students showed a higher tendency to attend academic activities well prepared when compared to their male counterparts which probably contributed to their high academic achievements. However, not assessing the contribution of ECAs in relieving the stress of this high demanding course is a limitation of this study.

Findings of this study will be useful in making recommendations to improve facilities for ECAs, especially outdoor activities for medical undergraduates. Medical undergraduates should be encouraged to maintain a good balance between ECAs and academic activities by developing better time management skills. It is further recommended that innovative ECA based learning activities be incorporated in the medical curriculum.

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Students' Perceptions towards an Orientation Programme Designed to Develop Generic Competencies to Facilitate the Transition from School to Medical Faculty

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Introduction

New undergraduates to the academic programme in medicine are faced with marked differences between the learning environments and methods when compared to secondary education. The rapid expansion of knowledge in medicine and the communication skills and ethical attributes that the public expects from a medical professional particularly require the development of generic competencies such as self-directed learning, reflective practice, effective communication and teamwork, ethics, and professionalism. However, the school system in Sri Lanka requires knowledge to be rote-learned and may not promote these generic skills. Though generic competencies may develop over time whilst in the medical undergraduate course, new entrants may lack the foundation on which this should be developed.

The orientation programme for new entrants to the Faculty of Medicine, University of Colombo was designed to develop these competencies. Students were guided on self-directed learning through learning activities on essential learning skills, accessing information, learning as an undergraduate, and a visit to the hospital clinical learning environment. As an introduction to reflective practice, students were shown a film on medical professionalism ('Patch Adams') and were asked to write their ideas on what is expected from a good doctor. Students were introduced to small group learning and practiced communication and teamwork skills through small group discussions (SGD) and student presentations. The SGDs were based on ethical dilemmas and attitudes as a medical student/doctor and were supplemented by a lecture on attitudes, sensitizing students to ethical issues. Our research aim was to identify students' perceptions and attitudes towards the programme, in particular these teaching/learning activities.

Method

Student feedback is an important method to identify the usefulness of orientation programmes as seen by the new entrants and to identify strengths and areas for improvement. Such information at the level of learner reactions is valuable for programme evaluation (Kirkpatrick, 1967). At the end of the orientation programme a self administered anonymous questionnaire was given to all 198 students after obtaining informed consent. Students could rate the usefulness of each learning activity on a Likert Scale (1=not useful, 2=useful, 3=very useful) and identify the three most interesting activities. They could also write free comments/suggestions which reflected their general attitudes.

The findings from this questionnaire were analysed statistically in order to report the usefulness of each activity and to identify which activities were considered most useful and those which required improvement. Suggestions and comments regarding the programme were qualitatively reviewed through content analysis.

Results

We received a high response rate of 91.4% (n=181) for the questionnaire. "Patch Adams" and the reflective log that followed were rated as very useful by 100 (55.2%) participants and the lecture on "Importance of Right Attitudes" was found to be very useful by 132 (72.9%) participants. These same activities were identified as being among the three most interesting activities by 81 students (44.7%) and 57 students (31.5%) respectively.

The Small Group Discussions which focused on ethics, communication and team work were found to be very useful by a total of 111 individuals (61.3%).The activities which provide guidance on self directed learning were also considered very useful by a majority. The activities on essential learning skills and learning as an undergraduate were identified as very useful by 127 (70.2%) and 132 (72.9%) participants respectively, while 123 students (68%) found the activity on using the library and accessing information very useful.

In free comments 113 students (62.45%) had commented on the usefulness of the programme. The comments mainly suggested that this orientation programme would be helpful to make a smooth transition from school to university as it had given them an opportunity to learn new skills. Several students asked for more group activities as this will build better team work and communication skills. There was also the suggestion that the groups in group activities are made smaller so that each student has the opportunity to communicate within the group.

Discussion and Conclusion

Student feedback on the usefulness of various activities suggests that the students have mostly appreciated the input on medical professionalism and importance of right attitudes. Reflective practice is critical to self-evaluate and improve, and an awareness of ethics and professionalism is critical for a medical trainee to identify and address ethical and professional dilemmas. Students would not have had much exposure to these concepts during their secondary education, and the innovative use of media and case scenarios would have helped students identify these important attributes and promoted reflective practice. Activities related to self-directed learning were also positively received, as these may have enabled students understand the skills required in different learning environments (classroom, hospital, web-based). These self-directed learning skills will be useful as an undergraduate learner and later as a postgraduate as well. As a medical student one requires skills such as communication skills and team work to carry out the learning activities and in their later lives to practice in clinical settings. Small group discussions were received positively and students requested more such activities, highlighting their importance in developing such communication and teamwork competencies.

We have systematically utilized student feedback in previous years for continuous quality improvement of our orientation programme (Liyanage et al, 2006). The information obtained from the current study will be used to improve next year's programme. It would be interesting to conduct another study in 6-12 months to explore the usefulness of the orientation for the actual academic programme.

Evaluation of medical student orientation programmes elsewhere suggest that they are useful in creating a strong foundation for better understanding of the medical course and

supporting learning as a medical student (Mittal et al, 2013). An orientation programme based on the development of generic competencies which especially focuses on the concepts of communication skills and team work, self directed learning, reflective practice and ethics will better facilitate this foundation for medical students' education and future careers.

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Learning Style Preference of a Group of Students Attached to the Faculty of Agriculture, Rajarata University of Sri Lanka

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Introduction

Understanding learning styles of students can augment the educational experience. Learning styles of students may be influenced by their reactions to personal life experiences, their approaches to learning and their previous study habits. Learning style is an individual's natural, customary and preferred ways of absorbing, processing and retaining new information and skills which perseveres regardless of teaching methods or content area (Kinsella, 1995). Every individual has a unique learning style as a signature and it appears to be influenced by nature and nurture (Kinsella, 1995). Reid (1995) defines learning style as internally based characteristics, often not perceived or used consciously. Brown (2000) identifies learning styles as the ways in which individuals perceive and process information in learning circumstances. MacKeracher (2004) delineates learning style as the characteristic cognitive, affective, social and physiological behaviors that serve as comparatively stable indicators of how learners perceive, interact with and respond to the learning environment. On the other hand, the external skills that are used by students, often consciously, to improve their learning are known as learning strategies (Reid, 1995).

Learning style preference is one aspect of learning style and refers to the choice of one learning situation or means over another (Brown, 2000). Students may prefer one learning style to another when performing certain tasks (Ali, 2011). There are four learning styles such as Visual (V), Aural/Auditory (A), Read/Write (R) and Kinesthetic (K) (HHMI-UCIRVINE Professor Program, 2007) though Gilakjani (2012) states visual, auditory and kinesthetic are the three main learning styles. Visual learners learn visually by means of graphs, diagrams, charts, pictures and sketches. Auditory learners learn best by listening to lectures where as the kinesthetic learners learn by doing or involving in certain activity. Therefore, it is important to use a combination of teaching methods which are more congruent to the learning style preferences of students while making the classroom setting as stimulating and interactive as possible in order to reach all students (Gilakjani, 2012).

The purpose of this study was to investigate the learning style preferences of a group of students in the first year in 2014, reading for B. Sc. in Agriculture (special degree) at the Faculty of Agriculture, Rajarata University of Sri Lanka.

Methodology

A questionnaire survey was carried out using VARK questionnaire developed by Fleming (2001). The questionnaire was obtained from the HHMI-UCIRVINE Professor Program (2007). Sixty one first year students who were reading for the B.Sc. in Agriculture degree at the Faculty of Agriculture, Rajarata University of Sri Lanka in the year 2014 were recruited through open invitation and informed verbal consent was

obtained from them before recruiting. The purpose behind selecting this particular group of students was that the results of this study would be useful to the teachers as well as to the students to identify the students' best mode of learning in the first year itself. The study group consisted of both male and female students following the degree programme in the English medium. The questionnaire used in this survey consisted of 13 general questions (e.g. how will you direct a person to the Post Office if s/he asks you for the direction?). The data gathered were analyzed using Statistical Product and Service Solutions (SPSS) 17.0, Minitab 14 and Microsoft Office Excel 2007. Different learning styles were compared using estimated median values by performing a Friedman test.

Results

The questionnaire administered to assess the learning style preferences of 61 first year undergraduate students had 13 different questions with four alternatives representing four main learning styles (Visual, Aural/Auditory, Read/Write and Kinesthetic). The results are given in Table 1. Fifteen students had chosen a visual alternative for four questions whereas one student had chosen such alternatives for eight questions. For aural/auditory learning style, 18 and 13 students had chosen this alternative for three and four questions respectively. Twenty students had chose read/write alternatives for four questions. Only two students had not chosen a kinesthetic alternative for any of the questions posed while 24 students chose kinesthetic alternatives for two questions.

Table 1. Frequency distribution of responses for different learning styles

V		A		R		K	
No of Questions	*f*	No of Questions	*f*	No of Questions	*f*	No of Questions	*f*
1	4	0	2	2	3	0	2
2	13	1	7	3	6	1	20
3	14	2	14	4	20	2	24
4	15	3	18	5	17	3	10
5	11	4	13	6	10	4	4
6	3	5	7	7	4	5	1
8	1			8	1		

V: Visual; A: Aural/Auditory; R: Read/Write; K: Kinesthetic; *f*: Frequency

The results show that students in most of the cases use a combination of learning styles although they prefer one method more than the others. However, it is important to select the best or preferred learning styles of this group of student or rather rank the different learning styles in order to design appropriate teaching and learning activities. When different learning styles were compared using the Friedman test, the results (Table 2) showed that the learning styles compared in this study were significantly different from each other ($p = 0.000$). The highest estimated median value for chosen alternative (4.75) was recorded for read/write with a sum of rank 207.0 followed by visual (3.25). This means that when all the respondents are considered as a whole, they preferred the read/write learning style for the majority of the questions (35.92%). Moreover, the respondents had more or less equal preference for the visual and aural/auditory learning styles. Some responses indicated that students preferred either the visual or read/write learning style for a maximum of eight questions.

