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Learning Effective Teaching through Microteaching - Case Study

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Abstract

Microteaching, a popular teacher training technique, allows teachers to improve their teaching skills by focusing on a variety of minor tasks known as teaching skills. At General Sir John Kotelawala Defence University in Sri Lanka used as a case study microteaching, with its demonstrated success among novices and seniors, promotes real-time teaching experiences were witnessed. The key abilities of microteaching, such as presentation and reinforcement, assist rookie teachers in learning the art of teaching with ease and to the greatest extent possible. This technique's impact has been widely observed in numerous forms of education such as health sciences, life sciences, and other fields and the case study was done for Engineering faculty. The University Grant Commission of Sri Lanka forthcoming changes in university curricula and the function of university teachers anticipate the need for this training of teachers and monitoring of their abilities for their sustained efficient performance at any age. Microteaching's reported shortcomings can be mitigated by deploying it at the departmental level in numerous sequences. The author conducted a case study with respect to literature on research and review articles in major educational databases, journals, and books. Books were also reviewed using the reference list of published articles. This study provides an overview of the many stages of microteaching, as well as basic teaching skills, implementation issues, and the impact of microteaching on university education.

Keywords: Microteaching, Medical Education, Teacher Training, Teaching Skills, Teach-Re Teach

Introduction

There is growing agreement that highly qualified and effective instructors are required to improve student performance, and there is a growing interest in determining individual teachers' impact on student achievement. The No Child Left Behind (NCLB) Act requires that all teachers be highly qualified, and most teachers currently satisfy this standard, according to the federal definition (Dillon & Dillon, 2019). However, it is becoming increasingly evident that being "highly qualified"—having the appropriate qualifications and certifications—does not always imply being "highly effective"—

teaching that promotes student learning. The question remains: What factors contribute to a teacher's effectiveness, and how can we quantify it? (Song, 2019).

In traditional beliefs, university education was considered a privilege and a prestigious opportunity forty to sixty years ago; however, the anticipated output of a university has rapidly changed due to societal changes based on technological development and reforms in the world's economic systems (Dicke et al., 2019). Universities are now business organizations that compete to fulfill their goals since a university's survival and advancement are predicated on the achievements of its student population (Krishnamurthy, 2020). The necessity at the outset of this transition was the cognitive and constructive alignment of university teaching, students'/teachers' learning, and the evaluation procedure to determine whether the students had reached the stated achievements according to the benchmarks established by the bodies of tertiary education (Stamov Roßnagel et al., 2021). Even though higher education has been meeting its aims in a conventional environment through quality teaching, committed learning, and scientific assessments, graduates have not been credible enough to consider themselves to have greater employable abilities. According to the studies, there is a larger gap between the real needs of society and what graduates achieve at colleges (Hasudungan & Ningsih, 2021). To address this issue, first cultivate academics with academic abilities such as teaching via micro teaching in the institution (Ahmet, 2019). The profile emphasizes on how graduates should conduct in the professional and corporate environment; therefore it mostly presents the outer look of the teaching. The goal, vision, and objectives of the universities were primarily focused on building the proper teaching (Madani, 2019).

The skill of teaching is more than just passing on knowledge from one person to another. Instead, it is a complex process that both helps and influences the learning process (Borah, 2021). The effectiveness of a teacher is measured by how much his or her students understand from his or her instruction. Classrooms cannot be used as a learning environment for developing core teaching skills (Müller & Mildenberger, 2021). Academic teacher training in specialized teaching skills is a significant difficulty in academic education programs. Only through more systematic and less expensive faculty training procedures can pedagogic skill for teaching be achieved. The development of microteaching about five decades ago filled a void in teacher training programs for scientifically proved or effective ways (Pozo-Rico et al., 2020).

The purpose of this essay is to underline the need of employing microteaching approaches more frequently and efficiently with limited resources. This research was conducted at General Sir John Kotelawala Defence University to determine the significance of microteaching in a university setting. A systematic literature search of research articles and reviews from several educational databases was conducted. Books were reviewed based on the reference lists of published articles.

