

**“Fostering the Demand for Quality Teaching and Learning in  
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**9.00 am to 4.00 pm**

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**Department of Transport and Logistics Management  
University of Moratuwa**

## **DEDICATION**

Dedicated to the ever-reminiscent memory of Dr Shrinika Weerakoon  
BSc, MSc, MBA(Perth), DBA (Bath, UK), SEDA Accredited Teacher, ASTHE

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

and

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

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# **The use of Continuous Assessment linked dialogic feedback to enhance Social Science undergraduates' higher-order skills**

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## **Abstract**

Over three years, written individual feedback was provided in mid-semester evaluations through separate forms. However, this did not showcase any advancement in students' higher-order skills (e.g. analytical skills), as it was observed that in final exams a majority of the answers still demonstrated lower-order skills (e.g. descriptive). Single-instance feedback also did not provide the opportunity to monitor how they enhanced their skills based on the feedback received. As a solution, a continuous assessment and feedback method was initiated through tutorials in a class of eleven students. The first tutorial answer was individually assessed based on Bloom's taxonomy to identify the level of learning of the student. The mistakes in each answer were marked on the answer script and, after returning them to students, the mistakes were discussed extensively in class. Mistakes made in the first and second answers were compared, and relevant statistics computed. The first tutorial was based on the conceptual aspect of the lesson while the second focused more on the practical implications of the concepts taught. The comparison showcased that by the second answer, 18.1% (2 students) who were in the Lower Order Thinking Skills (LOTS) had reached the 'apply' and 'analyse' levels in the Higher Order Thinking Skills (HOTS) by marking a zero percent for the LOTS. 36.3% (4 students) were able to enhance their skills into the 'evaluate' and 'create' levels of the HOTS. Further, other mistakes ('lack of connection' (LC), 'mistaken facts (MF)' and 'facts out of order' (FOO)) identified in the first answer were no longer evident in the second. The study showcased that individual identification and discussing feedback on mistakes in students' answers enabled students to identify their mistakes accurately, facilitating their correction. Therefore, the semester-based continuous assessment, when linked to dialogic feedback, can benefit students most effectively in enhancing higher-order skills.

## **Background**

In a rapidly changing market-oriented world, what society expects from higher education institutions has changed. The society and especially the market are expecting higher education institutions to produce more 'employable graduates', who are equipped with the necessary knowledge and skills to face the changing market forces (Harvey, 2003). These skills are usually known as the 'Higher Order Thinking' skills (HOTS). These newest expectations of knowledge and skills have changed the role of the teacher as well. According to Donald (1985), previously the teachers were supposed to review, present and critically evaluate the knowledge in their relevant subject field, while now they are expected to think beyond this paradigm and try to produce a synthesis and teach the students strategies on how to organise the knowledge. Furthermore, referring to Piaget (1972), Donald (1985) argues that most of the time the intellectual skills which higher education institutions wish to cultivate in their undergraduates are mostly subject related, and if a teacher wishes to cultivate such skills, s/he has to understand the type of intellectual skills the subject expects to cultivate. For



instance, the intellectual skills to be cultivated by the Natural Sciences and the Social Sciences are different from each other. Therefore, the teacher should also pay special attention on the 'discipline-specific pedagogical knowledge' (Berthiaume, 2009).

In the field of Political Science, students are expected to analyse (and later apply) real-life political incidents using the theories and concepts which they learn during their higher education. Therefore, classroom activities such as learning, teaching, and evaluations, should be planned in order to facilitate these Higher Order Thinking skills while acquiring the subject relevant knowledge. For instance, one becomes a political scientist if s/he knows how to apply the relevant theories and concepts to identify and analyse the anomalies in politics. This involves the process of learning and being shifted from teacher-centred learning to a student-centred one. But this shift does not mean that the teacher should not be engaged in the learning process to support the student other than acting as the teacher. The teacher should provide feedback constantly for the student to improve their skills. Furthermore, according to Ivre (1998), as cited in Yen and Halili (2015), teachers are entrusted with the responsibility of facilitating an environment conducive for higher-level thoughts inside the class, as well as within the cognitive practices and tendencies of the students. This indicates that the responsibility of the teacher extends beyond the mere teaching activity, but also to the level of keeping the skills of the student sustainable (Martin 2009).

For the past three years, various methods were used to provide feedback to students intending in order to improve their Higher Order Thinking skills such as (1) guiding students on how to organise the facts through rubrics and providing single-instance individual feedback to improve themselves and (2) guiding students on how to build up arguments by assembling the facts according to rubrics and providing single-instance individual feedback to improve themselves. It was expected that the students would improve their Higher Order Thinking skills by incorporating such feedback and would perform better at the end semester examinations. Nevertheless, neither of these methods proved successful as the students' answers at the final examination were still more descriptive than analytical. Therefore, without continuing the single-instance feedback method, the students were asked to write tutorials for each lesson and feedback was provided continuously on an individual basis. Through this method, it was intended to identify individual mistakes of each student, provide feedback individually and monitor their progress on enhancing the higher-order thinking skills.

## **Methodology**

This research was conducted with a tutorial class of 11 students. Students were given a past-paper question to write a tutorial answer on. During this first attempt, the students were not guided by the lecturer. Through the first tutorial answer, it was intended to find the mistakes made by each student, so the lecturer can map the mistakes on an individual basis. These mistakes identified through the first tutorial answer were used to create the rubric. The rubric consisted of three main parts; introduction, content, and conclusion. The content part was again divided into four parts; three of them using the levels mentioned in Bloom's taxonomy, and the fourth part on common mistakes. The rubric made based on the mistakes observed in student tutorials is as follows.

