Effects of Reflective Thinking On Deep Learning in Theoretical Linguistics Classes

Ton Nu My Nhat
Ho Chi Minh University of Food Industry, Vietnam, *nhattnm@hufi.edu.vn*

Thinh Van Le
Department of Basic Education, Banking Academy of Vietnam, Vietnam, *thinhlv.py@hvnh.edu.vn*

It has been reported that some teachers mainly lectured while teaching online and students only listened and took notes. As a result, students did not develop high-order thinking skills. The study examined the effects of reflective writing, one of the deep learning approaches on students' learning outcomes. Participants were 103 undergraduate students studying phonetics and phonology at a private university in Vietnam. Students had to submit 481 reflective writings over a ten-week period and did the mid-term and final tests. Five students participated in semi-structured interviews. Findings showed that there was a positive correlation between the number of assignments and their mid-term and final scores. The group that completed more assignments had higher scores. The study also revealed the impact of reflective writings on students' retainment of the lesson content and utilization of higher-order thinking skills. The findings suggest some pedagogical implications for teachers to sustain students' deep learning.

Keywords: critical thinking, deep learning, high-order thinking, learning outcomes

INTRODUCTION

Most of the studies found that instructors mostly used surface-learning approaches in both class activities and assessments, which mainly focus on low-order thinking skills (LOTS), such as remembering and understanding, rather than analyzing or creating (Nguyen et al. 2016). The teachers in Nguyen et al.'s study did not care much about encouraging students to be analytical, reflective, and critical in their learning. Students did not evaluate with logical reasoning to form conclusions or give wise judgment to issues raised in the learning tasks. One of the reasons was teachers' readiness to teach critical thinking skills to students (Ismail et al., 2019). Although teachers believed that they taught students critical thinking skills (Alandejani, 2021), the study did not describe how teachers developed students' critical thinking skills. In addition, students were documented to have better learning performance when higher-order thinking skills (HOTS) were explicitly explained to students (Nguyen & Nguyen, 2017). However, the

researchers did not examine whether explicit instructions had any correlations with their learning outcomes at the end of the course.

So far, few studies have applied reflective writing as a technique to promote deep learning of theoretical issues. Reflective writing under different contexts has been conducted, such as student work placements (Sykes & Dean, 2013), teacher education (Ayan & Seferoğlu, 2011; Hatton & Smith, 1995), computer science education (Alrashidi et al. 2020), medical education (Taylor, 2006), and service learning (Schmidt & Brown, 2016), and in different professions disciplines such as social work (McGuire et al. 2009; Newcomb, Burton, & Edwards, 2018), and psychotherapy (Sutton et al. 2007). However, such a powerful tool for growth and intellectual development is far from common in linguistics courses. In addition, many studies have examined the process of reflective writing; however, a few studies were conducted on the impact of reflective writing on low order thinking process. This study aims to fill this gap in the research. Drawing upon the insights from research into reflective writings (Dewey, 1933; Khan et al. 2006; Moon 2006; Morrison, 1996; Taylor, 2006) and deep learning (Biggs, 1992; Prosser and Trigwell, 1999), it is hypothesized that reflective writing positively affects students' learning outcomes and motivation and triggers the utilization of HOTS. This mixed-method research sought to answer these two specific research questions: (1) Does reflective writing contribute to the improvement of the students' high-ordered thinking? and (2) How do the undergraduates experience their reflective writing?

Literature Review

Reflective thinking

Reflection is defined as "*active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusion to which it tends.*" (Dewey, 1933, p. 9). In other words, it is a meaning-making process that transports a learner from one experience into another with a deeper understanding of each new experience based on the meaning perceived from their past experiences, as well as prior knowledge. It is the bridge that enables continuity of learning and ensures the progress of the individual and, ultimately, society.

There are other various interpretations of what constitutes reflection and reflective writing. Distinct from free thoughts or general thinking, academic reflection is an active conscious process of focused and structured thinking (Khan et al. 2006; Taylor, 2006). Reflection involves stepping back, analyzing, and evaluating an action, experience, or feeling (Schön, 2017). This purposeful process must ultimately reach the critical level for deep, active learning to occur (Moon 2006).