Methodology

Research Design

We investigated General Sir John Kotelawala Defence University's (KDU) peer feedback and cadet and civilian students' responses to physical microteaching in the Defence university system in this study. This issue was deemed incredibly necessary to gain a conceptual comprehension of what teaching approaches are and whether they incorporate evaluation through physical microteaching. Figure 1 depicts the study design for this study.

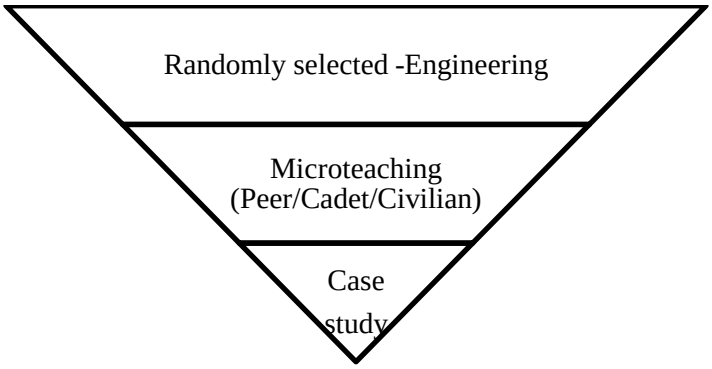

Figure 1: Study design

Research Context - University Grant Commission Methodology on Microteaching

Human Resource Development of the University System is one of the University Grants Commission's (UGC) statutory responsibilities, as well as a key component of the Higher Education for the Twenty-First Century (HETC) Project (2011-2016), the second phase of World Bank assistance provided to Sri Lanka's higher education sector. As the top organization of the university system, the UGC is responsible for providing as many people as possible with opportunities for growth and career development through in-service training. In-service training for all levels of staff is critical not only for imparting specific knowledge and skills required to perform the employee's assigned tasks, but also for promoting positive attitudes and behavioral characteristics such as allegiance, commitment, initiative, and adherence to codes of practice and ethics, which are indispensable elements required for improving the productivity of employees and that of the entire system.

Research Context - University Faculty Level on Microteaching

Induction of a new academic recruit into the University System has become an essential component in the attempt of developing an academic employee's career path. In

accordance with this idea, the UGC has announced that all academic recruits must complete an orientation program in order to be confirmed. As a result, based on the wide parameters provided by the UGC, the Staff Development Centers (SDC) of various universities have begun giving induction training to new recruits of their own members as well as members from other universities. Recent UGC reviews, however, indicated that the substance, time duration, and presentation style of programs given by different colleges vary. While applauding the initiatives of successive SDC directors, the University Grants Commission's Standing Committee on Staff Development decided to broaden and define the scope, specify the core modules and contents, and the norms of the Induction Program for Academic Employees to ensure that all essential components are covered by such a program offered by any university. The Induction Program for Academic Staff presented in this manual is broad enough to address the training needs of a population of university educators recruited to the University Academic staff category, ranging from those who have been exposed to modern teaching methods to those who have not had the opportunity to experience such methodology in higher education. The curriculum would tremendously help the endeavor to address the paradigm shift in our universities from teacher-centered to learner-centered education, as well as the intended function of a university teacher.

Method of Delivering a Lesson

1. Aim: To present a planned lesson to a peer group or actual class of students in order for participants to gain confidence in teaching.
2. Learning Outcomes: Participants would be able to
    - Deliver a lesson as planned.
    - Receive helpful feedback on all elements of the class given.
    - Increase the effectiveness and efficiency of their instruction.
    - Develop skills in lesson observation, post-lesson observation conferencing, and teacher/mentor guiding and counseling responsibilities.
    - Self-assessment lesson

3. Learning Resources
    - A classroom containing at least the bare necessities for teaching - a chalkboard, a multimedia projector, and a screen
    - Other amenities as required by certain lessons
    - Possibility of video recording

4. Activities
    - Each teacher will be responsible for actual teaching.
    - Peer review.

Feedback from evaluators

After the class and after seeing the video, assess yourself

5. Assessments

A minimum of two evaluators would evaluate the teaching practice session.