Each mistake of each student was marked in their tutorial answer. During the tutorial class, these mistakes were discussed at length. Since the mistakes were marked in students' tutorial answers, they were able to look through the mistakes again and request explanations to improve themselves. In the second tutorial, the same rubric was used to evaluate the answers, and the mistakes of each student made in this tutorial answer were compared with their first tutorial answer.

Table 1. *Evaluation Rubric*

Introduction	Unnecessary information (UI)		
	Lack of logical connection (LLC)		
Content	Level 1	Knowledge	Bloom's Taxonomy
		Understand	
	Level 2	Apply	
		Analyse	
	Level 3	Evaluate	
		Create	
	Other mistakes	Mistaken facts (MF)	
		Lack of connection (LC)	
		Facts out of order (FOO)	
		Missing facts in the text (MFT)	
Conclusion	Level 1	Provides a simple conclusion	
	Level 2	Provides a conclusion with an explanation	
	Level 3	Provides a conclusion with personal recommendations for improvements	

## Results

The mistakes made by the students in the first tutorial answer were visibly reduced in the second tutorial answer. The 'other mistakes' identified in the content part of the first tutorial answer had also reduced considerably. Comparatively, the students showcased progress in their answers. In the first tutorial answer, under the introduction part, 18.1% of students (2 students) had written unnecessary information (UI), and some facts they had presented were not logically connected to the answer. By the second tutorial answer, this mistake of 'unnecessary information' was reduced to one student, but the lack of logical connection (LLC) in the introduction part stayed the same.

When it comes to the content part, mistakes marked in the first tutorial showed that 2 students were on the 'describe' and 'explain' levels of Bloom's taxonomy. 72.2% of the students (8 students) were on the 'apply' and 'analyse' levels of Bloom's taxonomy. Only 1 student was on the 'evaluate' and 'create' levels of Bloom's taxonomy. Moreover, in some answers the facts were not organised in a coherent order, some students had written mistaken facts in their answers, and some students had missed important facts necessary for the answer. In the second tutorial answer, the 18.1% (2 students) students who were on the 'describe' and 'explain' levels of Bloom's taxonomy earlier, had shifted to the 'apply' and 'analyse' levels of Bloom's taxonomy. The 9% (1 student) who were on the 'evaluate' and



'create' levels of Bloom's taxonomy the first time around, had increased to 36.3% (4 students) by the second tutorial answer.

Table 2. Mistakes made in the first tutorial answer and second tutorial answer

Section	Sub-section	Answer 1		Answer 2	
		No. of Students	Percentage	No. of Students	Percentage
Introduction	LLC	2	18.1	2	18.1
	UI	2	18.1	1	9.0
Content	Level 1	2	18.1	0	0.0
	Level 2	8	72.7	7	63.6
	Level 3	1	9.0	4	36.3
	LC	1	9.0	0	0.0
	MFT	6	54.0	1	9.0
	FOO	0	0.0	0	0.0
	MF	1	9.0	0	0.0
Conclusion	Level 1	9	81.8	8	72.7
	Level 2	2	18.1	1	9.0
	Level 3	0	0.0	2	18.1

In the first tutorial answer, 81.8% (9 students) were on level 1 of the conclusion part, which amounted to providing a simple conclusion. 18.1% (2 students) were on level 2 of the conclusion part, and there were no students on level 3 in this regard. When it came to the second tutorial answer, level 1 students were reduced to 72.7% (8 students) and level 2 students were reduced to 9% (1 student), while level 3 was increased to 18.1% (2 students).

## Discussion and Conclusions

Evaluating and improving students' Higher Order Thinking skills have always been a challenging task in higher education. This is due to the fact that the way of applying these skills differs from discipline to discipline. In this research, it was evident that providing dialogic feedback to students in a continuous manner was an effective method in improving students' Higher Order Thinking Skills. To this end, preparing a rubric based on the most common mistakes of students was helpful to further identify repetitive mistakes. This allowed the lecturer to accurately work on addressing mistakes and providing feedback individually. After the second tutorial answer, it was evident that minor mistakes such as 'lack of connection', 'mistaken facts' and 'facts out of order' were corrected by the students and the students had upgraded their analytical skills. It was evident that continuous feedback on the students' skills development leads to the gradual development of the students' analytical skills. Zohar's (2013) attempt on identifying the different dimensions of HOTS can be shown as one of the perspectives which the teacher can adopt as a base of providing feedback to the students on developing their HOTS. According to Zohar (2013), the HOTS can be explained with 'the knowledge to teach thinking' and 'knowledge of elements of thinking' along with four main sub-categories; (1) knowledge of individual thinking strategies – making comparisons, formulating justified answers and drawing valid conclusions; (2) knowledge of genre of thinking – argumentation, inquiry learning, problem-solving, critical thinking, scientific

thinking, and creative thinking; (3) knowledge of metacognition – thinking about own learning and (4) knowledge of additional issues – thinking dispositions (habits of mind) and culture of thinking. Creating teaching, learning, and evaluation activities according to these guidelines can be beneficial to the teacher as well, as it gives a clear perspective on how to organise the feedback which s/he provides the students. Although carrying out these described teaching activities was more convenient due to smaller class size in this instance, an urgent need is present to adapt these methods to improving Higher Education quality in larger classes also.

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