Reflective thoughts and experiences are commonly captured via reflective writing, in various forms, such as journals, diaries, blogs, etc., (Moon, 2006). Reflective pieces of writing are conducted in a very systematic way: having a clear purpose, stating basic observations, and providing additional information. As regards contents, this genre involves descriptive details of experiences, knowledge, and skills, together with

feelings, personal opinions, judgments, and viewpoints, which are mainly expressive and exploratory. Reflective journals as very useful tools to support the students in acquiring and developing reflective thinking because they reflected on their learning processes, contemplated the process and had the opportunity to evaluate the learning methods. (Carkit, 2020).

Reflective thinking has attracted considerable recent studies in education (Ayan & Seferoğlu, 2011; Çarkıt, 2020; Ramlal & Augustin, 2020; Yilmaz & Keser, 2016). Ramlal and Augustin (2020) reported on the experiences of 37 participants at an all-male secondary school in Trinidad and Tobago. The researchers addressed the students' limited cognitive, psychological, and linguistic issues by introducing a focus on the reflective genre to the regional syllabus. The intervention was reported to have positive changes in students' dispositions towards reflective writing and reflective skills. The researchers posited that reflective writing could enhance critical thinking and metacognition. However, the study did not examine whether students can retain the content of the lesson after their reflective writing or not.

In an EFL context, Ghanizadeh (2016) investigated the interrelationship between EFL learners' critical thinking, reflective thinking, self-monitoring, and academic achievement. The participants were 196 Iranian seniors and juniors who were studying English Literature, English Teaching, and English Translation at three universities. They were administered three questionnaires to gauge reflective thinking, assess critical thinking, and measure self-monitoring. The findings showed that there was an interplay between critical and reflective thinking, and the dynamic interaction between critical thinking and reflective thinking contributed to academic achievement. However, in this study, the variables in question were assessed via questionnaires, which failed to determine the processes by which these constructs were developed.

Concerning the e-learning environment, Ayan and Seferoğlu (2011) investigated the effect of electronic portfolios on enhancing pre-service teachers' reflective thinking skills. The participants were eight pre-service teachers enrolled in a practicum course. The pre-service teachers wrote e-portfolios throughout their practicum. The study concluded that the online nature of e-portfolios contributed to enhancing reflective thinking because students had a sense of ownership and reflected more on their professional development. Yilmaz and Keser's (2016) study, carried out in a distance education program of a university, indicated a correlation between reflective practice and learning outcomes. The study was carried out for six weeks on 103 students who were divided into three groups. Group 1 listened to podcasts and wrote reflective thinking; group 2 listened to the podcast but did not write reflective thinking, and group 3 watched videos. The study used the pre-test and post-test to measure students' success. The findings revealed that the existence of reflective thinking activities created a significant difference in success in the final test scores and motivation. However, the study does not describe what the pre-test and the post-test measure and whether the tests assess deep learning skills like analytical skills or surface learning such as remembering the content of the lesson.

In summary, the above studies have examined the reflective writing; however, most of them have explored the process of reflective writing, but have not measured the impact on students' retainments of content knowledge after writing reflectively.

Deep learning

Biggs (1987, 1992) categorizes three approaches to learning – surface, deep, and achieving. However, his framework was then modified by Kember et al. (2004), whose version had two approaches – deep and surface. According to Kember et al. (2004), the surface approach is characterized by fragmented knowledge. Surface strategies are characterized by memorization and minimizing scope of study. Memorization implies the traditional rote learning to answer examination questions; minimizing scope of study refers to a narrowing of focus. These two strategies are highly correlated because limited memory capacities imply what is to be stored must equally be limited. Narrowing the focus implies a concentration on the syllabus, or the examination, to the exclusion of everything else. The surface approach can be a useful platform or starting point to progress to an in-depth comprehension of the content (Biggs, 1987; Trigwell & Shale, 2004).