Assessment Is Done Via Microteaching

Microteaching is a strategy for teaching skills development used by teachers. It uses real-world teaching situations to assist improve abilities and gain a greater understanding of the art of teaching. This Stanford technique entailed the steps "plan, teach, observe, replan, reteach, and reobserve" and has evolved as the core component in 91% of on-campus clinical teaching development programs, with a significant reduction in teaching complexities such as the number of students in a class, the scope of content, and the timeframe, among others (Figure 2). Microteaching is widely used in most pre-service teacher education programs, and it is a proven approach for achieving significant improvements in instructional experiences. A teacher's primary characteristic should be effective student instruction. Microteaching skills and practices have been used as an innovative technique of preparing teachers to be effective. Microteaching can be done with a small lesson or a single subject and a small group of pupils. It reduces the difficulties of real-world teaching by allowing for rapid feedback after each practice session. Modern multimedia equipment, such as audio-video recording devices, play an important role in the learning process.

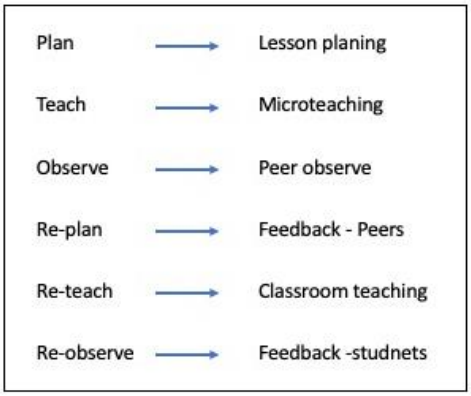

Figure 2- Plan teach module at General Sir John Kotelawala Defence University

Peer Feedback

Observing another teacher and employing trial-and-error in one's own teaching sessions is a frequent method of self-training. However, each has its own set of flaws. Microteaching, on the other hand, aids in the elimination of errors and the development of

stronger teaching skills in both novice and experienced teachers. Microteaching boosts self-confidence enhances in-class teaching ability, and fosters classroom management abilities. Colleagues and peers can serve as constructive evaluators, allowing them to improve their own teaching-earning techniques. The instructor can reinforce important behaviors and skills while suppressing those that are not. Finally, they will be able to combine and adapt their newly acquired skills from simulated teaching situations to actual classroom teaching. Feedback is given according to the standard format and participants need to analyse and present in the Portfolio book for final evaluation (Table 1).

Table 1: Sample evaluation sheet of Microteaching

KDU	STAFF DEVELOPMENT CENTRE GENERAL SIR JOHN KOTELAWALA DEFENCE UNIVERSITY	Issue No: 01 Date: 16.08.2022
		Revision No: 00 Date: 00
	EVALUATION OF MICROTEACHING	Page 1 of 1

Rating scale - 1 is a low rating and 5 is a high rating

Evaluation of Microteaching sessions

	Item	1	2	3	4	5
1	Aroused interest at the beginning					
2	Specified the objectives of the lecture					
3	Organized material in a logical sequence					
4	Skill in explaining and narrating is good					
5	Quality of voice and speech habits good					
6	Use of non verbal cues were appropriate					
7	Skill in asking and adapting questions from students					
8	Was able to hold learner interest					
9	Used learning aids effectively					
10	Allocation of time for pupil learning was adequate					
11	Summarized the important points					
12	Time management					

Any other comments

Doc No. 06	AUTHORIZED AND ISSUED BY DIRECTOR – STAFF DEVELOPMENT CENTRE

Classroom Feedback from Students

Teachers are expected to engage in real-time teaching after receiving peer evaluation and feedback. A technique for determining teacher effectiveness is student evaluation of teacher performance, also known as student ratings. The most essential advantage of student evaluation is the input it provides teachers, allowing courses and teaching techniques to be changed to improve student learning. This evaluation can help to improve the climate of teaching and learning by emphasizing instructional techniques, teaching activities, and student input.