Table 2. Comparison of mean and median values of different learning styles

Learning Style	N	Min	Max	Mean	Std. Deviation	Est. Median	Sum of Rank	%
V	61	1.00	8.00	3.49	1.44	3.25	162.0	26.85
A	61	0.00	5.00	2.89	1.29	3.00	143.5	22.23
R	61	2.00	8.00	4.67	1.29	4.75	207.0	35.92
K	61	0.00	5.00	1.95	1.02	2.00	97.5	15.00

V: Visual; A: Aural/Auditory; R: Read/Write; K: Kinesthetic

Discussion and Conclusion

We believe that although students use a combination of learning styles, they prefer one method more over another. This is in line with the finding of Ali (2011) and Dunn & Dunn (1978). This group of students preferred the read/write learning style followed by the visual. According to Dunn and Dunn (1978), 40% of school age learners are visual. In the present study the second highest percentage (26.85%) of students were visual. Further, only 15% of respondents were kinesthetic. This result is in line with the findings of Barbe and Milone (1981). This low percentage may be due to the fact that the respondents were adult learners and only young children tend to be kinesthetic learners (Price et al., 1980). Nonetheless, a few kinesthetic learning activities should also be incorporated in the teaching process in order to ensure inclusiveness in terms of learners with different learning style preferences. Gilakjani (2012) found that kinesthetic learners prefer active participation experiences; for example drama, role-play or moving around. Therefore, these kinds of activities can be considered when planning learning activities.

According to the results it is clear that most students prefer the learning modality which has text-based inputs and out puts, followed by visual learners who prefer depiction of graphs, charts, symbols and hierarchies. Read/write learners state that they learn best by reading and also by writing what they have studied on a piece of paper. The present study found the priority order of learning styles of first year students attached to the Faculty of Agriculture, Rajarata University in 2014 as Read/Write>Visual>Aural/Auditory>Kinesthetic. Although learning styles will inevitably differ among students in the classroom, the teachers should try to make changes in their classroom to suit every learning style in their priority order in order to ensure that each and every student succeeds in the learning process.

As class sizes increase and technological advances continue in higher education, teachers are highly challenged. Therefore, it is important for teachers to assess and understand how all students can be reached by understanding how information can be presented in multiple modes (Gilakjani, 2012). As Gilakjani (2012) states, teachers can help students more effectively both in and out of the classroom, if they are aware of their learning styles and can assist them in determining their preferences. As a student, it is imperative for them to be self-aware of their learning preferences in order to adjust study techniques to best fit each individual, even when the information and instruction provided does not match the preferred style. This will ensure higher levels of achievements in the teaching and learning process.

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Using a Peer Evaluation Method to Assess the Individual Contribution to Group Learning during Clinical Appointments

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Introduction

Learning in groups is a unique experience in undergraduate study and forms the basis of Peer Assisted Learning. In an academic environment the term peer can be defined as 'individuals learning a common subject' (SEDA-Paper 96, 2013). There is a general consensus that group learning has a positive effect on undergraduate education (Springer, Stanne, & Donovan, 1999).

Medical undergraduates visit the Department of Forensic Medicine and Toxicology in groups of 16-20 individuals for their clinical appointment in Forensic Medicine. During this two week appointment, students are expected to participate in many practical sessions and get involved in group learning activities. At the end of the appointment they are evaluated individually on an Objectively Structured Practical Examination (OSPE). From the students' feedback on the appointment, it was apparent that all the students did not equally contribute to these group activities. Therefore, in addition to the OSPE, a Peer Evaluation System was also introduced with the following objectives.

1. To identify students who actively contributed to the group learning activities.
2. To identify students who were disruptive to the group learning process.
3. To promote awareness among students on the importance of group learning.
4. To compare the students' performance in the OSPE with their level of contribution to the group learning process.

Methodology

A Peer Evaluation Form was developed which contained a set of ten positive components and ten negative components in learning attitudes and behavior patterns. This was given to each student at the end of the appointment, immediately after the OSPE. Each student was instructed to write the index numbers of students who they felt significantly and uniquely demonstrated each of these components. Students were instructed to identify only one group member per component. It was not compulsory to mark all the components. Students were not allowed to discuss or share their views. Strict anonymity was ensured and the results of the peer evaluation were not revealed to the students.

Afterwards a "Hit Point" was given to each identified student based on the frequency that he or she was identified within each component. Each positive component would generate +1 and each negative component would generate -1 Hit Points. A "Final Hit Score" was calculated based on the total positive and total negative Hit Points. The data was tabulated and analyzed using SPSS version 20. The students were then graded according to whether their Final Hit Score was negative, positive or neutral (Final Hit score of 0).

The marks each student scored at the OSPE were also obtained and entered into the same table. Students were grouped into four groups according to their OSPE marks, with less than 50 marks indicating failures. Afterwards, the "Hit Scores" of these students were compared with the OSPE marks.

Results

The peer evaluation form was given to a total of 182 students (11 clinical groups). 179 students (98.35%) identified peers for at least one positive component. Three students had not identified anyone for any of the components. Responses where students had identified more than one peer for a particular component were excluded from the analysis.

The most common positive attribute that was marked was "*keen participation in group activities*" (146 responses - 11.5%) and the second most common was "*referring to other sources of information*" (140 responses - 11%). The commonest negative attribute that was marked was regularly being late for classes (40 responses - 22.2%).

Of the 182 students, 85 (46.7%) were identified by their peers for keenly participating in group activities. 75 students (41.2%) were identified for promoting discussion during teaching sessions. The rarest positive attribute identified as displayed by the students was *"assisting in post-mortems"* which was 30 students (16.4%).

Eighteen students (9.8%) were identified as regularly being late for classes. There were 23 students (12.64%) who were specifically identified for not contributing to group activities and 9 students (4.9%) were identified for discouraging other students from asking questions. Ten students (5.5%) had copied from others' post-mortem reports and 14 students (7.69%) were identified for often avoiding the mortuary and observing post-mortems.

77 (42.3%) students were identified as having both positive and negative behaviors and attitudes. For example, some students had shown the positive attribute of completing assignments on time and also had the negative attribute of being regularly late for classes.

OSPE marks were available for only 155 students. Pearson Correlation between the OSPE marks and Hit Scores showed a statistically significant small positive correlation (0.26). Cross tabulation of OSPE marks group and Hit Score groups is given in Table 1. It was interesting to note that the student who received the highest negative Hit Score (i.e. Highest Negative Contributor) was in the group that scored less than 49.99. The first and second Highest Positive Contributors were in the group that scored more than 70 marks. A large percentage of the High Positive Contributors (49%) were in the group that scored above 60 marks.

Table 1 – Cross tabulation of OSPE marks group and Hit Score groups

	Positive Contributors	Neutral Contributors	Negative Contributors	Total
Group 1 – < 49.99	9	1	1	11
Group 2 – 50 to 59.99	49	6	5	60
Group 3 – 60 to 69.99	49	2	1	52
Group 4 – >70	27	3	2	32
Total	134	12	9	155

Discussion

The evaluation was based on students' performance during a clinical attachment. The responses given by students show much variety in the level of contribution among the students. Even though a large percentage of students contributed mostly positively, the number of students who were identified as having negative contributions is a matter of concern.

Unfortunately, conventional examination methods in universities do not assess this aspect of the learning process. In this study there was a relatively low degree of correlation between the OSPE marks and the Hit Scores which meant that the level of contribution to group learning did not have a significant impact on their final examination result. The comparisons show that some of the students who had obtained high marks at the OSPE examination had not been identified by their peers as having made significant positive contributions to the group learning process. More importantly, there were two students who had negatively contributed to group learning who had also obtained high OSPE marks. Similarly nine students who had positive Hit Scores had failed the OSPE.

The peer evaluation is considered one of the stronger assessment tools of individual contributions to group activity (Brooks & Ammons, 2003; Falchikov, 1986). Students' attitudes towards peer evaluation must be taken into consideration when analyzing the responses (Falchikov & Goldfinch, 2000). Similarly there must be clear criteria for the students to assess their peers (Orsmond, Merry, & Reiling, 1996). Bias due to personal friendships or enmity as well as gender effects cannot be ruled out (Falchikov & Goldfinch, 2000).

Encouraging reciprocity and cooperation among students has been identified as one of the seven good principles in undergraduate education (Chickering & Gamson, 1987). Unfortunately, undergraduate students in Sri Lanka come through a highly competitive primary and secondary schooling system that does not encourage group learning. Thus when these students enter university they are unaware of the potential benefits of group learning and habitually maintain a self-oriented learning process. This is one possible reason for Sri Lankan graduates being deficient in team working skills and having negative attitudes towards group work which have been highlighted as crucial factors that limits employability of Sri Lankan graduates (Ariyawansa, 2011; Daily Mirror Online, 2012; Harris, 2012; Weligamage, 2009).

This study is an attempt to utilize a peer assessment tool to evaluate students' learning behavior as opposed to learned content. If universities hope to develop an interactive learning culture, it will be important to encourage individuals who demonstrate positive attributes towards group learning as well as to discourage those who demonstrate negative attributes. University academics need to identify these individuals and this study shows that the peer evaluation method can be used effectively to identify positive and negative contributors to group learning.

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Effectiveness of Online versus Traditional Lectures

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Introduction

Medical education can be improved without increasing the time it takes to earn a medical degree, if lessons are made more comprehensible and memorable and use a learning strategy that is student centered to encourage deep engagement in learning (Heath & Heath, 2007).

For most of this century, traditional face to face lectures provided an efficient way to transfer knowledge. Today, learning management systems (LMS) makes it easy for lectures to be made available on line, offer flexibility so students can watch at their own pace and on their own schedule, and are popular with learners (Heath et al., 2007). If such a model can be applied to learning in the pre and para clinical sciences in medical schools, class time would be freed up for higher-order and more interactive lessons. LMS also makes it possible for teachers to monitor each student's access to the system and to use that knowledge to conduct focused interactions with small groups of students.