On the contrary, in the deep approach, learners seek understanding and relating ideas together (Kember et al., 2004). Learners adopting a deep approach tend to engage actively with the contents and relate contents to prior knowledge. These learners are meaning-oriented learners who are intrinsically motivated to study and to make meaningful connections between the newly acquired knowledge and their daily lives. In addition, they tend to synthesize ideas, generalize conclusions from relevant facts, and reasonable arguments based on logical premises (Veloo, et al., 2015). For deep learning to occur, it is essential to develop higher-ordered skills, which include comprehension of the basic concepts within the context of a conceptual framework, organized in a coherent structure that can accommodate new information or concepts. Only then can students reasonably transfer their learning across classes to new situations (Prosser & Trigwell, 1999). Veloo et al. (2015) content that there are also learners who tend to adopt a mixed approach – a combination of the deep and surface approach. They are inclined to use a surface approach to achieve immediate results and opt for the deep approach if the context necessitates (Veloo et al., 2015).

METHOD

Research setting

Despite the crucial role of these theoretical linguistics courses in English-major undergraduate degree programs, previous studies have indicated the teaching and learning of these courses in Vietnam have left much to be desired. The deepest concern revealed from most of the studies is that there is a focus on mostly low-order thinking skills in both class activities and assessment.

This research was implemented at the Faculty of English at a university in Vietnam. The course, which was taught by one of the researchers, met twice per week for 120 minutes per section. The course was conducted online via Sakai, the virtual learning environment

used at the university, and Zoom. The goal of this theoretical linguistics module was to introduce the basic concepts in English Phonetics and Phonology, with the course book being the widely-circulated *English Phonetics and Phonology* by Peter Roach.

Participants

The participants were third-year undergraduates specializing in English for Translation - Interpretation and Tourism. They were from four classes whose instructor was one of the two researchers of this study - ENG 319A (n = 32), ENG 319C (n = 39), ENG 319K (n = 28), and ENG 319M (n = 38), out of eight intact classes of Phonetics and Phonology in the Faculty of English in Fall 2021 Semester. The participants were relatively homogeneous with regard to their academic experience and English proficiency, which was presumably approximately B2 level, targeted at C1 to be eligible for graduation. They had had little or no exposure to the reflective mode during the first two years and had learned how to write paragraphs and essays in standard academic English. One hundred and three students from these four classes agreed to participate in this project by having given consent for their reflecting writings to be quantitatively and qualitatively analyzed and unanimously reported; ten from those 103 involved also agreed to participate in semi-structured focused interviews. Data relating to students who did not participate in the project would be deleted.

Research design

The purpose of the study is to examine whether there is any relationship between students' reflective writing and their retainment of information from the lessons and what are their experiences in reflective writing. The study employed mixed method (Creswell, 2014; Dörnyei, 2007) to examine the process of reflective writing and its impact. To address the two research questions, the study was conducted as follows:

Every two weeks, upon finishing each chapter, students from these classes were assigned two tasks, technically termed *Tests & Quizzes* and *Assignment* on the learning management system.
Tests and Quizzes were compulsory. These tasks were LOTS-oriented, consisting of multiple choice, gap-filling, and short answers to check students' remembering and understanding of theoretical concepts covered in each chapter. Students' works were uploaded and automatically assessed by the learning management system so that scores were immediately released to the students and sent to their grade books.

Reflective assignment was optional. These tasks were reflective writings, HOTS-oriented, aimed to promote deep learning of theoretical issues under focus. The question prompts necessitated students' reflections, engaging the learners in relating and/or applying the theoretical concepts to the pertinent issues in an EFL context, namely teaching, learning, translating, and/or interpreting. These were prepared and discussed among the researchers. The experts were invited to review to ensure the questions were aligned with the objectives of the study. According to the experts' suggestions, necessary modifications were made, and the prompts were finalized (Appendix A). These reflective writings were submitted electronically via the learning management system, which allowed attachments.

This present study was designed to determine the effects of reflective writings in online classes of theoretical English phonetics and phonology in the context of a Vietnamese private university. Drawing on the notion of deep learning and associated characteristics, we designed the assignments with an aim to engage the learners deeply in the process of learning – a fully engaging experience which is highly meaningful and deeply felt, with thoughts deeply elaborated and more contextualized, reflective understanding (Shaules, 2018). By drawing learners' attention to their subjective experience of language learning and language use, we put them more in control of their own learning (Shaules, 2018, p.12). The assignments were designed as tasks which were 'difficult enough to require full attention, but easy enough to become absorbed in' (Shaules, 2018, p. 13).

