Students' Use of Higher-Order Thinking Skills in a Discourse Analysis Course

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Abstract : Scholars have found that linguistics courses place greater emphasis on the theoretical aspects that require memorisation and recall tasks (Nguyễn & Nguyễn, 2017). This has led teachers to focus on lower-order thinking skills (LOHS), which negatively affect the quality of learning by neglecting higher-order thinking skills (HOTS). Therefore, this study explored and explained students' higher-order thinking skills (HOTS) applications when they were required to solve HOTS-oriented questions in linguistics courses. This study assessed a 60-student sample from a linguistics course, specifically discourse analysis, and used descriptive and quantitative research methods for data collection and interpretation. The test instruments this study used included assignment questions. The results of the research revealed that students' thinking ability was below average and in need of improvement when answering HOTS practice questions. In addition, students with high learning achievements were proficient at answering HOTS-oriented questions when compared to students in the average and below-average categories. Based on the analysis of the research questions, this study indicated that students require a deeper understanding of HOTS and lack the skills to successfully tackle HOTS-oriented questions. As such, this study aimed to highlight this issue and recommend possible solutions.

Keywords: higher-order, lower-order, thinking skills, discourse analysis, undergraduate, linguistics courses

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استخدام وتطبيق مهارات التفكير العليا في مقرر التحليل الخطابي

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مستخلص : وجد الباحثون أن مقررات اللغويات تركز بدرجة عالية على الجوانب النظرية التي تتطلب مهمات الحفظ والاسترجاع، هذا الاهتمام بالجانب النظري دفع الأساتذة إلى التركيز على مهارات التفكير الدنيا والتي تتعارض سلبيًا مع جودة التعليم بإهمال وضعف التركيز على المهارات العليا. لهذا السبب هذه الدراسة استهدف استكشاف مدى تطبيق واستخدام الطالبات مهارات التفكير العليا عند تكليفهن بمهام تتطلب استخدام المهارات العليا في أحد مقررات اللغويات. وتستهدف الدراسة ٦٠ طالبة في مقرر لغويات (تحليل الخطاب)، وتستخدم الدراسة أسلوب وصفي كمي لجمع البيانات وتحليلها. أداة الاختبار تتضمن واجبات وتكليفات للطالبات. وكشفت نتائج الدراسة أن مهارات التفكير العليا لدي الطالبات أقل من المتوسط وتحتاج إلى تحسين عند تحليل إجاباتهن على التكليفات التي تتطلب استخدام مهارات تفكير عليا. الطالبات ذوات المستوي الأكاديمي المتقدم (معدل تراكمي عالٍ) كان أداؤهن أفضل مقارنة مع المجموعات المتوسطة والمجموعة الأقل من متوسط (في المعدل التراكمي)، من ناحية تطبيق مهارات التفكير العليا عند الإجابة عن التكليفات. وأشارت النتائج إلى أن الطالبات يحتجن استيعابا أعمق لمهارات التفكير العليا ويفتقرن إلى المهارات التي تساعدهن على الإجابة بنجاح عن التكليفات التي تستهدف تطبيق مهارات التفكير العليا. وبذلك فإن هذه الدراسة تهدف إلى إبراز هذه القضية واقتراح حلول مناسبة.

كلمات مفتاحية: مهارات تفكير، مهارات عليا، مهارات دنيا، تحليل الخطاب، مرحلة جامعية، مقررات اللغويات.