Students would also welcome more opportunities for case-based, problem based, and team-based exercises — strategies that activate prior knowledge. Teachers would be able to actually teach, rather than merely make speeches (Prober & Heath, 2012). A meta-analysis published by the Department of Education, USA has concluded that "on average, students in online learning conditions performed modestly better than those receiving face-to-face instruction," with larger effects if the online learning was combined with face-to face instruction (Evaluation of evidence-based practices in online learning, 2010).

Objectives

General objective:

To compare the effects of learning on line through a learning management systems model with the lecture based traditional method of learning.

Specific objectives:

1. To introduce LMS learning on line using EDU.2 for half of the lectures on clinical microbiology
2. To conduct small group sessions on clinical cases and problems during the freed lecture time
3. To evaluate this system through student feedback
4. To determine the effectiveness of this system on learning of clinical microbiology by an assessment midway and in the final examination.

Methods

The Department of Microbiology, Faculty of Medicine, SAITM introduced this new model in the last 6 weeks of semester V, when students take Clinical Microbiology. Of the 10 lectures scheduled during this time, 5 were randomly selected for on line learning. Power point presentations of these lectures with quizzes were uploaded on EDU 2.0, one per week, for students to view, learn and assess themselves at their own pace and time. During the freed lecture slots, clinical cases and problems were discussed by students in small groups. The other half of the lectures were done in the traditional manner and were followed by discussion of clinical cases and problems.

Evaluation of the system through student feedback:

Questionnaires were given to the students that evaluated their perceptions of the importance of online versus traditional lectures for learning and the effectiveness and their experience of each.

Determining the effectiveness of the system on learning of clinical microbiology by an immediate assessment:

Midway during the semester, in order to determine the effectiveness of the two methods an immediate assessment was done after delivering a lecture on a topic not scheduled in clinical microbiology. An information sheet regarding this aspect of the study was given to the batch and all present that day (51 students) volunteered to participate and informed consent was obtained. Students were divided into two groups by a stratified random sampling method. One group had a lecture in the traditional manner, while the other group simultaneously viewed the power point presentation of the lecture online in the computer lab. At the end, both groups were assessed using MCQ's and results analysed. A student t test was used to compare the results of the two groups.

Determining the effectiveness of the system on learning of clinical microbiology in the final examination:

The performance of students in the final examination in Microbiology was analysed. The marks obtained to questions set on topics delivered online were compared to the marks obtained to questions set on topics given as traditional lectures.

Ethical clearance was obtained from the Ethical Review Committee of the Faculty of Medicine, SAITM. If there was any disadvantage to some students due to the new method of lecture delivery, this would have been minimal because every lecture whether online or done in the traditional manner, was followed by a small group discussion.

Results

Evaluation of the system through student feedback:

Quantitative feedback was obtained from 50 students. Fifty six percent agreed that online learning was important in medical education while 42% said it was not important. Fifty four percent preferred a combination of online and traditional lectures followed by small group discussions. Fifty four percent said their experience in EDU was good and 40% said it was a waste of time. Factors that students pointed out as important for the success of LMS systems are: IT knowledge of students (28%); their preference for innovative techniques and student centered learning methods (18%); failure of LMS due to students having conventional ideas regarding learning (12%); failure of LMS due to poor IT knowledge and more work for the students (6%).

Determining the effectiveness of the system for learning of clinical microbiology by an immediate assessment:

In the immediate assessment done following a traditional lecture to one half of the batch and an online lecture to the other half, there was no statistically significant difference ($p = 0.05$) between the two groups.

Determining the effectiveness of the system on learning of clinical microbiology in the final examination:

In the final assessment in Microbiology, the performance of students in areas covered by online learning and traditional learning was compared using a student t test. T-test results ($p < 0.05$) showed a significant difference in the marks obtained for answers to questions from lectures done online compared to those done in the traditional way.

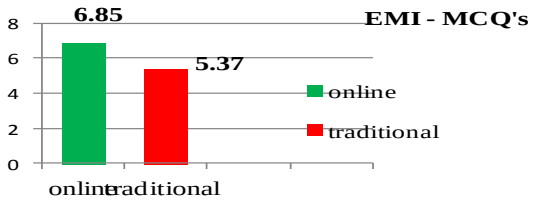

Figure 1

The difference between the mean score for the Extended Matching Items (EMI) in the MCQ's that were asked from online lectures (mean = 6.85, sd = 1.9) and from the conventional lectures (mean = 5.4, sd = 2.6) was significant ($p < 0.001$). (Fig. 1)

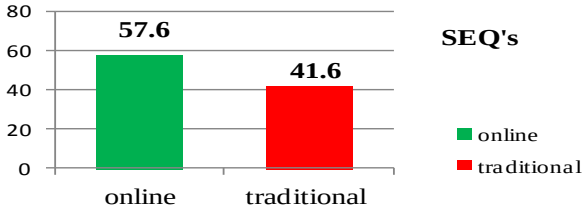

Figure 2

There was also a significant difference ($p < 0.001$) between mean marks of answers to SEQ's from online lectures (mean = 57.6, sd = 17.5) and from traditional lectures (mean = 41.6, sd = 21.3). (Fig. 2)

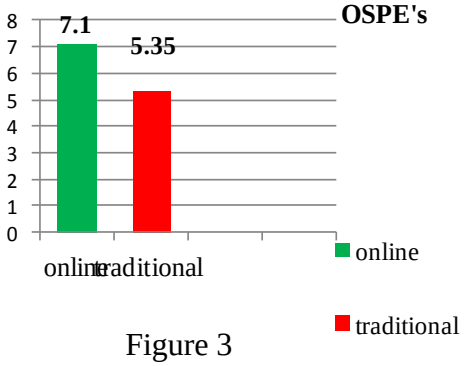

Figure 3

The difference between mean marks of OSPE done for online lectures (mean = 7.1, sd = 2.851) and for conventional lectures (mean= 5.3, sd= 3.5) was also significant ($p < 0.001$). (Fig. 3)

However, there was no remarkable difference between the single best response MCQ's asked from online lectures (mean = 4.6, sd = 1.4) and from traditional lectures. (mean = 4.5, sd = 1.5).

Discussion and Conclusions

Conducting on line lectures produced a mixed reaction from the students. While appreciating the importance of online learning, the students in this batch preferred a combination of traditional lectures and online lectures. Perhaps these students have not been exposed to student centered leaning and expect learning to be teacher centered all the time as in schools. If there was any disadvantage to some students due to the new method of lecture delivery, this would have been minimal because every lecture whether online or done in the traditional manner, was followed by a small group discussion.

The immediate assessment conducted following the two methods has not differentiated which method is better for learning. In this activity students faced difficulties in the computer lab where the online lecture was made available to them, due to slow network connections and unfamiliar computers. This was not the ideal situation where online learning should take place. Online learning needs to be done at leisure without a time frame as it was done when online lectures were required during the semester.

Overall the marks obtained in the majority of the components of the final examination in Microbiology indicate that students performed better in areas covered by online lectures. However noting the students' preferences it would be best if the combination model of online lectures and traditional lectures are done for learning in Clinical Microbiology.

To get students used to online learning, it would be good if LMS is introduced early in the medical curriculum to enhance student centered learning and to enable the teaching and learning in para clinical subjects as well to be more student centered and encourage deep learning.

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Achieving Student Centered Learning with Non-credit Courses: Lessons Learnt from a Case Study at Wayamba University

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Introduction

At present, there is a high interest in the higher education sector in Sri Lanka towards student centered learning. The Ministry of Higher Education of Sri Lanka has identified the limitations of the present graduate profile as gaps in knowledge, skills, attitudes and insufficiently motivated mindsets. They hope to reduce these gaps through a teaching/learning paradigm shift by introducing student-centered learning activities. Further, there are number of opportunities to implement student-centered learning as the Ministry of Higher Education and the University Grants Commission have identified student-centered learning as one of the five major areas to be financed by the budget 2014 (UGC, 2013).

The National Center for Research on Teacher Learning (1999) defines student centered learning as a learning model that places the student (learner) in the center of the learning process. In student-centered learning, students are active participants in their learning; they learn at their own pace and use their own strategies; they are more intrinsically than extrinsically motivated; learning is more individualized than standardized. Student-centered learning develops learning-how-to-learn skills such as problem solving, critical thinking, and reflective thinking. It accounts for and adapts to different learning styles of students.

There are major differences between student-centered learning and teacher-centered learning. The former can have high benefits to students' learning process as student-centered learning puts students' interests first; it is focused on each student's interests, abilities, and learning styles, placing the teacher as a facilitator of learning. Further, the student-centered method provides the students an opportunity to choose what they will learn, how they will learn, and how they will assess their own learning. Student-centered learning expects students to be active, responsible participants in their own learning.

There are number of components of the course modules of the Faculty of Livestock, Fisheries and Nutrition of Wayamba University which are conducted as student-centered activities. Among them, Social Harmony and Conflict Resolution is a non-credit module providing students opportunities to practice student-centered learning. This study was conducted to determine the present status of the student-centered learning experience and of limitations to and possible improvements of the course module. One limitation of the study is that findings cannot be directly extended to credit-bearing subject-based courses.

Methodology

Course module. The Social Harmony and Conflict Resolution course module is a two semester non-credit compulsory course module starting from the second year first semester. Students of B.Sc. in Food Science and Nutrition and B.Sc. in Food Production and Technology Management follow the course module. The module was a novel experience for both the academic staff and the students. The overall module was planned keeping the following five concepts of what makes students learn and perform well: (1) if their work is relevant to their academic and social life; (2) when the activity fully engages the learner; (3) when the activity is a challenge that requires a number of non technical skills such as morale and stamina; (4) when the institution supports students to achieve the outputs; (5) and when the activity is rewarding in multiple aspects.

Course delivery methods. The course is totally student centered and assessed via group based activities. This module continues for the entire second year and the course content consist of (1) guest lectures, (2) workshops and (3) student centered projects.

The guest lectures are intended to provide the background knowledge on theoretical aspects of the subject. Further, students can request different topics of lectures depending on the area of projects and recommend resource persons to the course supervisor. Such lectures will be conducted with the assistance of external resource persons.