The preparation of these after-class tasks in terms of LOTS and HOTS was based on Marzano's taxonomy (Marzano & Kendall, 2007) because this model offers an operational definition of the distinction between LOTS and HOTS: LOTS is generally classified into the categories of understanding and retrieving, HOTS is the level at a higher level in the cognitive hierarchy - the level of applying, analyzing, evaluating, and creating.

The rubric for scoring the assignments was based on Alrashidi et al.'s (2020) validated framework for the reflective writing assessment in computer science and insights from Chan el al.'s (2021) study on assessing written reflections. Their proposed framework consists of three levels - non-reflective, reflective, and critically reflective, and seven indicators - descriptive, understanding, feelings, reasoning, perspective, new learning, and future action. In light of this framework and constraints of the subject domain, the assignments were variously scored from 5 to 10, according to the rubric, summarized in Table 1.

Table 1
The rubric of scoring reflective writings

Score	Indicators
5 - 6	Descriptive: the student repeats theoretical materials from textbooks, supplementary references, lecture notes, or the Internet.
7-8	Understanding: the student understands and analyzes the concepts. Reasoning: the student analyzes facts or their own experiences, gives reasons and supports with details; classifies (with detailed/ simple/no comparing and contrasting); generalizes (with original/simple/no conclusions) and/or specifies (with/without support). Perspective: the student shows awareness of alternatives. Feeling: the student demonstrates and analyzes their own thoughts feelings.
9-10	New learning: the student integrates and describes new learning. Future action: the student intends to do something and plans for future action.

In addition to a score, each student received comments, which could be as short as 'Excellent', 'Well-done', 'Good job' or as long as some sentences if in an answer there were some specific points which needed being further supported, some problems which should have been spent more time on, or even some laborious details as indications of students hard-work which deserved high praises. Moreover, for all the submissions, the

instructor noted all the strengths and weaknesses, which were conveyed to the whole class during the online classes in the immediately following week. These generalized and detailed comments were aimed to help the students avoid some common errors, and learn from their peers to direct their learning more successfully.

Data Collection

This research has three types of data: (1) the primary data set of 481 original reflective writings submitted by the students; (2) the scores of the two tests - the mid-term test and the final test; and (3) the focused interviews with the participants. The data were collected at different stages.

(1) Reflective writings: A total of 481 reflective writings were submitted over a ten-week period from August 2021 to October 2021. The fewest number of assignments submitted by a student was 0, the most was 5. Throughout the semester, only five students did not submit any assignments. These reflective writings allowed the students to express in a comparatively informal way their 'still-forming hypotheses' (Cook-Sather, Abbot, & Felten, 2019, p. 15). This analytical activity encouraged the students to be exploratory, to acquire new understandings, and to turn experience into learning (Boud, 2001).

(2) Test scores: Scores of the mid-term test and the final test served as data to examine the impact of the assignments on the students' learning. The mid-term test was administered during class hour in Week 7 by the course instructor. This progress test was structured with two sections - testing students' LOTS and HOTS, being equal in weight of score. The LOTS-oriented section consisted of multiple choice, gap-filling, and short answers; the HOTS-targeted section consisted of a question prompt similar to those assigned in the previous assignments. The final test was administered at the same time as all the other classes in the university at the end of the Fall semester. In the final test, as mentioned above, there were only multiple-choice questions, gap-filling, and short answers to check students' LOTS.

(3) Interviews: The semi-structured in-depth interviews, which were one-on-one interviews, were to seek understanding of students' perspectives and their experience in writing reflections, specifically to what extent reflection writing promoted deep learning. The hypothesis to test was that writing reflections enhanced students' intrinsic motivation and utilization of HOTS. We conducted the interviews in Vietnamese to enable the participants to easily express their opinions. The questions focused on the students' experiences in finishing the five assignments (Appendix B).

As regards the interviewees, as the course had basically ended, the course instructor sent an email to students in the classes to enquire about their consent to participate in the interviews concerning their experiences in finishing the reflective writings, which might take them approximately 20-30 minutes. Ten students participated on a voluntary basis and the interviews took place online using Zoom. They are unanimously referred to as S1-S10 in the section on findings below.

Data Analysis

Following data collection, the researchers analyzed data from the instruments – the reflective writings, the scores, and the interviews.