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1. Introduction

Heron and Palfreyman (2021, p. 1) have argued that "higher-order thinking skills are critical to developing conceptual and disciplinary understanding". Thus, higher-order thinking skills (HOTS) are important in the higher education context and a "much-needed skill in the 21st century," according to Misykah and Adiansha (2018, p. 662). Hadzhikoleva et al. (2019) emphasised that HOTS are essential in preparing students personally and professionally to be successful in their lives after graduation. In addition, research has shown that HOTS are connected to academic achievement (Ghanizadeh, 2017; Kealey et al., 2005). The students of the languages and translation department at Northern Border University (NBU), the sample of the current study, failed to perform well in the exit exam (a standard exam taken by all students during the final semester) despite the university's efforts to encourage innovations in the curriculum and the introduction of the core competencies project that focuses on critical thinking and real-world skills (shorturl.at/lvOT6). The fact that the participants did not perform well in the school's exit exam could be due to the recall-based tasks, which focus on lower-order thinking skills (LOTS) that dominate most of the school's linguistics courses. In addition, most, if not all, of the school's linguistics courses are heavily loaded with concepts, phenomena, and theories that require memorisation and recall for assessments that ignore HOTS. As Ghanizadeh (2017) pointed out, academic achievement has been linked to better performance using HOTS. However, the students' poor achievement in the exit exam revealed a gap that must be filled. Hence, there is an urgent need to shift linguistics courses to cover more practical subjects that promote the use of HOTS. To address this issue, this study investigated students' performances in answering a set of LOTS and HOTS questions across four different tasks in a discourse analysis course.

2. Literature Review

2.1. Theoretical Framework: Bloom's Taxonomy

The taxonomy of educational objectives 'is a framework for classifying statements of what we expect or intend students to learn as a result of instruction' (Karthwohl, 2001, p. 212). Bloom's theoretical framework has been 'widely known and cited, eventually being translated into 22 languages' (Karthwohl, 2001, p. 213) and has frequently been used to provide a systematic classification of the learning and thinking processes in the classroom. Established in 1956, Bloom's taxonomy initially consisted of the following three domains: cognitive, affective, and psychomotor (Bloom, 1956). Specifically, the cognitive domain comprised six levels: knowledge, comprehension, application, analysis, synthesis, and evaluation. The taxonomy was hierarchical, meaning that each level depended on the level that preceded it. In other words, learners were required to master the lowest level before moving on to the next.

Although Bloom's taxonomy has had a long history of application and popularity, scholars deemed it necessary to update it. As such, Bloom's revised taxonomy considered the 'representatives of three groups: cognitive psychologists, curriculum theorists, instructional researchers, and testing and assessment specialists' (Anderson & Krathwohl, 2001, p. xxviii). Although the changes in the taxonomy were minor, they were also important. The most obvious change was made to its terminology, whereby 'all the original subcategories were replaced with gerunds, and called cognitive processes' (Karthwohl, 2001, p. 214). The categories' names were also changed from nouns to verbs in order to describe learners' thinking processes instead of their behaviours. The revised taxonomy consists of the following categories: Remembering, Understanding, Applying, Analysing, Evaluating and Creating. While the revised taxonomy is also hierarchical, it provides instructors with the capacity to be less strict than the previous version. Moreover, although the taxonomy is organised from simple to complex levels, these levels overlap. Put differently, the most basic levels of remembering can be exercised at many levels with different degrees of complexity. Table 1 provides a detailed picture of the cognitive process dimension within the revised taxonomy.

Table 1
The Structure of the Cognitive Process Dimension in Bloom's Revised Taxonomy (Adapted from Karthwohl, 2001)

The Revised Taxonomy
1.0 **Remember—**retrieving relevant knowledge from long-term memory.
1.1 Recognising
1.2 Recalling
2.0 **Understand—**determining the meaning of instructional messages, including oral, written and graphic communication.
2.1 Interpreting
2.2 Exemplifying
2.3 Classifying
2.4 Summarising
2.5 Inferring
2.6 Comparing
2.7 Explaining
3.0 **Apply—**carrying out or using a procedure in a given situation.
3.1 Executing
3.2 Implementing
4.0 **Analyse—**breaking down the material into its constituent parts and detecting how the parts relate to one another and to the overall structure or purpose.
4.1 Differentiating
4.2 Organising
4.3 Attributing
5.0 **Evaluate—**making judgments based on criteria and standards.
5.1 Checking
5.2 Critiquing
6.0 **Create—**putting elements together to form a novel, coherent whole or to make an original product.
6.1 Generating
6.2 Planning
6.3 Producing

2.2. Teaching and Learning Lower- and Higher-Order Thinking Skills

Bloom's taxonomy has been linked to multiple intelligences (Noble, 2004) and creativity, problem-solving and critical-thinking skills (Singh et al., 2018). The taxonomy's categories have also been divided into LOTS and HOTS because of their widespread use (Hayikaleng et al., 2016). Whereas LOTS are comprised of Remembering, Understanding and Applying, HOTS consist of Analysing, Evaluating and Creating.