The workshops are organized to give necessary technical training to conduct the project activities and training needs would arise based on the proposed students' project activities. Training on photography, scriptwriting, videography, video editing, and social survey methods will be provided by the program as the need arises and participation is open to all interested groups both faculty and students. At the successful completion of the training students are awarded with a certificate of participation and skills gained in the training should be well demonstrated in the project outputs.

Student centered projects are the core component and runs throughout the two semesters. To achieve the objectives, small group projects (n = 6 to 8) and university wide common activities were identified. Group learning and non-credit scenarios take the barriers off the andragogic learning environment. All responsibilities of planning, proposing realistic targets, financial management, conducting activities and developing educational outputs were entrusted to students. Students' interests, local initiatives for social harmony, creativity, novelty of the activity, efforts to uncover traditional belief that would bring about cross-cultural understanding were highly appreciated. Necessary trainings for project activities were arranged by the university to transfer non-technical skills to work in multicultural environments and projects were partially funded.

In facilitating the student project activities, each group is allocated with one/two supervisor/s and overall activity is facilitated by the course coordinator. During the project implementation, students have to take complete responsibility for their work and make the project successful. Most groups conduct various workshops, awareness programs and many different activities to gain the necessary skills during the implementation of the project. At the end of the course students are expected to achieve the expectations of the project and present to a panel of judges nominated by the Faculty Board.

Student feedback and analysis of results. At the end of the course module students were given a questionnaire with both open-ended and close-ended questions. Student level of satisfaction (1 to 5 scale, higher score represents the higher satisfaction) on the communication of expectations, delivery of course content, success of project planning, success of project implementation, support of course coordinator and support of course supervisor was measured.

Feedback from individual groups was averaged to provide equal representation of each group and the mean score, standard deviation, and coefficient of variance were calculated for each item on the questionnaire.

Results

Ninety eight students participated in the course module with 14 different project activities. Forty nine students representing 13 groups completed the student feedback questionnaire and three questionnaires were removed from the analysis as there was only one student to represent the group. Summary of analysis is given in Table 1.

Table 1: Various Aspects of Course Implementation and Extent of Student Satisfaction

	Component	**Mean (Out of 5)**	**Standard Deviation**	**Coefficient of Variance (%)**
1.	Clear communication of course objectives and expectations	3.9	0.8	19.2
2.	Delivery of the course content	4.0	0.4	10.9
3.	Success of the project planning	4.6	0.4	9.4
4.	Success of the project implementation	4.5	0.4	9.3
5.	Support of the course coordinator	4.8	0.2	4.7
6.	Support of the project supervisor	3.9	1.4	35.3

Discussion and Conclusions

All mean scores of the 6 components in Table 1 have values over 3.9 (above average) showing overall student satisfaction with the course. Support of the course coordinator towards student activities achieved the highest mean score (4.8 out of 5.0) showing the coordinator's dedicated contribution towards the course success. Further, it had the lowest coefficient of variance (4.7%) and lowest standard deviation (0.2) showing that the highest agreement among students was about the performance of the course coordinator.

Lowest means scores (3.9) were gained by the components "Clear communication of course objectives and expectations" and "Support of the project supervisor". Groups with lower scores on these components showed lower achievement of the module expectations. The highest coefficient of variance of 35.3% was for support of the project supervisor and the higher coefficient of variance shows disagreement among participants. In other words, while some project supervisors contributed maximum support towards student project implementation some project supervisors provided limited contribution.

The aspect of clear communication of course objectives and expectations had a relatively lower mean score (3.9) and a higher coefficient of variance (19.2). This shows the diversity of understanding among the students towards one component and requires the course coordinator to change the method of delivery during the initial part of the course module. Open ended answers of the students also showed that students had less understanding of course objectives and expectations during the initial stage since they were novel concepts. In future we expect to improve students' awareness of course objectives and expectations by inviting past students to do their final presentations at the inception of a new course.

The need to "cover" the subject content in credit-bearing courses encourages the teacher-centered learning style (Wright, 2011). Yet most important soft skills expected by the world of work can be achieved mainly by student-centered learning. Therefore, even though the findings of this study cannot be directly extended to credit-bearing subject-based courses, there are lessons that can be learnt and their transfer to credit-bearing courses can be explored. These factors include student willingness and dedication, a very well planned program, knowledgeable and dedicated lecturers, and sufficient physical resources to conduct student-centered learning. Even though some lecturer training courses in Sri Lanka have incorporated these concepts for over fifteen years, since student-centered learning is seen as relatively novel in Sri Lanka, there is a need for effective training sessions for lecturers to understand its importance and to learn how to implement it effectively.

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Utilizing Student Centered Seminars as a Student Centered Independent Learning Tool to Develop Transferable Skills in Students

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Introduction

Universities are expected to produce qualified graduates well equipped with knowledge, skills and attitudes. Knowledge is generated and shared through multiple disciplines. Skills development is timely since personal qualities and skills are important selection criteria used by employers. Students need to be able to identify their personal skills and qualities, assess how well they can demonstrate them, and determine how they can enhance those skills before they graduate, and communicate those skills to employers. In the process of distinguishing and selecting undergraduates for employment, employers take a keen interest in the personal qualities and personal skills of graduates who will be potential candidates.

In a conventional teaching environment types of skills and how those skills could be developed and transferred in students would be doubtful. Gibbs and Habeshaw (1989) point out that:

> There has been extensive research on the effectiveness of the lecture as a teaching method which has shown that; Lectures are as effective at conveying factual information as other methods, but not more so… Lectures are a very poor means of changing attitudes, inspiring students or inducing positive or professional attitudes towards the subject. (p. 44)

This study adopts a new method to change the conventional teaching and learning approaches which consist of lectures, assignments and examinations. The change resulted in the change of learning approaches of students from conventional learning methods to a student centered independent learning approach using a student centered seminar.

Gibbs and Habeshaw (1989) found that students learn well when they take responsibility for their learning and that "effective learners are autonomous: learners make their own decisions about how, when and what to learn rather than passively following general advice" (p.176).

In improving transferable skills, Gibbs (1995) stated that:

> Teamwork can involve a wide range of transferable skills, and team projects are an ideal vehicle for building the demand for the use of skills into learning tasks. Team projects can involve leadership, interpersonal skills, negotiation, oral and written communication, time and task management, research and information skills, chairing meetings and almost any other skill you want to build in. (p. 5)

Based on the above, the researcher was interested in exploring *what types of transferrable skills would be developed among students through the student centered seminars?*

The research issue was comprehensively addressed through answering the following research questions:

- *How were the student centered seminar series carried out?*
- *What types of transferable skills were students expected to develop?*
- *What were the methods used to assess the types of transferable skills developed through the student centered seminar series?*

The broader purpose of the study was to get a deep understanding of the research issue. The following were the specific objectives of this study:

- *To gain an understanding of the different types of transferrable skills which students were expected to develop*
- *To explore the impact of student centered seminar on students' transferable skills*

Methodology

For this study, the sample size comprised of 50 students who were in their third year of study in the Department of Accounting. The students were grouped into five teams of ten students each.

The seminar sessions were scheduled for three hours for the third year accounting subject, 'Financial Reporting and Regulations'. With the approval of the head of the department, resource personnel were contacted from a reputed organization in the field of accounting. The students' role was key to the success of the seminar series. In organizing sessions, students had to decide on the layout of the lecture room as per the requirements of the resource person, deliver the welcome speech and vote of thanks, arrange resource materials, and handle technical details. At the end of each session students were required to write an individual summary report on the day's topic, capturing the most relevant and important things shared in the seminar, on a single side of A4 paper. Students were given 20 minutes to write this summary.

Out of 30% continuous assessment (CA) marks, 20% were allocated for seminar attendance and organization and five summary reports. Gibbs and Habeshaw (1989) found that students were driven by assessments and that "to a considerable extent students get more out of learning tasks when they are fully involved in them" (p. 37).

Data was collected using the triangulation method. The first data used an open ended questionnaire where student feedback was collected at the end of the five seminar series. (If data had been collected at the end of each seminar, students would have had a chance of getting to know the content of the questionnaire from other groups, hence the researcher decided to collect data at the end of seminar series.) The second data source was from discussions with each group of students which was responsible for organizing a session. The third source of data was the summary report written by students at the end of each seminar session. Summary reports were in accordance with the 'Fifteen minute essay' as pointed out by Biggs and Tang (2007).

Results

Data analysis tools were descriptive coding and secondary grouping. Data collected through 48 of the 50 open ended questionnaires was first analyzed using the descriptive coding method. Descriptively coded data was then secondarily clustered into group skills. Group skills have been identified as specific skills such as communication skills,

teamwork skills, interpersonal skills, managing and organizing skills, problem solving skills and technical skills.

Table 1: *Types of specific skills*

Type of specific skill	**What is expected to develop among students**
Communication skills	ability to develop and deliver effective, informative and persuasive oral presentations
Team working skills	ability to operate effectively as a member of a team in completing tasks, solving problems or working towards agreed goals. Students could develop cooperation skills through: facilitating, trusting, accepting differences, contributing, sharing tasks, collaborating
Interpersonal skills	ability to work with different people and in different teams, and the ability to adapt to changing working environments and students' dress sense, personal grooming and business etiquette
Managing and Organizing skills	ability to plan and devise a timetable for action and carry these out systematically for group purposes
Problem solving skills	ability to identify, analyze, and describe a problem or group of problems, to consider the context and impact of the problem, to apply knowledge in proposing and reviewing various solutions, decide on the most appropriate ones
Technical skills	ability to write technical manuals, documents and reports and students' computer literacy

Source: Based on Mendis (2008) and MaTE course materials

Data collected using the discussions with particular groups of students revealed how important the seminar series was in developing skills in participation and organization, and more importantly, how the seminar series helped them to be active with the new experience which was beyond the conventional lectures.