Student evaluations benefit both the student and the teacher because students are the primary source of information on the learning environment and the level of communication between the teacher and students. Students are the most logical reviewers of course content, manner of instruction, textbooks, and assessment in terms of quality, effectiveness, and satisfaction. Other students can use student ratings of specific instructors

and courses to choose courses and teachers, potentially increasing the likelihood that excellence in instruction would be recognized and rewarded. Although student ratings can be valuable as formative evaluation in providing input on instruction, which can result in a better teaching and learning process, they are not without limitations.

Self-Evaluation of the Lecture

Self-evaluation is an essential component of teachers' professional roles, acknowledging instructors' responsibility for checking their own performance. Self-evaluation entails critically reflecting on both the positive and negative elements of one's own teaching. Keeping a diary for each class period assists teachers in keeping note of areas where they want to improve. Videotaping or voice recording sessions can allow teachers to evaluate their own teaching from "outside" the classroom. Figure 3 depicts self-evaluation of teaching as a reflective process. When a teacher engages in self-evaluation, his or her performance improves over time, benefiting both the instructor and the students.

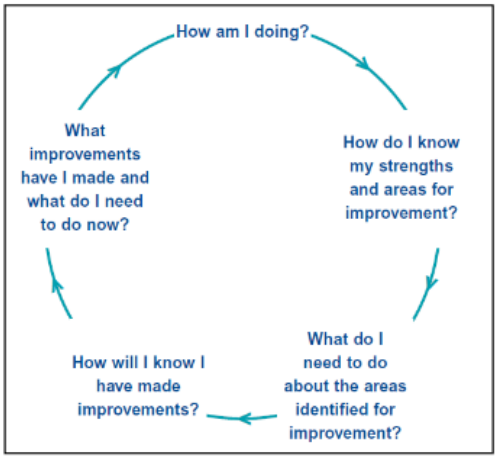

Figure 3: Process of self-evaluation

The form focuses on the six primary categories listed below, which include best practices in teaching. Instructional variety and pace, organization, presentation skills, clarity, material expertise, instructor-student contact, and use of technology are all important. The amount of engagement in the stated best practices was graded on the following scale during the self-evaluation. S - Occasionally N - Never P- on a regular basis C - Continually. I was able to discover my strengths and weaknesses and take the required activities to improve my strengths and remove my deficiencies by conducting a self-evaluation. As a result, teaching will be continuously improved.

Data Presentation and Analysis

We contrasted informal reasoning demonstrated by persons representing high and low levels of understanding of teaching methods with respect to microteaching by physical approach to assess the questions. Two experts in the field independently evaluated the translation's accuracy. We examined our data as a balanced figure in terms of application percentage. We transformed all our data for statistical analysis using the basic statistical analysis software.

Results and Discussion

By examining the peer evaluation data in Table 2, it was possible to reflect on lecturers' strengths as well as areas where presenters need to improve further. As illustrated in Figure 4, the presenters' best aspects were effective use of learning aids, proficiency in explaining and narrating, and logical structuring of teaching materials. It was also given great marks for summarizing of key elements, voice quality and speech habits, and goal specification. The key areas in which participants needed to improve were time management and time allocation for student learning. This process can be done by developing a proper lesson plan for the subject (Figure 5).

Table 2: Analysis of peer evaluation of micro-teaching

Evaluation criteria	Ranking (No. of responses)				
	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Interest at beginning	1	1	3	3	0
Specified objectives	0	3	0	5	0
Materials in logical sequence	0	1	0	5	2
Skill in explaining and narrating	0	0	1	5	2
Quality of voice and speech habits	0	1	1	6	0
Use of non-verbal cues	0	2	2	4	0
Asking and adapting questions	2	4	0	2	0
Ability to hold learner interest	0	1	5	2	0
Use of learning aids	0	0	3	4	1
Time for student learning	1	1	5	1	0
Summarization of important points	0	1	2	5	0
Time management	1	3	2	2	0

(1 - Lowest …… 5 – Highest)