Although LOTS are equally important as HOTS, LOTS are more frequently used to complete tests and homework, making them the basic skills that most students acquire in schools (primary, intermediate and high schools). This may be due to the relative ease of formulating and correcting LOTS questions (Munzenmaier & Rubin, 2013) and the comparative difficulty of teaching and learning HOTS, especially in linguistics courses with large numbers of students. Because HOTS require more intellectual processing and place a greater burden on learners' cognitive abilities, acquiring these skills necessitates more practice and training from learners and increased training from the teachers tasked with implementing them into linguistics courses.

2.3. Higher-Order Thinking Skills

Many studies have discussed the importance of HOTS for improving learning processes and preparing students to adjust to the real world and workplace (Lateef et al., 2016; Rajendran & Idris, 2008; Ramos et al., 2013). While implementing LOTS is a necessity in teaching, restricting learning activities to only these types of skills poses a serious obstacle to reaching higher levels of thinking. Therefore, an assessment method, such as a test, should be designed to measure students' numerous skills, including both LOTS and HOTS (Hiu et al., 2006). HOTS can be defined as the ability to find answers and solutions for different tasks in order to fulfil educational targets by attempting various types of thinking processes. HOTS include higher cognitive and metacognitive abilities, such as critical thinking, problem solving and creative thinking (Lewis & Smith, 1993). King et al. (1997) explained that HOTS must be provoked by circumstances and problems that are unfamiliar to students, require them to think outside the box, and compel them to try to find creative solutions and answers. Nonetheless, HOTS must also be built on the foundation of LOTS, which helps students gain basic, albeit important, knowledge and content (Singh et al., 2018).

Studies have examined the implementation of HOTS in various disciplines, such as mathematics (Tanujaya, 2016), information and communication technology (Ali, 2012; Chittleborough et al., 2008), science (Anggraini et al., 2019), writing (Singh et al., 2018), and reading comprehension (Hayikaleng et al., 2016), with most of these studies being conducted in schools. To the best of my knowledge, no study has assessed how students use LOTS and HOTS to fulfil learning tasks in applied linguistics courses (e.g., discourse analysis), but Nguyễn and Nguyễn's (2017) investigation into how explicit instructions for using HOTS can enhance students' capacity to learn in a linguistics course at the undergraduate level. Nguyễn et al. (2015) found that Vietnamese students struggled with applying HOTS and that there was a need to address this issue. Therefore, they aimed to improve the acquisition of HOTS in a later study (2017) by using explicit instructions for HOTS in a linguistics course. The present study addressed a similar issue by exploring how Saudi students use LOTS and HOTS to fulfil learning tasks in a particular course, specifically discourse analysis, at the undergraduate level. In doing so, this study aimed to answer the following questions:

1. How do students perform when answering LOTS questions?
2. How do students perform when answering HOTS questions?
3. How do students perform in answering questions overall (LOTS and HOTS)?
4. Is there a significant difference in the mean scores between students' ability to answer LOTS and HOTS questions?

3. Methodology

This study applied a quantitative approach to analyse students' use of LOTS and HOTS in a linguistics course, specifically a discourse analysis course. The study also used descriptive analysis due to its focus on 'diagnosing real-world needs that warrant policy' (Loeb et al., 2017, p. 2). Descriptive quantitative methods are informative and can help in assessments of the quality of teaching and learning. In addition, descriptive analysis can aid in highlighting certain issues, such as how students apply HOTS and LOTS in linguistics courses, that require immediate solutions and deeper investigation from policymakers and practitioners. In total, four different

tasks were designed for the discourse analysis course to analyse 60 students' understanding of HOTS. The tasks were quantitatively analysed using content analysis based on the aspects of HOTS listed in Bloom's taxonomy.