In addition to the triangulation method used to collect data, the researcher could observe that students were engaged in organizing the seminar and managing their own time and could examine students' behavior, how interested and involved they were in the seminar session and more importantly how students took responsibility for their learning and for the tasks assigned. Further, the researcher could observe and identify that students tended to self-monitor themselves and their learning through this change. Biggs and Tang (2007) stated that when self-monitoring, learners keep a watching brief over their learning: How am I doing? Am I making mistakes here? If so, what is it and how can I avoid it in future? Is there any way I can approach this more effectively than I am now? With student centered seminars, the researcher has been able to engage students in active participation, active learning and self-monitoring of their learning.

The cumulative record of summary reports gave a very good and quick indication of the development of students' thinking through the course. This type of activity could help develop students' critical thinking, analyzing and problem solving skills.

The final examination paper included case studies and problem situations where students needed to apply relevant subject matter and practical aspects discussed in the seminars and lecture discussions. When evaluating their answers, the researcher analyzed whether students showed evidence on how they arrived at the problem situation, how students developed possible solutions, what was unique in their scenario, and to what extent students were successful in relating the problems to the practical elements discussed in the seminars.

Discussion and Conclusion

Student centered seminars involved giving students greater responsibility for their own learning, so that students had the fullest opportunity for active involvement and were challenged to think for themselves, to identify and tackle problems, and to share and discuss ideas with others. Active learning also puts a high priority on the skills students need to acquire or to refine in order to make use of what students know. Therefore, the student centered seminars paid greater attention to improving widely applicable or transferrable skills, which included the following: problem solving skills, skills in applying concepts and principles in analyzing problems, creative and critical thinking skills, showing greater self-confidence, taking responsibility for one's own development, working co-operatively with others in a group or team, leading and organizing group activity and communication skills. Students who have a secure grounding in transferrable skills will be better able to deploy and extend these in a variety of professional and social settings.

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Journey towards Student Centered Teaching and Learning in Universities: Introduction of Problem Based Learning

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Introduction

Universities face the challenge of adopting teaching/learning methods which enable undergraduates to have self directed learning and to gain problem solving skills together with the subject specific knowledge. These skills are extremely important in dealing with real world situations. In confronting this challenge, traditional lecturing in which the teacher talks and students listen plays a very small role. Previous studies have shown that students only retain 5% of what they hear (Albanese & Mitchell, 1993). Therefore, lecturing is a passive, ineffective method which is incapable of developing the essential skills in graduates.

This challenge calls for shifting to student centered teaching/learning (SCL) methods in which the students are required to play an active role and be responsible for their own learning. Since the students actively participate in the learning process the knowledge retention is comparatively high. More importantly SCL methods provide opportunities for students to develop a range of skills and to change their attitudes and mindsets. The Higher Education Ministry of Sri Lanka too has decided to introduce SCL methods in all government universities from January 2014 (Kumarasinghe, 2013). The government's primary objective is to produce a K-SAM graduate, equipped with knowledge, skills, attitude and proper mind set. Therefore, the time has come for higher education institutions to change their teaching/ learning methods from teacher centered to student centered.

Among a variety of SCL methods, problem based learning (PBL) was selected for this particular study. PBL originated in medical faculties but is applicable in almost any discipline and it has been identified that the benefits are substantial (Barrows, 1996). The purpose of this study was to provide a diverse teaching/ learning experience (PBL) to a group of students who are usually immersed in a passive teaching/learning environment and to investigate the success of implementation of PBL, especially the constraints affecting the implementation.

Methodology

This study was carried out in a Level III class in the Faculty of Applied Sciences, Wayamba University of Sri Lanka. The class size was 40 and the selected subject for introducing PBL was International Marketing. The main aim of this subject is to develop students' ability to adapt marketing strategies to specific national market needs and constraints. The existing intended learning outcomes (ILOS) were modified incorporating several skills such as communication, team working, leadership, self directed learning and professionalism which were identified as some of the skills most sought after by employers, from the graduates. The subject has nine ILOs, however the problem scenario developed for this study addressed only four of them.

Rationale for selecting PBL to teach International Marketing

PBL is a pedagogic approach that emphasizes the use of task-based problems to engage students in active, independent and multidisciplinary learning. In PBL, students work in small groups that enable them to practice collaborative decision making and to develop interpersonal skills as they attempt to solve the problems through group discussions. While traditional teacher centered approaches promotes surface learning with little understanding, PBL results in deep learning. As students engage in solving the problem, they also learn the processes involved in finding solutions. PBL also encourages interdisciplinary approaches for problem solving.

Designing and implementing the PBL project

PBL starts with triggering the question and this requires the identification of knowledge and skills that students need to acquire. Since this pedagogic approach was to be introduced for the first time (for both this group of students and the lecturer) the trigger question was designed in a way that it was simple, narrow, specific and covered only a small section of the subject content. The question was a real life scenario pertaining to multinational companies. A comprehensive plan was developed including guidelines for students to carry out the project, guidelines for tutors/lecturer to monitor the students' progress, methods and dates of evaluation, criteria for evaluating the group presentation, grading checklist for the report, evaluations forms (self assessment, peer assessment and student evaluation by tutor), time schedule for review sessions and time schedule for tutor briefing sessions. The self assessment and student evaluation forms were designed in a manner to get students/tutors to review their/students' performances, abilities and skills. And the peer assessment form was designed to facilitate both students/tutors to identify how other classmates assess each student's performances. The trigger question was then presented to the students to solve with necessary documents and instructions.

The duration for this PBL project was one month and the lecturer did not engage in any direct teaching of content but instead acted as a facilitator of learning. In order to guide the students throughout the PBL project and to monitor their progress a tutor was assigned to each group. The department's temporary demonstrators were assigned as tutors. Through review sessions, tutors monitored the progress of each group, provided the necessary guidance and resolved group conflicts. Throughout the duration of the PBL project, a pre determined number of tutor briefing sessions was held with the lecturer in charge and a tutor acted as the bridge between the students and the lecturer.

At the end of the PBL project each student submitted duly filled evaluation forms evaluating themselves and their peers in the group. In review sessions tutors evaluated their students using the student evaluation forms. Evaluations by both tutor and peers were used to evaluate a student's contribution to the project. Each group had to conduct their own meetings rotating roles of leader and secretary and had to submit minutes of the conducted meetings. Further, at the end of the project, a discussion was held with the students to identify the problems and challenges they faced during the project and their overall perceptions towards PBL.

Assessment strategies

A combination of assessment strategies was carried out to evaluate the knowledge students gained through the PBL project and the outcome/output and process of the PBL project. These assessment tasks were carried out at various points of the project. Knowledge was tested using two written examinations, one before starting and another

after completing the PBL project. Outcome/output was evaluated through a group presentation and a written report. All group members had to participate in the presentation and individual presentation skills were also evaluated. The process of the PBL project was evaluated through evaluation forms (self, peer, student evaluation by tutor) and minutes of the meetings held by students.

Results

The results of the first written examination held before starting the PBL project, indicated that the students can be categorized in to three groups with respect to students' knowledge of the topics relevant to the trigger question: those with little/no knowledge, some knowledge and sound knowledge. These results were taken into consideration when grouping by mixing students with different knowledge levels.

Since this pedagogical approach requires active contribution from the students, it was observed in the review sessions and student meetings that even the passive learners had to work more than in a traditional lecturing setting.

Analysis of the evaluation forms and the oral feedback received showed positive responses towards PBL. Project deliverables were clearly defined and informed well in advance to the PBL project, therefore the evaluation process was objective and transparent. No complaints were received regarding the marks, since the students could easily match the marks they received with the performance standards. Each student's contribution and performance was evaluated by themselves and their peers. Further each of them had to face a Q/A session in a random manner; therefore free riders could be easily identified and received lower marks than other group members. Most of the students had positive opinions on incorporating several evaluation points and different assessment strategies and also on receiving feedback not just at the end but also during the entire period of the PBL project.

However, during the initial stages, it was observed that the student had negative responses towards PBL since it was completely different from their previous learning experiences. The interviews held with tutors in tutor briefing sessions revealed that this student resistance was intensified since PBL demands more work while they were required to remain as passive learners in almost all other subjects they followed.

The analysis of feedback from students and tutors indicated that inadequate physical and human resources affected the successful functionality of PBL. Since the assigned tutors had not undergone a comprehensive PBL training they had difficulties in guiding the students. To make PBL a success, students must have convenient access to a range of physical resources. But availability and access to libraries, computer labs, and internet facilities in the faculty are inadequate so students cannot easily access what they want. The number of rooms available to conduct review sessions, discussions and student meetings is also insufficient. This study identified that under these resource constraints it was difficult to implement PBL to its full capacity.

Discussion and Conclusions

PBL is not about what to teach but how to provide an environment to engage students in learning, to create in students an initiative to learn, to assist students in identifying the issues and to support the learning process. Once they worked on the project, it was observed that students were really enthused and interested in the project. It was evident

that students' interactions with themselves and with the tutors were significantly higher than in a traditional lecture setting. Students also tended to make use of a variety of resources in order to complete the project successfully. Most indicated that this approach provided opportunities for them to develop certain skills as mentioned earlier.

However, constraints existing in the university system had a negative impact on the successful implementation of PBL. Any innovative teaching method has to be supported by positive student responses. The present education system at both secondary and tertiary levels over emphasizes examinations so teachers and students have become used to the transmission mode of teaching and the receptive mode of learning. Students are so used to this passive teaching learning environment that they were initially resistant to the active and independent mode of learning required in PBL. This resistance was intensified since PBL was only introduced in a few isolated subjects and the students were still exposed to traditional lecturing in most other subjects in the same degree program. Comparison of workload among different subjects creates negative feelings toward PBL since it demands more workload and independent learning.

Resources both human and physical and class size also impacted on the successful implementation of PBL. Resources must be adequately upgraded and allocated for adopting PBL. PBL is a very labor intensive pedagogical approach in which lecturers have to spend most of their time that can be used for conducting research. Many universities do not recognize teaching as an evaluation measure of staff performance and instead emphasize research output. This system motivates academic staff to spend their time in research rather than to engage in implementing SCL methods which can consume more time.

To implement PBL successfully, appropriate and adequate support by the university is of paramount important. University reward systems and resource allocations need to be reviewed and teaching must be recognized in order to move towards a more student centered teaching approach.