Data analysis – quantitative: The data gained was analyzed using SPSS. Pearson correlation was checked to see whether there was any correlation between the number of assignments students completed with the mean scores in the mid-term test and final tests.

Data analysis – qualitative: The qualitative data underwent the procedures in qualitative data analysis detailed by Akinyode and Khan (2018). The semi-structured interviews were audio-taped and transcribed verbatim, which underwent a detailed step-by-step analytical process to develop basic themes. These basic themes were then converged to high order (organising) themes.

FINDINGS

Quantitative data

To answer the first research questions relating to the effects of online reflective writing, the Pearson correlation test was used to test. Table 2 showed that there was a positive correlation between the number of reflective writings that students completed with mid-term test scores. This means that the more reflective assignments students completed, the higher scores they got on the mid-term test. The mid-term test assessed both HOTS questions and LOTS. The results showed that reflective writing had effects on both LOTS and HOTS when students could score higher in both LOTS and HOTS (Table 2)

Table 2
Correlation between the mid-term tests scores and the number of assignments

	Mid-term test scores	Number of Assignments
Pearson Correlation	1	.545**
Sig. (2-tailed)		.000
N	103	103

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3 showed that there was a correlation between the final test scores and the number of reflective assignments that students did during their course. It confirmed one more time that the reflective writing not only improved students' HOTS, but also the LOTS. .

Table 3
Correlation between the final tests scores and the number of assignments

	Final test scores	Number of Assignments
Pearson Correlation	1	.396**
Sig. (2-tailed)		.000
N	103	103

**. Correlation is significant at the 0.01 level (2-tailed).

In summary, the mid-term test scores, and final test scores positively correlated with the number of assignments. In other words, students who did more reflective assignments could improve their scores better than those who did less reflective assignments.

Qualitative data

The data obtained from the interviews with 10 participants underwent the procedure as detailed by Akinyode and Khan (2018), resulting 14 keywords and basic themes, from which four organizing themes emerged (Table 4). The interviews evidenced that the reflective writings, despite being optional, provoked students' active participation. The students were motivated to accomplish the reflective writings, they appreciated the practicality of these tasks, being engaged in these tasks because they enhanced their utilization of HOTs, and the reflective writings impacted their deep learning of the domain contents.

Table 4
Keywords, basic themes, and organizing themes

No.	Keywords	Basic Themes	Organizing Themes
1	Interest	Ss were interested in finishing RWs.	OT1. motivation
2	Feedback	Ss expected to receive scores, comments, and further instructions	
3	Learning outcomes	Ss aimed at higher scores.	
4	Speaking skills	Ss were aware of features to focus on to develop speaking skills.	OT2. Appreciation of practicality
5	Writing skills	Ss had opportunities to develop writing skills	
6	Reflective skills	Ss reflected on their process of learning and using EFL	
7	Understanding	Ss employed techniques such as describing, comparing, explaining, classifying, summarizing, and/or exemplifying.	OT3. Utilization of HOTS
8	Analyzing	Ss analyzed the materials they searched.	
9	Evaluating	Ss checked and critiqued information.	
10	Creating	Ss complied information searched, analyzed, and/or evaluated to produce structured, focused RWs.	
11	Active engagement	Ss committed to finishing Tests & Quizzes, interacting with materials, peers, and/or lecturer, and going through steps.	OT4. Deep learning of domain contents
12	In-depth comprehension	An in-depth comprehension of the concepts was a prerequisite to finishing RWs.	
13	Relating contents to other experiences	Ss strived to meet the requirements of the reflective writings.	

Firstly, although assigned as optional, the reflective writing motivated the students to finish every two weeks. What they mostly expected was the feedback and scores automatically released a few days after submission; they also looked forward to further instructions during the follow-up classes so that they could learn how to improve their

works. Some students mentioned the convenience of online submission. For example, one interviewee said: 'I could submit the last minute; I did not miss any assignment.'*;* another said:

> I looked forward to the response of the instructor. The comments were always encouraging. The feedback and instructions made me pay attention to these features in the other assignments. (Interview; Student 10)

The second theme concerned the usefulness of being engaged in the learning process. A majority expressed their appreciation of the practical values of the theoretical concepts in raising their awareness of features to focus on to develop their speaking skills. One student said, 'if we had been asked to pay attention to the features like we were instructed in this course, we would be better at speaking. We usually made a lot of mistakes in speaking and mispronounced words. Now I know features to pay attention to. I'm going to try.*'* One student gave justifications for her actions as follows:

> I listened to and read aloud many minimal pairs when I was at primary, and secondary schools. In the first year, I learned them in Sheep and Ship. But I did not know why we did so. I found these practices very sleepy. But in Assignment 2, I realized why we had done so. (Interview; Student 5)

Another student reported that thanks to the activities, he developed an interest in listening to English songs.