3.1. Participants

A total of 60 Saudi English as a foreign language (EFL) undergraduate learners who were enrolled in a discourse analysis course at the Department of Languages and Translation, Northern Border University, participated in this study. The participants were a homogenous group of female Arabic-native speakers in their senior year.

3.2. Instruments

For the purposes of this study, four different tasks were designed and distributed to the students at regular intervals. The researcher and the course instructor structured the tasks according to Bloom's revised taxonomy. The tasks were composed of questions. The first three tasks consisted of six questions each, and the fourth task consisted of three HOTS questions. The questions varied from assessments of LOTS to HOTS (e.g., What are the different voices?; What social language(s) are involved?; What sorts of grammar patterns are indicated in the text?; How does intertextuality work in the text?). There were 21 questions in total, and the tasks were assigned as homework for the students. Prior to that, the course instructor, who had more than seven years' experience teaching English at the college where the study took place, was asked to verify and confirm that the tasks were suitable for the students. The instructor distributed the questions and performed the evaluation based on the provided scale (see Tables 2, 3, 4, and 5). The total marks for the LOTS and HOTS questions were entered in an Excel sheet and then imported into SPSS for analysis. The data were quantitatively analysed using descriptive statistical measures such as means and frequencies. Inferential statistical measures, such as the Wilcoxon signed rank test and Friedman test, were also used to analyse the data obtained from the tasks.

A question-based test based on Bloom's revised taxonomy, which consists of all six thinking skills, from LOTS to HOTS, was constructed. The analysis of the tasks was categorised into LOTS and HOTS. Each task was categorised into the following six levels: Remember, Understand, Apply, Analyse, Evaluate and Create.

In Task 1, the questions were formulated according to the LOTS and HOTS listed in Bloom's taxonomy. There were six questions that ranged from LOTS to HOTS, and these were structured into five levels without using the Create category from the cognitive process dimension. These questions were related to discourse analysis and used discourse analysis tools of inquiry. The questions were adopted from James Paul Gee's Four Tools of Inquiry (i.e., social languages, discourses, conversation, and intertextuality). These tools facilitated discourse analysis at a deeper level that could otherwise not be reached.

In Task 2, the questions were structured according to LOTS and HOTS and were categorised into the following four levels: Understand, Analyse, Evaluate and Create. In Task 3, the questions were constructed to analyse LOTS and HOTS and were structured into five levels without using the Apply category from the cognitive process dimension. In Task 4, the questions were designed to analyse HOTS according to the Create category from the cognitive process dimension.

The Validity and Reliability of the Research Tasks

The tasks were designed according to the students' proficiency level, addressed each learning goal and followed the basic principles of assessment. The following criteria were used when creating the questions for the tasks:

- The course instructor prepares the questions using the materials from authentic online resources (www.arabnews.com/ www.telegraph.co.uk) to analyse the students' understanding of HOTS in learning linguistics and particularly the discourse analysis course.
- Exercises are new, unseen and not covered in the class.
- The course instructor prepares the questions to analyse the discourse using the tools of inquiry. The questions are designed to analyse the students' use of LOTS and HOTS.

The reliability of the questions was determined using interrater reliability. The reliability of the questions depended on the raters' use of the instrument. To establish the reliability of the questions, the researchers collected, evaluated and categorised all the questions according to the LOTS and HOTS analysis.

Tables 2, 3, 4 and 5 describe the levels of thinking for the LOTS and HOTS questions and the expectations and learning outcomes for the questions. The tables helped determine whether the students' abilities were at the expected level. This study used the HOTS dimension described in Bloom's revised taxonomy.