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The Positive Effects of a Lecturer Training Course in Enhancing Student Centered Learning Alignment from Student-Levels to University-Wide Levels of Practice

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Stakeholders interested in enhancing learning and teaching in higher education (HE) have introduced various changes and initiatives for improving HE. Introducing lecturer training to facilitate a movement away from traditional teacher-centred learning to student-centred approaches is one such initiative. Student-centered learning (SCL) has received considerable attention in the last decade and is now considered a buzzword.

SCL focuses on effective learning and engagement of students (Napoli, 2004). Several definitions of SCL highlight different aspects. Cannon and Newble (2006, p.16) defined SCL as "ways of thinking and learning that emphasize student responsibility and activity in learning rather than what the teachers are doing." (Lea, Stephenson & Troy, 2003) found that undergraduates "generally held very positive views of student-centered learning" (p.321). SCL is facilitated by teachers (Napoli, 2004) making students aware of what they are expected to learn and motivating them to take responsibility for their learning. A clear need for SCL is, therefore, to provide students with clear Intended Learning Outcomes (ILOs) and also the contexualised rationale for learning. This need, to know beforehand the purpose and relevance of what they are going to learn (Biggs, 1999) is also aligned to adult motivational learning principles.

While ILOs can furnish and satisfy these student needs, curriculum delivery for SCL will not be effective unless ILOs are integrated with Constructive Alignment (CA) of learning and teaching (Biggs, 1999). Proper ILO design is a first hurdle in making SCL effective and this study was conducted to identify;

A. whether the university lecturers employ ILOs with sufficient insight to be able to sustainably achieve CA in their teaching practices to enhance SCL,
B. areas where insight is deficient for effective ILO application in CA for SCL,
C. how training courses could be reconceptualised in terms of longer-term strategies to rectify or ameliorate such misalignment deficiencies so that CA for SCL practices become increasingly aligned across a wider sustainable base to ensure effectiveness.

The focus of this abstract is on practices of lecturers and does not analyse the extent or impact of constructive alignment.

The sample for the study consisted of lecturers (n=550) who followed the CTHE (Certificate in Teaching in Higher Education) course offered by the University of Colombo. These lecturers represented a few private universities and all national state universities in Sri Lanka except for the University of Visual and Performing Arts, the most recent university in the country. The subject disciplines of participating lecturers ranged across architecture, arts and humanities, education, engineering, IT, law, management, medicine and science.

In this research, quantitative data on conceptualised pre-course practices were first analysed, then compared and evaluated in light of professional development practices in self-documented qualitative data at course completion. Quantitative data were collected

from secondary sources covering a period of eight years. These data were collected via open-ended and close-ended questionnaires at course commencement and analysed to identify participant practices before they started the course with regard to knowledge and user frequencies on ILOs and constructive alignment. Qualitative data were collected from document analysis from a sample of portfolios submitted by 50 lecturers during the past three years and analysed to identify their knowledge perceptions, CTHE-induced changes in user-practices in applying ILOs and constructive alignment, and CTHE-induced alignments which enhanced SCL across different levels.

Prior to following the CTHE course (Table 1), a majority stated that they had not only heard of ILOs but had used ILOs in their teaching. However, as most of them also stated they had not heard of Bloom's (1956) and SOLO (Biggs, 1999) taxonomies and CA (last six columns), this pre-CTHE claim on ILO use indicated that when they did use ILOs, they lacked sufficient insight on the underlying principles to be able to have sustainably achieved CA in their pre-CTHE teaching practices as confirmed by qualitative data.

Year	Number of lecturers (total 550)	Learning outcomes		Bloom's Taxonomy		SOLO Taxonomy		Constructive alignment	
		Heard of	used	Heard of	used	Heard of	Used	Heard of	used
2005/06	70	83%	47%	21%	6%	4%	0%	10%	3%
2006/07	77	92%	66%	17%	6%	5%	1%	16%	6%
2007/08	68	92%	64%	24%	11%	8%	1%	13%	4%
2008/09	59	100%	77%	42%	26%	6%	3%	13%	6%
2009/10	52	92%	75%	17%	6%	10%	2%	12%	4%
2010/11	66	91%	73%	42%	21%	9%	0%	21%	6%
2011/12	70	97%	74%	33%	14%	8%	6%	17%	11%
2013	88	95%	68%	30%	14%	0%	0%	5%	2%
Averages		93%	68%	28%	13%	6%	2%	13%	5%

Table 1: Knowledge frequencies and user frequencies of CTHE participants on SCL-linked curriculum design elements before starting to follow the CTHE course

The qualitative data from portfolio analyses revealed that ILOs used by participating lecturers before they started the CTHE course had been designed not by themselves but by others who taught that subject before them in their own department or that ILOs had been taken from text books and/or similar courses offered by other universities. Participants had, during the CTHE, evaluated these ILO statements and found these ILOs to be of two categories, as;

1. Incorrectly worded ILOs, due to:
    a. non-specificity in ILO verbs - with ILO statements not clearly indicating what the student should "be able to do" as an outcome of the learning, such as Bloom's verb/s
    b. non-specificity in target level– not targeting Bloom's levels of learning appropriate to the respective course or module. In these cases, CTHE trainees had redesigned ILOs aligning level of learning targeted by those ILOs to the level of the course or module.

The CTHE activities enabled **rectifying course level misalignments** because**,** in these cases, what lecturers did while following the CTHE was to redesign the ILOs statements or ILO levels, based on CTHE course guidance so that their students could

then clearly identify what they were expected to 'do' from the contents they learnt, and at appropriate 'levels'.

2. Correctly designed ILOs – which were aligned to course / module level as well as specifically worded. These ILO designs had been done by senior colleagues in their departments who had followed the CTHE course. It can be seen that these helped in **enhancing alignment at TLA levels** because the CTHE participants who found such ILOs were then able to proceed to a next step of designing ILOs at more specific levels of teaching activities such as for individual lecture or tutorial sessions.

In addition to the above enhancing of alignments with SCL needs, CTHE participants helped in,

3. **Establishing alignment structures at faculty level** – portfolio evidence of formalizing

structures for curriculum alignment through ILOs designed by course lecturers during the CTHE course and by ILOs being accepted at department/ faculty board levels and some ILOs being formally entered into student handbooks and/or course manuals.

4. **Establishing alignment structures at university level** - portfolio evidence revealed

how a group of lecturers, the first group to follow CTHE from their university, were able to support all lecturers in their university in designing ILOs as part of the university's quality assurance programme. After listening to their explanations the Vice Chancellor had requested that copies of a handout on Bloom's taxonomy be distributed among all academic members.

5. **Enhancing lecturer-level alignment with SCL processes** & teacher development to 'Level 3' (Biggs, 1999)– personalized motivations derived from enhanced CA was evident in portfolio reports, where enhanced student learning resulting from teaching constructively aligned courses made CTHE participants feel "happy" or "rewarded". The enhanced learning and teaching generated reflections on further alignments that could be brought in for SCL with the realization that alignment of learning of their students was important to them. They had been surprised in realizing that they had not thought of CA until CTHE had introduced Biggs (1999) Constructive Alignment, as CA had by then become "common sense" and "not rocket science". Some expressed feeling "ashamed", on reflecting, that they were unable to have previously developed to 'Level 3' teaching through not having thought of SCL in this manner until CTHE had introduced these concepts.

The portfolios revealed that the lecturers had designed ILOs and had practiced constructive alignment in the courses they teach. They claimed ILOs helped them motivate students to reach higher levels of learning as ILOs showcased higher expectations of the teacher. They identified that reflective practice promoted in the CTHE course as the reason for them to look at their practices and take measures to improve, including designing or redesigning of ILOs and practicing CA and teacher development to 'Level 3'.

6. **Enhanced student alignment** with the learning and assessment processes was evidenced

in student feedback presented in the portfolios showing that the students valued ILOs as ILOs provided directions that could be intentionally conceptualised (Sinatra and Pintrich, 2003) for their learning. The students' feedback had statements that ILOs helped them "save time" and reduce the pressure on them as they could identify how they would be assessed. Students had requested that this practice of providing ILOs be continued.

7. **Enhancing alignment towards a collaborative teaching – learning partnership**

Lecturers had facilitated students to take responsibility of their learning by providing ILOs and adopting constructive alignment in the courses they teach. The lecturers had adopted those practices voluntarily to enhance the student learning as very important for the sustainability and further enhancement of the good practices. The lecturers had also contributed to enhancement of systems and process that support student learning, for example as revealed by the examination of the existing ILOs of different courses. In promoting SCL, facilitating lecturers to adopt CA in their teaching helped lecturers to motivate their students to take responsibility for their learning. In facilitating lecturers to improve their practices, it was necessary to facilitate them to become reflective practitioners.

All portfolio reports showed that after getting to know about the CA, the lecturers had paid attention to CA in designing teaching and learning activities, assessments and had informed the students of the alignment among those activities and ILOs, thereby contributing also to build better rapport iteratively between them and their students. The lecturers had been able to change their practices and adopt ILOs and practice constructive alignment within the CTHE course duration which was a relatively short period of time. Portfolios revealed that ILOs and constructive alignment in teaching and learning had helped the lecturers to motivate the students to engage in active learning much more than the students would otherwise have done. One lecturer stated that "[i]t was only after I learnt about constructive alignment I could understand how I can motivate the students to learn in the way I want them to learn… As Biggs says "assessment drives learning.""

Research Summary

This study looked at teaching practices of university lecturers focusing on ILOs and CA of courses, the foundational components of SCL. Data from participants showed that the training course had brought about benefits of enhancing curriculum alignments though progressively hierarchical levels, including student rapport, individual teacher development, Teaching-Learning Activities (TLAs), whole course, faculty and institutional levels. These had helped rectify misalignments or enhance alignment at progressive levels of curriculum design for effective teaching. The study also found that the CTHE course offered by the University of Colombo had enhanced lecturers' teaching practices to facilitate students to engage in SCL.