> I rarely listened to English pop songs. Then, I was interested in the final assignment when I was required to listen to many songs in English. I learned a lot. My friends shared many songs, too. I could write even longer. I now love pop songs. Whenever I listened, I paid close attention to the features such as linking, elision, and assimilation. I showed my younger sister to listen to some songs, too. (Interview; Student 2)

*S*ome were also satisfied with their improvement in written communication skills. The students indicated that the reflection writings offered multiple opportunities over ten weeks to enhance their advanced writing skills. For example, one student expressed her satisfaction this way,

> The assignments helped me write more fluently. I learned how to support the ideas with specific details. From your comments, I also copied the images from the Internet to illustrate my answer. The good grades motivated me. I spent more time. I started earlier in order to have more time. (Interview; Student 5)

Still, some students said about their development of reflective skills. The assignments offered them a chance to relate the theory to their own past and current experiences as EFL learners. The reflective writing served as the bridge for them to relate their present learning to their past and present experiences of learning and/or using EFL.

The most recurrent theme of all was the students' continual utilization of HOTS. The reflection prompts triggered the use of multiple high-order cognitive skills, with the most prominent being analyzing, checking, and critiquing information*,* synthesizing, and

reasoning. The students' answers concerning the procedures of doing the assignments indicated that in order to come to their finished products to upload by the end of the deadline, they had to go through two main steps – understanding the learned concepts and reflecting; on most of what they did were associated with HOTS. For example, one student reported,

> I usually began by reading over the questions. I chose one, of course. But sometimes I changed the topic halfway. The textbook was hard to understand, actually. The materials were various, so I had to read carefully, analyzed, and compared information from different sources. I wrote the drafts and edited them. If I found the answer poor, I would start all over again. (Interview; Student 6)

Another described,

> I always presented the contents in detail. This helped me understand the concepts thoroughly, especially with the concepts which many subtypes such as weak forms or assimilation. But the materials we shared or searched on the Internet were usually slightly different from the lecture notes and the textbook. I chose the information comprehensible. (Interview; Student 1)

It was clear from the students' responses that the reflecting writings transported them beyond rote learning of short answers to an experience where they had to go through several steps independently and/or cooperatively with peers. Throughout these steps, their high-order cognitive skills were activated, with which the required written products could not be accomplished.

Being motivated to participate and enhanced to mobilize HOTS, the students experienced deep learning of the subject contents. This represents the fourth organizing theme from the interviews. In order to finish the reflective writings, the students were committed to finishing the Tests & Quizzes and interacting with materials, peers, and/or lecturers for an in-depth comprehension of the concepts. They also strived to meet the requirements of the assignments given the lecturer's feedback and instructions. Phrases such as 'took a lot of time', 'tried', 'go over the notes, 'searched the Internet', 'discussed', and so on, repeatedly mentioned by the interviewees, indicated such positive effects on students' deep learning. For example, one student stated how the assignments helped her master the theoretical concepts:

> It took me a lot of time to finish each assignment. I had opportunities to go over the lecture notes and search the Internet for a better understanding of some concepts. I had the most difficulties with allophones. At first, I did not understand, so I had to collect many more examples. I had nearly two pages then. (Interview; S.6)

Another student talked about how they were engaged in the processes:

> We learned in a group of three. We first discussed in order to understand the concepts; we checked the answers to Tests & Quizzes. Some questions were hard; each could jot down only a few sentences. We then exchanged ideas and

learned from each other to make our answers meet the word number. (Interview; Student 9)

However, it should be noted that these positive results should be interpreted with caution and they could not possibly be extrapolated to all students. The interviewees were the ten first students who replied to the email. That these volunteers promptly replied to the email requesting the student's participation in the interview about their experience in finishing the assignments in the semester suggests that they must have been active students and high achievers.