Table 2
The HOTS Dimension from Bloom's Taxonomy Used to Construct Questions for Task 1

Knowledge dimension	Cognitive process dimension					
	Remember	Understand	Apply	Analyse	Evaluate	Create
1. Factual knowledge	Able to remember linguistic features of the text.	Able to interpret and infer the purpose, reader and moves in the text.	Able to perform discourse analysis using the procedure.	Able to select the right idea to analyse the organisation of the text.	Able to select appropriate criteria to arrange the structure of the text.	
2.Conceptual knowledge	Able to recognise the list of linguistic features of the text.	Able to classify the purpose, target reader and moves in the text.	Able to apply discourse analysis tenets while performing discourse analysis.	Able to differentiate the ideas and the information in the text.	Able to determine the relevance of the answer for a given question.	
3.Procedural knowledge	Able to recall the list to complete the answer.	Able to clarify the indirect communicative purpose and moves in the text.	Able to obtain suitable results while performing discourse analysis.	Able to integrate the ideas with appropriate procedures to analyse and organise the text.	Able to justify the relevance of the answer for a given question.	
4.Metacognitive	Able to identify the techniques for retaining the information to answer the question.	Able to predict the reader and the communicative purpose.	Able to use the techniques while analysing the text.	Able to deconstruct the original sequence and to use new ideas to organise the text.	Able to employ the ideas on a given question by following procedures.	

Table 3
The HOTS Dimension from Bloom's Taxonomy Used to Construct Questions for Task 2

Knowledge dimension	Cognitive process dimension					
	Remember	Understand	Apply	Analyse	Evaluate	Create
1.Factual knowledge		Able to interpret and infer the purpose of the text and the image.		Able to select the right idea to analyse the message conveyed in the text/ image.	Able to select appropriate criteria to describe the linguistic features in the text/image.	Able to use coherent ideas to create different content for a given question.
2.Conceptual knowledge		Able to classify the different modes of content.		Able to differentiate the mode of content.	Able to determine the linguistic features in the text/ image.	Able to compose ideas in a coherent way to change the mode of information in the text.
3.Procedural knowledge		Able to clarify the purpose and the information in the text/image.		Able to integrate the ideas and the suitable procedures to analyse the different modes of content.	Able to justify the answer to a given question.	Able to effectively present the answer in a coherent manner.
4.Metacognitive		Able to predict the purpose of the text and the image.		Able to deconstruct the original mode and to use new ideas.	Able to apply the ideas to a given question by providing a suitable answer.	Able to create a new/innovative pattern or mode to present the information given in the question.

Table 4
The HOTS Dimension from Bloom's Taxonomy Used to Construct Questions for Task 3

Knowledge dimension	Cognitive process dimension					
	Remember	Understand	Apply	Analyse	Evaluate	Create
1. Factual knowledge	Able to remember the person who is speaking in the text.	Able to interpret and infer the different voices and purposes in a given text.		Able to select the right idea to analyse the language used in the text.	Able to select appropriate criteria to evaluate the grammatical patterns employed in the text.	Able to generate intertextuality within the text.
2. Conceptual knowledge	Able to recognise the person who is speaking in the text.	Able to classify the purpose and the voices in a given text.		Able to differentiate the language while analysing the text.	Able to determine the grammatical patterns in the text.	Able to compose ideas in a coherent way to create intertextuality within the text.
3. Procedural knowledge	Able to recall the person and their messages in the text.	Able to clarify the indirect communicative purpose and voices in the text.		Able to integrate the ideas with suitable procedures to analyse the language in the text.	Able to justify the use of grammatical patterns in a given paragraph.	Able to design intertextuality within the text.
4.Metacognitive	Able to identify the techniques to retain the information related to the text.	Able to predict the speaker/writer of the text, the communicative purpose and the different voices.		Able to deconstruct the original author's ideas and to use new ideas to perform language analyses.	Able to reflect the ideas to evaluate the grammatical patterns used in a given paragraph.	Able to produce a new text using intertextuality.

Table 5
The HOTS Dimension from Bloom's Taxonomy Used to Construct Questions for Task 4

Knowledge dimension	**Cognitive process dimension**					
	Remember	**Understand**	**Apply**	**Analyse**	**Evaluate**	**Create**
1.Factual knowledge						Able to bring coherent ideas to create a diagrammatical representation of the text.
2.Conceptual knowledge						Able to compose ideas in a coherent way to draw a graphical structure of the text.
3.Procedural knowledge						Able to provide the answer using an effective and coherent structure.
4.Metacognitive						Able to create a new/innovative pattern or pictorial representation or to change the textual mode into the graphical mode.