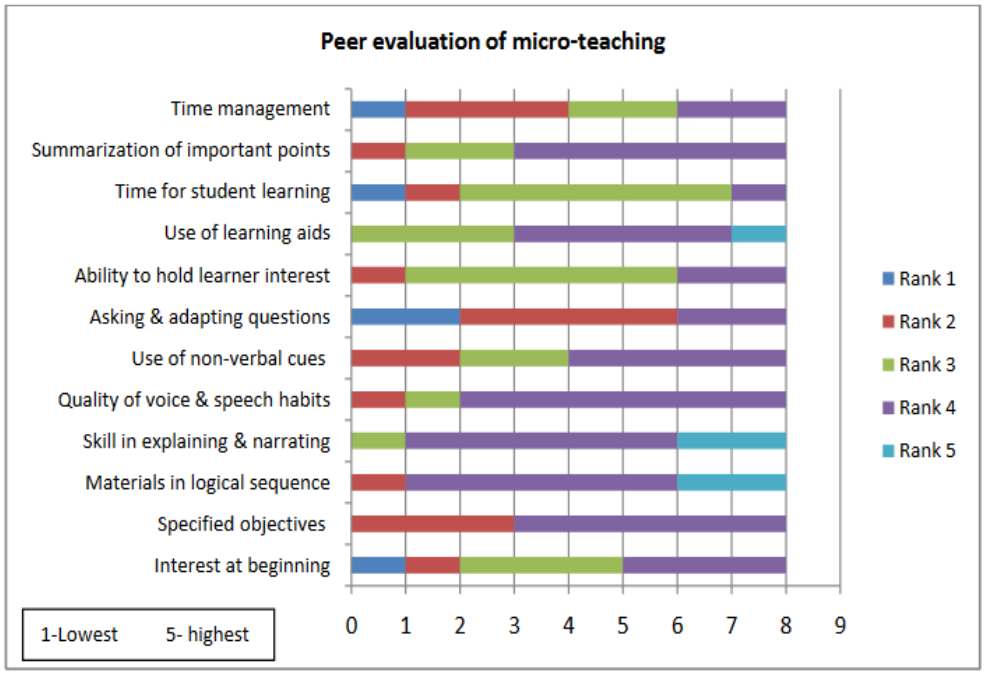

Figure 4: Peer evaluation of micro-teaching

GENERAL SIR JOHN KOTELAWALA DEFENCE UNIVERSITY
Department of Electrical Electronic & Telecommunication Engineering

Weekly Lesson Plan

Module Title	Antennas and Propagation		
Module Code	ET 3122	Intake/Stream	Intake 38 – ET
Credits	2	Lesson	Electromagnetic Wave Propagation in fee Space
GPA/NGPA	GPA	Week No	01

Method of Delivery :

Bridge-in (Introduction):				
Motivation: Importance of learning about different propagation modes of electromagnetic waves.				**Time:** 01 minute
Lesson Outcomes:				
After the completion of this lesson, the student will be able to, 1. Describe the meaning of an electromagnetic wave 2. Distinguish between different layers of the earth's atmosphere which impacts the electromagnetic wave propagation. 3. Identify different type of propagation modes of electromagnetic waves in free space.				**Time:** 01 minute
Pre-Assessment:				
What is an Electromagnetic Wave? Socrative MCQ Quiz				**Time:** 01 minute
Participatory Learning Activities:				
Teaching Activity	Lecture on electromagnetic wave propagation	Tools/Resources	• PowerPoint presentation • Softcopy of the Presentation Slide in LMS	**Time:** 09 minute
Pre-Assessment:				
Socrative Quiz electromagnetic Wave propagation modes				**Time:** 02 minute
Summary:				
Summarization of the fundamentals related to the propagation electromagnetic waves in free space.				**Time:** 01 minute
Take-home Assignments / preparation of next lesson				
Presentation on different types of antennas which are used for Ground Waves, Sky Waves, and Space Waves.				
Additional Remarks:				
Prepared by	//////////////////// Lecturer's Name		Signature	