DISCUSSION

Findings showed that reflective writing positively impacted students' academic performance. This result agrees with the findings of the other previous relevant studies, in which a positive correlation was reported between reflective writing and academic achievement (Ghanizadeh, 2016; Yilmaz & Keser, 2016). The observed significant correlation between the quantity of submissions of reflective writing and the test scores could be attributed to a deep understanding of the domain contents. Such deep understanding was initially obtained through the performance of Tests & Quizzes with a focus on LOTS, which was a useful platform or starting point to gradual mastery of the contents (Biggs, 1987; Trigwell & Shale, 2004). The study argues that reflective writing not only improved students' deep learning as reported in previous studies but also contributed to surface learning because they could perform better in terms of quizzes in the middle and final tests. This means that critical thinking enabled students to remember the lesson better and performed better.

As regards the students' experiences in writing reflections, this study indicated that these writing opportunities generated students' intrinsic motivation and triggered the utilization of HOTS. In this study, Tests & Quizzes were compulsory tasks and reflective writing was optional. Despite being optional rather than compulsory, the reflective assignments triggered a steadily increasing number submitted over a ten-week span, which indicated that the students were intrinsically motivated by the tasks. These findings are consistent with those in the previous studies which addressed the learners' limited cognitive, psychological, and linguistic issues (Carkit, 2020; Ramlal & Augustin, 2020) and thus confirming the role of reflective writing as a very useful tool in engaging students' active learning and supporting students' development of higher-order cognitive skills. The students' finishing the reflective writings necessitated continual engagement in HOTS. This result is thus also consistent with that of previous studies which investigated the impact of teaching HOTS and/or exposing learners to tasks requiring HOTS. Previous studies emphasize the alignment of learning goals, implementation of learning, and assessment towards a higher cognitive level in order to create a culture of thinking for the teacher in preparing his/her class and to maximise students' HOTS (Momsen et. al. 2010). The study argues that critical reflection improved students' motivation; therefore, critical reflection could be a good way to motivate students' attitudes towards the subject.

This study also confirmed the association between reflective writing and development of students' composition skills, as found in some previous studies (Lienenmann & Reid, 2008). The students in this study were satisfied with their improvement in written communication skills. The reason must be that when engaging in the writings, the students employed a variety of learning strategies and underwent multiple steps, such as reflecting, searching materials, planning, idea-generating, organizing thoughts, self-evaluating, self-monitoring, and so on. Along with actual practice, the students received detailed feedback and useful guidance so they became aware of the features required for reflective writings targeted at HOTS.

CONCLUSION AND IMPLICATIONS

Taken together, this study confirms the potential of reflective writing as an effective pedagogical tool because it can motivate, and improve students' learning. It is novel in the implementation of reflective writings in form of extended writings in theoretical linguistic courses. The prompts were purposefully designed to promote deep learning of the subject domains and enhance the utilization of HOTS, which have been deemed as particularly essential for 21-century language learners. Some pedagogical implications emerge from this study as follows.

Firstly, this study has confirmed that in the context of the expansion of online courses, reflection assignments offer a potential pedagogical strategy to engage students in deep learning that stimulates more meaningful interaction between students and content and between students and instructor and enhances HOTS that benefit the students academically, cognitively and socially. Thus, reflective writing should be used in a systematic way across all linguistics courses or programs in other contexts where teachers mainly use low-order thinking questions. Critical thinking could be developed through the open-ended questions as Fajari (2021) and Heliawati et al. (2021) suggested. This pedagogical tool may constitute one of the most crucial ways to bridge the gaps between theoretical courses and practical closely-relevant issues in the immediate learning and using languages of EFL learners. Additionally, recent studies have emphasized the benefits of multimedia and artistic activities being integrated in reflective practice (Barton & Ryan, 2014; Yuan & Mak, 2018); thus, most favourably, the students should be motivated to employ other modes of expressions such as images and audios along with language.