4. Analysis and Results

This section reports the findings based on the collected data and the research questions. To compute the LOTS and HOTS variables, one point was awarded each time a participant correctly answered a question, and zero points were awarded if the answer was wrong. The coding process was repeated for each question, with a maximum of six possible points awarded for all tasks but the fourth task, which had a maximum value of three points. Table 6 illustrates the means and standard deviations for the scores for each task.

Table 6
Means (Ms) and Standard Deviations (SDs) for the Scores of Each Task

Tasks	N	Minimum	Maximum	M	SD
Task 1 (max. = 6)	60	0	6	3.05	1.64
Task 2 (max. = 6)	60	0	3	1.38	1.14
Task 3 (max. = 6)	60	1	6	1.57	1.00
Task 4 (max. = 3)	60	0	2	0.43	0.65

As indicated in Table 6, the mean values of the scores for Tasks 2 and 3 were similar. In addition, Task 1 had the highest mean, and Task 4 had the lowest mean. These findings show the students' general performance in all the tasks, which was below average. This leads to investigating the students' performances in answering LOTS questions for each task, which answers the first research question. Table 7 demonstrates the means and the standard deviations for the LOTS questions of each task.

Table 7
Means (Ms) and Standard Deviations (SDs) for the LOTS Questions

	N	Minimum	Maximum	M	SD
Task 1 LOTS	60	0.00	1.00	0.55	0.37
Task 2 LOTS	60	0.00	0.50	0.22	0.19
Task 3 LOTS	60	0.33	1.00	0.47	0.19

Table 7 shows that the students were able to answer the LOTS questions to a certain extent because most of the answers could be found in the passages or images within the tasks. Even so, the students' performances were not satisfactory. Because teachers typically use LOTS questions in most courses and tasks, and since students are more familiar with LOTS questions, which are generally easier than HOTS questions, their performances should have been higher. As illustrated in Table 8, the results were very poor for the second research question's assessment of students' performances in answering HOTS questions.

Table 8
Means (Ms) and Standard Deviations (SD) for the HOTS Questions

	N	Minimum	Maximum	M	SD
Task 1 HOTS	60	0.00	1.00	0.47	0.29
Task 2 HOTS	60	0.00	1.00	0.26	0.28
Task 3 HOTS	60	0.00	1.00	0.06	0.20
Task 4 HOTS	60	0.00	0.67	0.14	0.22

The results indicated that the students were neither able nor trained to think critically, so the instructor would need to increase focus on HOTS questions and exercises to support students in acquiring such thinking skills. This finding is similar to those by Fahim and Sa'eepour (2011) and Remark and Ewing (2015), who argued that teachers should use more HOTS questions while teaching reading comprehension in order to train students to think critically.

The students' overall performance in the LOTS and HOTS questions was below average. These unsatisfactory results should function as a warning that encourages departments and teachers to change the designs of their curriculum, content, and teaching processes. Table 9 shows the means and standard deviations for the overall performance in all tasks (LOTS and HOTS).

Table 9
The Means (Ms) and Standard Deviations (SDs) for the Overall Performance in All Tasks (LOTS and HOTS)

	N	Minimum	Maximum	M	SD	Percentage
LOTS for all tasks (max. = 10)	60	0.10	0.70	0.39	0.16	39.17%
HOTS for all tasks (max. = 11)	60	0.00	0.73	0.23	0.15	22.88%

As shown in Table 9, while the mean for the LOTS questions was 0.39, or 39.17%, the mean for the HOTS questions was 0.23, or 22.88%. The overall performance for both the LOTS and HOTS questions was poor and unsatisfactory.