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Exploratory Study of the Use of Research-Based Teaching to Develop Student Skills

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Introduction

The term "research-based teaching" (RBT) has different meanings depending on the context of its use. In one context, it can mean teaching in a reflective manner: "shifting the lens to those who are doing the teaching. According to this perspective, teaching that is research-based is teaching that is characterized by inquiry into the process of teaching itself" (Krebber, 2006a). However, this study uses it in the student context "as student-focused, inquiry-based learning" (Krebber, 2006b) to develop student skills that are related to inquiry and **"**teaching that is characterized by students' direct engagement in inquiry-based learning" (Krebber, 2006a) since inquiry-based learning is an effective method of developing student skills (Elton, 2006)**.**

RBT can remain an uninteresting and unexciting practice for many undergraduate degree programs in Sri Lanka if lecturers do not realize its indispensable value in developing student skills in their respective disciplines by **"**Linking Research and Teaching to Benefit Student Learning" (Healy, 2005). Incorporating RBT in the undergraduate degree program is very important to develop useful research-related skills, as part of a 'research culture' among university students. The link between teaching and research mainly look at pedagogic links and direct benefits arising from the interaction of both activities (Taylor, 2008). Connecting research and teaching in higher education can have a global significance (Amaratunga and Senaratne, 2009). Building on this prior research, this study evaluates the practice of RBT in the teaching context to analyse whether undergraduate students benefit from RBT, and if so to what extent? Consequently, the objective of this study was to evaluate RBT from the perspective of the final year undergraduate students who gained learning experiences through the RBT method.

Methodology

In this study, 15 internationally published research papers from journals in the subject area (Social Responsibility of HRM) were used. The RBT practice was applied to a group of 15 students in the first semester of their final year who specialized in Human Resource Management. Students used the 15 papers as the main resource in their studies and assignments. Data collection was carried out in two phases. In the first, students were interviewed at the end of the course using open-ended questions to evaluate RBT from their perspective. Based on the findings of the first phase, the second phase used a survey to collect data from the same students.

Results

Based on data from the first phase of the study four themes were identified (Table 1). The results of the interviews revealed that RBT had a positive influence on skills development, gaining new disciplinary knowledge and diversity in thinking about new areas of research work and also contributed to knowledge of research methodological diversity.

Table 1: Summary of data from the interviews (n = 15)

	Theme	**Sub-component**
01	Certain skills development	Language skill Learned more new words or vocabulary Writing skill Problem solving skills Analytical skills and Research related skills Increased their confidence and motivation to conduct research studies
02	Certain new (wide) subject knowledge (latest concepts and ideas) or innovative ideas	E.g., Social role of Human Resource Management. How to be a socially responsible organisation even after downsizing 1000 employees The central role of human resource management in the search for sustainable organizations Socially responsible HRM (SR-HRM) Socially responsible International HRM (SR-IHRM)
03	Certain new research areas or current research issues	Social role of Human Research Management Role of HRM in creating sustainable organizations Role of HRM in Diversity Management Ethics and HRM Small Business and HRM
04	Knowledge about diverse research methods/approaches/strategies /designs	Quantitative approach and Qualitative approach Survey Methods Writing Review Papers Case study methods Different types of data collections methods How to link theory and practice

The results of the second phase of the study are shown in Table 2. According to the findings of the second phase, RBT had contributed to develop skills (mean = 4.40) and to gain new disciplinary knowledge (mean = 4.07) at a higher level. However, RBT has supported enhancement of research methodological knowledge (mean = 3.60) and of thinking about new areas of research (mean = 3.07) only at a moderate level.

Table 2: Descriptive statistics and frequencies

Key Aspect of RBT	Descriptive Statistics			Contribution Frequency and Percentage				
				Scale (1-5) (Very low to Very high)				
	N	Mean	SD	Very Low-1	Low-2	Moderate-3	High-4	Very High-5
Skills development	15	4.40	0.51	00	00	00	09 (60%)	06 (40%)
Gaining new disciplinary knowledge	15	4.07	0.46	00	00	01 (7%)	12 (80%)	02 (13%)
Diversity in thinking about new areas of research	15	3.60	0.74	00	00	08 (53%)	05 (33%)	02 (13%)
Research methodological knowledge	15	3.07	0.59	00	02 (13%)	10 (67%)	03 (20%)	00

Overall, the results of both phases indicate that, RBT had certain positive influence on the skills development (language skill, writing skill, problem solving skills, analytical skills and research related skills) of undergraduates. Most participants felt this approach/strategy/practice facilitated learning something new in their subject area in terms of knowledge and paved the way to think about new areas of research in their discipline. The interviews also indicated that students have improved their competencies in how to conduct good research and gained knowledge about various research methods (methodological diversity of research works).

Discussion and Conclusion

Many undergraduate degree programs in Sri Lanka have failed to produce student skills, including skills that can be identified as beneficial skills related to a good research culture. Programmes are also facing numerous challenges in implementing undergraduate research projects efficiently and effectively. The findings of this case study provide one feasible solution to overcome certain problems (e.g. quality of research work and supervision, providing required knowledge about research methods and limited resources) faced by the undergraduate degree programs in terms of research that can develop student skills. Although the sample size was small (n=15) and results must be viewed with caution and may not readily extend without further study, introducing RBT in the undergraduate degree program should be explored to develop a good research culture among university students and to overcome certain problems or issues related to undergraduate research. Therefore, teachers should as far as possible begin to explore RBT practices and motivate students' interest in developing skills in relation to a good research culture in the undergraduates learning context.

Based on the findings, this study suggests that RBT can be explored as an important teaching and learning strategy/practice to develop certain skill sets, new knowledge, new research areas and a variety of methods in conducting research. Exploring research

knowledge transfer into teaching has been done in the built environment in the UK (Senaratne et al., 2005). The findings of this study have implications for further exploring the RBT method in the Sri Lankan context for internal stakeholders (teachers and undergraduates) and external stakeholders (higher educational policy makers and future researchers).

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Use of Literature Sources for Undergraduate Research Projects among Physics Undergraduates

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Introduction

With the increasing trends in computer technologies, electronic material has become more efficient sources of information than printed material. Use of electronic material has many advantages. They are easy to access, can be stored within a small capacity and are environmentally friendly. However, some people find it inconvenient to use electronic material mostly because it is difficult to receive the experience of reading, unlike printed material. It is important for teachers and institutes to understand the learning trends and learning preferences among independent learners in order to effectively facilitate the learning process. Therefore, this study was conducted to investigate student preferences and reasons in using electronic and printed material in the literature surveys for undergraduate research projects.

Researches have been carried out to study how internet has been used as a source of academic information and the use of electronic sources among UK undergraduates (Selwyn, 2008) and Israeli academics (Wolman et al., 2003). The preference of printed and electronic material have also been studied for general (Liu, 2006) and medical students (Tenopir *et al*., 2004). In Sri Lanka few studies have been carried out to find student preferences on using electronic material especially for research purposes.

Methodology

The study was conducted through a questionnaire given to final year Physics undergraduates of the Department of Physics, University of Colombo just after completion of their research projects and submission of their dissertations. To find preferences towards the different literature sources, 30 students whose ages range from 24 to 27 years and who come from three different disciplines (Physics, Engineering Physics, and Computational Physics) were given the questionnaire. It is assumed the group of selected students was equally aware of using internet and electronic sources of information as they received good exposure to online learning facilities during their special degree in Physics. Students had the opportunity to answer the questions anonymously and sufficient time (three days) was given to complete and return the questionnaire. The answers were collected and analyzed.

Results

Out of the 30 students, 26 students answered the questionnaire and all said that they used web sites, online journal papers or e-books as resources for their literature survey. The most used literature source was websites and 38% of students said it was their most frequently used source while 31% said they used journal papers as the most frequent source.

The preference to read printed material versus electronic material did not differ much. Electronic material was preferred by 56% of students mainly due to ease of access while 44% of students said they prefer reading printed material because it is less strain on the eye and they find it easy to see the complete document at once.

Out of different printed material available, none of the students had selected books in the library as the most frequently used source instead, they (75%) had most frequently used journal papers that they had printed by themselves.

Out of the various online sources available, the most frequently used source was web sites (69%). As the most convenient place to refer electronic literature sources, 75% of students selected home and all of them had a personal desktop computer or a personal laptop. However 62% agreed that University is also a very convenient place to refer electronic literature since they have easy access to computers inside the university.

Most students agreed that literature relevant to their field of research is available mostly on web sites as shown in Figure 1 while availability of journal papers was average. The majority suggested that the science library should subscribe to more online journals so that students can easily access them through the university web site.

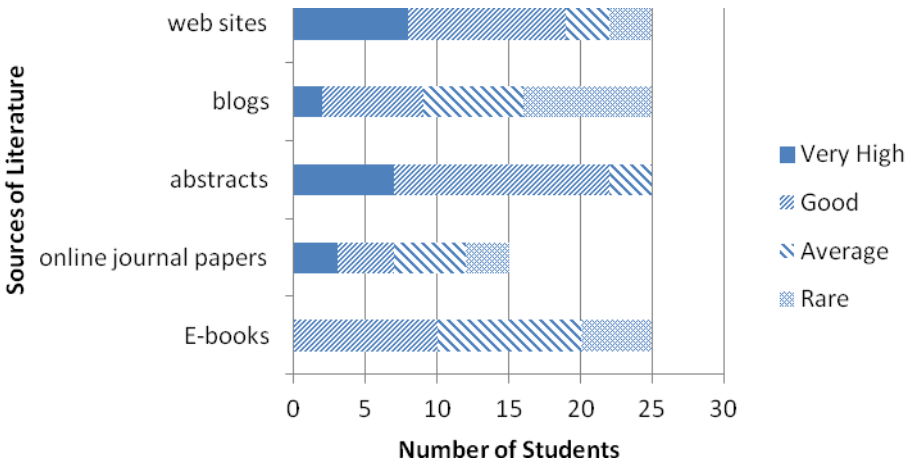

Figure 1: Availability of good quality online literature sources relevant to research projects as stated by the students

Above 50% of students had the habit of using Google Scholar to find relevant literature sources and only 1 student said he used particularly selected research databases to locate relevant resource material. These results are compatible with the results obtained by studies conducted at other places (George, et al., 2006).