Figure 5: Lesson plan

For many years, the Faculty of Engineering at KDU has used student feedback to evaluate instruction. Each faculty member is evaluated in mid-semester for each of the modules taught by the students of the respective class over the semester. The Engineering Faculty Quality Assurance Cell (EFQAC) recently redesigned the faculty's student feedback form, which is now in use. It focuses on six major aspects of the teacher and the

learning process: excitement, organization, lecturer-student connection, task organization, clarity, and learning experience. We collected student comments for two of the modules we taught in the second semester of 2023, Engineering Economic and Construction Management, and analyzed the results, which are shown in Table 3 as real time teaching feedback.

Table 3: Analysis of student feedback

Engineering Economics

No of students: 42

Intake 30

	RESPONSE									
	5		4		3		2		1	
	No re	% (X5)	No re	% (X4)	No re	% (X3)	No re	% (X2)	No re	% (X1)
Enthusiasm										
1. Lecturer confident to teach	34	81	8	19						
2. Lecturer was punctual	33	78.6	9	21.4						
Organization										
3. Lectures were well structured	34	81	8	19						
4. Details of module content & learning outcomes given at beginning of lecture series	28	66.7	12	28.6	2	4.76				
Lecturer student interaction										
5. Encouraged students to ask questions	23	54.8	16	38.1	3	7.14				
6. Praised student inputs	22	52.4	15	35.7	5	11.9				
Task organization										
7. Speed of lecture reasonable	26	61.9	15	35.7	1	2.38				
8. Course materials provided	27	64.3	15	35.7						
9. Recommended useful textbooks, websites, periodicals	17	40.5	14	33.3	9	21.4	2	4.76		
10. Number of worked examples and tutorials were adequate	25	59.5	14	33.3	2	4.76	1	2.38		
11. Practical applications relevant to subject discussed	22	52.4	15	35.7	4	9.52	1	2.38		
12. Lecturer advised regarding examinations	24	57.1	10	23.8	6	14.3	2	4.76		
13. Feedback on mid-term and continuous assessment helpful to identify my weaknesses	24	57.1	12	28.6	5	11.9	1	2.38		
Clarity										
14. Black /white board or power point presentations were clear	26	61.9	15	35.7	1	2.38				
15. Lecturer sufficiently audible	27	64.3	14	33.3	1	2.38				
Learning Experiences										
16. Lecture series could be recommended as good	28	66.7	14	33.3						

5–Strongly Agree, 4–Agree, 3–Neither Agree nor Disagree, 2–Disagree, 1–Strongly Disagree

Figure 6 depicts the rating for the element of teacher task arrangement. Although all seven parameters are regarded highly, there are minor variances. All students rated the provision of course material as excellent (100%), which could be attributed to my practice of e-mailing the course material to the students prior to the lecture. Approximately 98% of students rated lecture speed as reasonable. Also, the acceptable amount of worked examples and tutorials received a high rating (93%) since for each module topic, we built tutorials with several questions and held frequent tutorial courses. We can identify areas for improvement by recommending good textbooks, websites, and journals, as well as advice on assessments. In the future, we will offer additional study resources such as websites and journals to students to help them expand their understanding of current practices connected to the module. In addition, we will inform students about exams throughout the semester so that they can prepare ahead of time.