Tables 7, 8 and 9 indicate that there were differences between the LOTS and HOTS questions that were observable in all tasks. Prior to data analysis, the normality distribution of the two variables (LOTS and HOTS) was checked. The Shapiro-Wilk test showed a non-normal distribution for both LOTS (p = .013) and HOTS (p = .000). As a result, the Wilcoxon signed rank test was conducted as a non-parametric alternative to the paired-sample T-test. This test helped determine whether there was a significant difference between the scores for the LOTS and HOTS questions. The results indicated a significant difference, z = -5.197, p < .000. The mean of the ranks in favour of LOTS was 28.79, and the mean of the ranks in favour of HOTS was 22.57 (see Table 10).

Table 10
Results of the Wilcoxon Signed Rank Test for LOTS and HOTS

Ranks				
		N	Mean rank	Sum of ranks
Total LOTS for all tasks – Total HOTS for all tasks	Negative ranks	7[a]	22.57	158.00
	Positive ranks	48[b]	28.79	1382.00
	Ties	5[c]		
	Total	60		
a. Total LOTS for all tasks < Total HOTS for all tasks				
b. Total LOTS for all tasks > Total HOTS for all tasks				
c. Total LOTS for all tasks = Total HOTS for all tasks				

To further investigate the tasks for both the LOTS and HOTS questions, a Friedman test was conducted to compare the LOTS scores for the three tasks. The results of the Friedman test indicated that there was a statistically significant difference between the LOTS scores across the three tasks, $x2(2, n = 60) = 23.06$, $p < .001$). An examination of the median (Md) values showed a decrease between the scores for Task 1 (Md = 2) and the scores for Tasks 2 and 3 (Md = 1).

A Friedman test was also conducted to compare the HOTS scores for the four tasks. The results of the Friedman test indicated that there was a statistically significant difference between the HOTS scores across the four tasks, $x2(3, n = 60) = 78.82$, $p < .001$). An examination of the Md values showed a decrease between the scores for Task 1 (Md = 1) and the scores for Tasks 2, 3 and 4 (Md = 0). It is worth noting that the students who performed well in answering the HOTS questions were proven achievers who maintained exceptional GPAs (grade point averages). The top five students who performed well in answering the HOTS questions achieved GPAs (out of five) of 4.76, 4.30, 4.76, 4.99 and 4.91, respectively. A follow-up study will explore the relationship between GPA scores and the use of HOTS questions in linguistics courses. The following section will discuss the abovementioned findings.

5. Discussion

The data showed that the linguistics courses focused more on theoretical aspects that required memorisation and recall skills. Although the teachers provided some exercises focused on creative and critical thinking, the students had great difficulty understanding and comprehending the questions. Because the students were trained to answer questions through memorisation during their general education (primary, intermediate, high schools), they found the syllabus and materials challenging after entering the university program. This mindset, in addition to time constraints and personal issues, prevented students from advancing beyond rote memorisation.

The findings revealed minimum exposure to HOTS at their senior year (seventh level). The present study's results showed that teaching and learning preparation were lacking in the facilitation of HOTS and that LOTS and HOTS skills were not properly implemented in the curriculum design. This gap contributed to the students' failure to acquire HOTS.

The findings indicated that poor student performance can be attributed to a lack of HOTS use in linguistics courses due to their theoretical nature. Teachers play a key role in improving the learning process thus they must understand and apply HOTS in their classes to improve learning processes (Barak and Dori, 2009; Singh and Marappan, 2020). Because no prior study has examined the use of HOTS and LOTS in a discourse analysis course or in linguistics courses in general, it was impossible for the present researcher to find a baseline or comparable study. Nonetheless, many studies have investigated students' reading comprehension as it relates to LOTS and HOTS.