Further, students identified the most convenient methods to clarify doubts arising during their research as consulting their supervisors or searching the internet as shown in Figure 2. The major difficulty faced by students in finding online literature sources was the limited access to prestigious journals, as stated by 77% of the students.

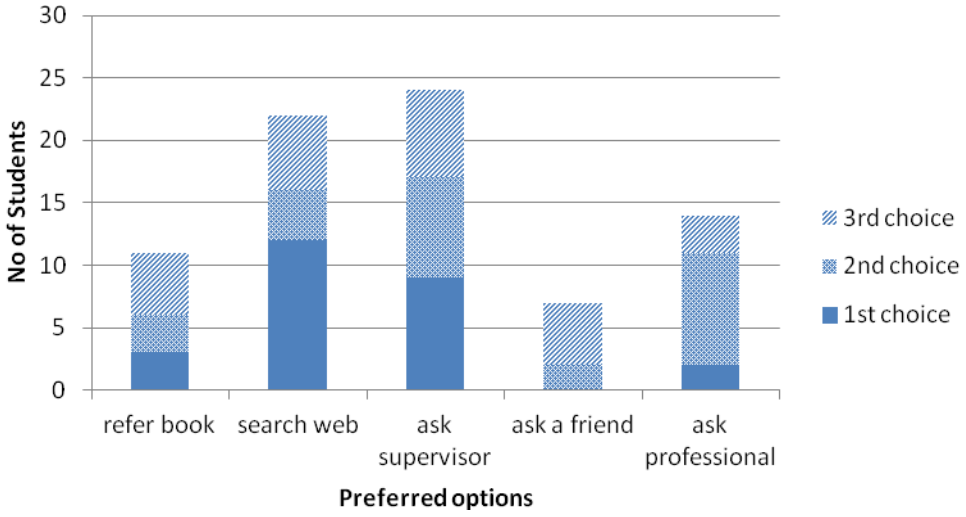

Figure 2: Students preferred methods for clarifying doubts during research project

Discussion and Conclusion

With the increasing use of computers and the internet, the use of electronic material as sources of literature for research projects is very prominent among Physics undergraduates. However, the desire for reading printed material remains at a considerably higher level and students tend to use electronic material mainly due to the availability of those materials online. Students have little tendency to use books available in the library as sources of literature for their research projects and they mostly prefer journal papers as they contain more relevant and more up to date information. Therefore science libraries must pay their attention to support students by subscribing to online or printed research journals.

This study showed that students' preferences for particular sources of information are mainly governed by the ease of access to the information sources. This observation is compatible with the observations made by other researchers (George, et al., 2006).

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Redesign Assessment: from Summative to Formative

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Introduction

Assessment is generally considers an essential area in higher education learning because what and how students learn depends on the way they are assessed (Fry, Ketteridge & Marshall, 1999). Biggs and Tang (2007) emphasised that assessment communicates what students required to learn and how they have learnt. Fry *et al.* (1999) state that assessments help students to achieve learning outcomes by means of setting assessment tasks that support learning. Therefore, teachers are required to design appropriate assessment techniques to evaluate students' performance.

According to Brown (2004), if assessment is to be integral to learning, feedback must be at the heart of the process. It indicates assessments are to support students' learning rather than to hinder their learning. Under the existing practice, the researcher mainly gave summative assessments to evaluate students' performance. The application of formative assessment is one of the main tools that the researcher learned in the Certificate in Teaching in Higher Education (CTHE) workshops which aimed at enhancing student centered learning. The prior practice of the researcher was to use summative assessments with criterion-referencing as the common assessment technique where students' performance is measured with given criteria. It does not provide an opportunity to correct mistakes and to achieve Intended Learning Outcomes (ILOs) of the subject. This study is conducted with the objective of identifying students' perception on providing formative feedback for their assessments.

Shute (2008) explains formative feedback as intended to modify learner's thinking or behavior for the purpose of improving learning. Timely feedback is a necessity to improve students' learning. It should not be provided too soon, as it could prevent students reflecting on their work; neither should it be provided too late when it is no longer salient to the student (O'Farrell, 2009). Fry *et al.* (1999) explain that within a semester system, delay in giving timely feedback is not an uncommon fault. From the teacher's point of view, it is difficult to give formative feedback to a large class in the short time available within a semester. By the time students get feedback, it is too late to take any remedial action.

The researcher's own experience as a student helped her to realize the importance of obtaining timely feedback for the development of students' learning. Timely feedback provides an option to realize shortcomings and make necessary changes. The delay in receiving feedback gives no time to make changes to existing learning. Accordingly, the study is addressing the research problem of whether timely formative feedback could enhance student learning.

Methodology

This study followed a qualitative research approach and the data consisted of feedback collected from students. The selected sample for the study was a large class with one

hundred students. For the assignment students formed twenty groups with five members per group.
Data analysis was based on identify themes in the collected data. Students' ideas about feedback received on assignments were taken into account to analyze the students' perceptions on redesigning the assessment from summative to formative.

Students were required to submit a group written assignment for their continuous assessment. In order to incorporate formative feedback, prior to the submission of the assignment students made a presentation on what they undertook for their assignment. Students were asked to make ten minute presentation using PowerPoint. This included an initial analysis of their assignment and it enabled the researcher to assess the groundwork for the assignment. The researcher provided constructive feedback after the presentation. The presentation allowed students to form an opinion of their abilities and what needed to be further improved to successfully complete the written assignment.

After the presentation, all the groups were required to give written feedback on the constructive feedback they received for their presentation. Students had the opportunity to present their views and new learning and issues they encountered with the redesigned assessment technique.

Results
Fifteen groups found the timely formative feedback session very useful for them to review their work from a different perspective. They mentioned that it gave them a chance given them to realize their mistakes, correct them and to meet ILOs and score good marks for their assignments. One group said that they had not attempted certain areas of the assignment and they had not been aware of it. Formative feedback helped them to figure out what was missing and helped them to address it in their written assignment. Without the formative feedback they would have lost marks for that section in their written assignment. Another group wrote that "we thought you are putting us in to a trouble. But later we realize you helped us to correct our mistakes and improve the assignment" (group feedback).

The above students used their knowledge to make value judgments in a practical situation. In other words, they reached higher levels of Bloom Taxonomy with the formative assessment technique. Overall, these students' perception was that formative feedback is necessary to improve their work and that the written assessment improved with the timely feedback.

On the other hand, two groups stated that it was an extra burden to penalize students and they were totally unsatisfied with the new practice. There were students who were not happy with the change. Their intention was to pass the course module without putting much effort. One group stated "we have so many assignments to do. This is an additional trouble. We just want to pass the exam" (group feedback).

The new practice was as an additional weight for students in the above two groups. They prepared for the presentation since they had no option, but their negative responses confirmed their dissatisfaction with the new initiative. According to them the formative feedback session did not provide any value addition to their learning.

Feedback given by the remaining three groups stated that they were not unsatisfied with the initiative but they were also of the opinion that it increased their work load and that the semester based education system made it difficult to learn what was intended. However, these three groups also stated that the feedback received was useful.

Discussion and Conclusion

According to Shute (2008), assessment tasks need to be integral to the learning process and motivation given through feedback is an important intervening factor in a learner's performance. This study aimed to redesign a primarily summative assessment to include formative assessment and to understand students' perceptions on the formative feedback they received.

The ideas presented by students indicate that 75 percent of the sample found formative feedback a necessary component in their learning process. The majority of the students mentioned that formative feedbacks allowed them to realize their mistakes and to correct them. These result confirm Bennett's (2011) view that teachers need to understand students' learning needs and to provide feedback to move students forward in the learning process.

Shute (2008) stated that feedback could encourage or discourage a learner's effort and that if they were encouraged they would act on the feedback. Results of the study showed that a major proportion of the respondents were encouraged and only two groups were not satisfied with the initiative. The latter's negative feedback showed they adopted a surface learning approach where formative feedback was a burden. There was a resistance to change and meet ILOs by this small proportion of the respondents. The researcher needs to communicate the redesigned assessment technique in a different manner to avoid formative feedback being seen as a burden. Instead of making a presentation, the researcher could ask them to show their analysis in written form. It might be a more comfortable approach for some students to get feedback for their preliminary work in order to make improvements.

When students have done well, to help them to understand what is good about their work and how they can build on it and develop further, the most important aspect is providing constructive feedback (Brown, 2004). Therefore, formative feedback facilitates the development of self-reflection in learning, encourages dialogue with the teacher, encourages positive motivational beliefs and self-confidence among students and provides opportunities to bridge the gap between actual and desired performance. In addition to that, it provides information to teachers that can be used to shape teaching practices.

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The paper submission and peer-review process: papers that appear in this Book of Abstracts are 'Extended Abstracts' and are in the form of 'full papers', made up of sections comprised of an Introduction, Methodology, Results, Discussion and Conclusions, References. Each paper has been accepted and printed after having undergone a thorough and rigorous peer-review process. An Extended Abstract had first been submitted together with a self-assessment Scoring Sheet. Each 'Extended Abstract' then underwent a 'blind' 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 "Papers Committee" met to discuss, again 'blindly', the reports of both referees and to approve sending the combined feedback to authors to accept, reject or to do modifications, if any, to the extended abstracts 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, have not been 'accepted' and so, do not appear in this Book of Abstracts.

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

My conference schedule - plan;

Time	Hall (A or B)	Title	Author(s)
10.45 - 11.15 am			
11.15 – 11.45 am			
11.45 – 12.15 pm			
12.15 – 12.45 pm			
12.45 – 2.00 pm	**Lunch** & time-management plans		
	While having lunch, I will 'do':		
	Over any spare time, I will 'do':		
2.00 – 2.30pm			
2.30 –3.00 pm			
3.00 – 3.30 pm			
3.30 – 4.00 pm			
4.00 – 4.30 pm	Feedback form Tea – Conference ends		