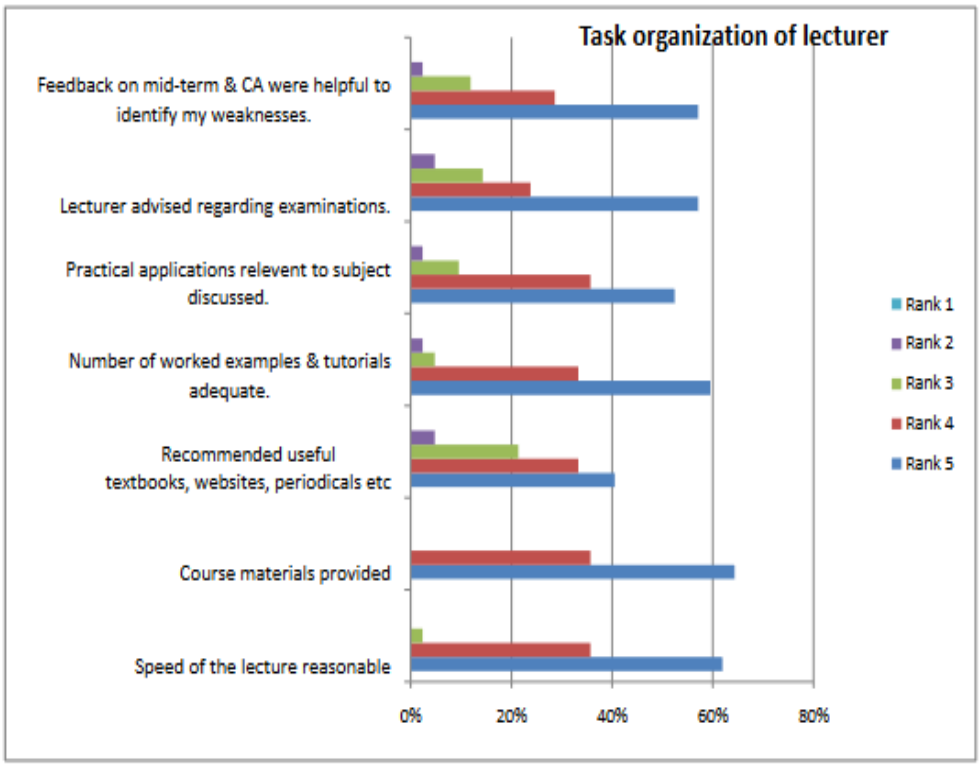

Figure 6: Ranking of task organization of teachers

Teaching by microteaching never ends and it rotates in a cycle form. Best thing is always getting the feedback and improve according to the Kolb learning cycle (Figure 7). One day by doing this all of us young academics can become a master on teaching (Watson et al., 2019).

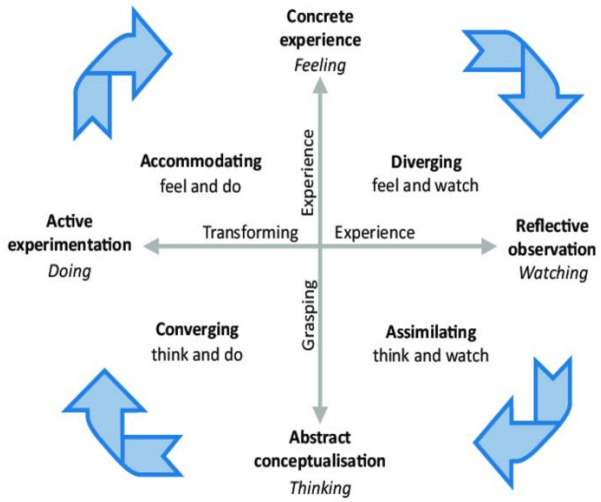

Figure 7: Kolb learning cycle

Conclusion

On reflection, we can connect the various approaches of teaching evaluation to Kolb's Experiential Learning Cycle. When we hold a teaching session, it falls under the category of Concrete Experience (doing/having an experience). The session can be evaluated using student, peer, and self-evaluation methods. Following information analysis, the following step of Kolb's learning cycle might occur in the form of Reflective Observation (reviewing/reflecting on the event). Based on feedback from students, peers, and ourselves, we can reflect on our own teaching and identify the strengths, weaknesses, and ways to improve, progressing to the next stage of Kolb's Cycle, Abstract Conceptualization (concluding/learning from the experience). Then, depending on what we have learned, we may plan for the next session, which leads to the fourth stage of Kolb's cycle, Active Experimentation (planning/trying out what you have learnt). Our instruction will be improved through experiential learning at the start of the next learning cycle. As this cycle continues, it leads to continuous improvement in teaching by using appropriate method by microteaching.

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Conflict of Interest

Authors declare that there is no conflict of interest.

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