Similar to the findings of the current study, the mean scores for LOTS were higher than the mean scores for HOTS in most of these studies (Hayikaleng et al., 2016; Alfaki, 2014). In the present study, student performance in answering the HOTS questions was below average, reflecting the potential impact of the traditional educational approach that values theoretical knowledge and is based on passive learning. Without sufficient regard for other, potentially more practical activities, this exclusive focus on the theoretical elements of knowledge can diminish the value of students' analytical and critical needs (Nguyễn & Nguyễn, 2017). The students' similarly poor performance in answering LOTS questions may have been caused by the overwhelming number of theoretical concepts and theories that required them to focus on memorisation-based tests and pay less attention to learning activities and tasks, such as those used for data collection. In turn, the low HOTS results may have been caused by the general lack of attention instructors afforded to these skills (Tanujaya, 2016). Aziz et al. (2017) stated that Malaysian teachers should leave their comfort zones, which is a seemingly universal problem. Sada (2019) argues that teachers should attend professional training to improve the integration of HOTS into the curriculum. The present study identified similar findings. Thus, for instructors to successfully apply HOTS, they should use modern methods to develop content knowledge that supports and enhances the use of these skills among students. Nguyễn and Nguyễn (2017) recommended the use of explicit HOTS instruction in teaching environments that are similar to those presented in this study, wherein

"the educational system is still heavily affected by a traditional teacher-centered approach like Vietnam or other Asian countries where students are not yet facilitated with good learning skills and learning strategies, and their learning autonomy is not yet high". (p.126)

There exists a need to promote HOTS among students so that they may maximise their learning and apply that knowledge to their future jobs and everyday life situations. Furthermore, the current scenario (particularly the new strategic plan for the university this study evaluated that adopts core competencies, such as critical thinking, and integrates them within the curriculum) should aim to teach students' learning experiences that are connected to their future jobs and lifelong learning skills. Therefore, an emphasis should be placed on using more questions that test students' capacity to apply HOTS during the learning process since integrating these skills and subskills into course materials and assessment strategies is critical to both students and instructors.

Acquiring LOTS and HOTS as part of the language-learning process is important for students. It is equally important for instructors to understand the types of activities that should be provided to promote and facilitate students' use of HOTS in linguistics courses. By employing suitable teaching strategies and learning activities, instructors can increase their students' ability to reason and help them cope with other subjects that require HOTS. This article has highlighted the need to make linguistics courses more practical for students when developing learning processes, teaching methodologies, and curricula, all of which can enhance students' use of HOTS in learning (Mazano & Kendall, 2007). The findings of the present study have direct implications for teaching and learning practices in the Department of Languages and Translation, College of Education and Arts.

5.1. **Implications and Recommendations**

Because the present study's findings were disappointing in that students' use of HOTS did not reach the targeted levels, this section aims to suggest ways of improving these circumstances.

First, curriculum and learning activities can be improved by better incorporating HOTS and shedding light on these skills through explicit instructions on how using HOTS (Nguyễn & Nguyễn, 2017). Second, a focus on HOTS in linguistics courses (e.g., discourse analysis) can be increased by integrating HOTS tasks within every teaching unit and designing activities according to students' cognitive abilities. Third, instructors can change the design of assessments with a traditional focus on content recall to focus on testing that measures multiple skills. Finally, instructors can offer assignments and homework assessments that shift from testing LOTS to HOTS and design homework that motivates and trains students to think critically and apply their knowledge in different settings rather than encourage traditional memorisation-based learning patterns.

Because instructors are critical to realising the desired application and utilisation of HOTS, teachers must understand and practice HOTS themselves. Therefore, the university this study assessed should provide effective and sufficient training and preparation for its teachers, as it is vital for instructors to participate in effective training programs so that they can succeed at teaching HOTS. Teaching quality is a key factor in ensuring students' educational success, and improving the quality of teaching can only be attained if instructors attend a wide range of training activities and workshops.

In conclusion, a teaching and learning model that supports the application and use of HOTS must be adopted within regular assessment models in order to foster the acquisition of HOTS. The current study aimed to shed light on the importance of investigating the use of HOTS in linguistics courses. Linguistics majors should not be restricted to studying only theories and neglecting higher and complex thinking skills. Future research could investigate methods for enhancing HOTS in linguistics courses using distance learning or technology-based learning.

5.2. **Limitations of the Study**

This study's findings were solely based on the responses and performances of students during tasks for specific learning units and did not consider other learning units. As a result, this study does not reflect the outcomes of all learning units. In addition, because the study's sample size consisted of 60 students, which is not large enough to make any generalisations, future research should employ larger samples. Finally, the study's setting was a discourse analysis course, limiting its results to only this type of course.

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