Secondly, notwithstanding its multiple benefits, reflective writing is scarcely used in linguistics courses as well as others in degree programs, it is therefore essential to include this method as one of alternative assessments. Bain et. Al.(2002) argued that deep reflective skills can be taught; nonetheless, they require practice and development over time. Initially, to promote efficiency, foreign language departments should attend to the reflective genre besides the traditional genres of description, narration, exposition and argumentation to empower their practice. This gap, it is asserted, implies the need to prepare students more effectively in higher education for reflective writing, learning and practice. Rhetorical and linguistic features of reflective writing as illuminated from a genre-based analysis (Heron & Corradini, 2020; Reidsema & Mort, 2009) can provide scaffolding to the stakeholders. This complex rhetorical activity (Ryan, 2011) has also

attracted some studies which aimed to explore the sub-skills to develop and nurture students' reflective capabilities (King, 2002), or to design a simplified model of stages and guiding questions which may be employed to develop better quality reflective writing and more informed assessment (McGuire et al., 2009; Moussa-Inaty, 2015). Based on systemic functional linguistics, Ryan's (2011) social semiotic model outlines scales of reflection which can be explicitly taught and assessed in higher-education courses. This writing knowledge can be extremely useful for writers as a guide to writing in genre with which they may be unfamiliar and or uncomfortable.

Then, to support and sustain the ability to write reflectively, in contexts without purchased tools such as Sakai, best use should be made of the available, free technological advances, such as Google Docs, Facebook groups, to support students in writing outside of the classroom. In this respect, students and lecturers' technological skills and awareness about E-learning benefits should be raised, in order to boost their intention, attitude, and satisfaction towards this approach. Managers should provide well-organized quality system to facilitate usage and navigation (El-ashry et al., 2022; Garrison, 2003).

Finally, course design needs to specifically target HOTS; it is not reasonable to expect that repeated exposure to higher-order tasks is sufficient. In addition, in light of the findings of this study and others (Nguyen et al. 2016), with respect to assessment, instructors must change the assessment in the learning process from exercises which predominantly measure LOTS to open questions that measure HOTS.

LIMITATIONS

The final test had to comply with the assessment criteria of the whole university; therefore, it only tested LOTS with questions such as True/false or comprehension questions. This was one of the limitations of the study when the final test did not assess students. Future studies should assess both LOTS and HOTS at the same time.

The study was limited by the lack of rich qualitative data about the individual learners' interaction with the subject contents. Future studies could be designed to obtain students' perceptions of the discipline-specific issues when engaging in reflective writing. Alternatively, experimental studies might be needed to gather empirical data about the learners' actual reflection processes to investigate the changes in the learners' HOTS over a certain period of the course. Such research could provide more comprehensive findings about the effects of reflecting writing on developing HOTS in a theoretical linguistics course in an e-learning environment.

REFERENCES

Akinyode, B. F., & Khan, T. H. (2018). Step by step approach for qualitative data analysis. *International Journal of built environment and sustainability*, *5*(3). https://doi.org/10.11113/ijbes.v5.n3.267

Alandejani, J. A. (2021). Perception of instructors' and their Implementation of critical thinking within their lectures. *International Journal of Instruction*, *14*(4), 411-426. https://doi.org/10.29333/iji.2021.14424a

Alrashidi, H., Joy, M., Ullmann, T. D., & Almujally, N. (2020). Educators' validation on a reflective writing framework (RWF) for assessing reflective writing in Computer Science Education. *Intelligent Tutoring Systems*, Cham. https://doi.org/10.1007/978-3-030-49663-0_37

Ayan, D. & Seferoğlu, G. (2011) Using electronic portfolios to promote reflective thinking in language teacher education. *Educational Studies*, *37*(5), 513-521, https://doi.org/10.1080/03055698.2010.539782

Bain, J. D., Ballantyne, R., Mills, C., & Lester, N.C. (2002). Reflecting on practice: Student teachers' perspectives. Flaxton: Post Pressed.

Barton, G., & Ryan, M. (2014). Multimodal approaches to reflective teaching and assessment in higher education. *Higher Education Research & Development*, *33*(3), 409-424. https://doi.org/10.1080/07294360.2013.841650

Biggs, J. B. (1987). Student approaches to learning and studying. Melbourne: Australian Council for Educational Research.

Biggs, J. B. (1992). Why and how do Hong Kong students learn? Using the Learning and Study Process Questionnaires. Hong Kong: Hong Kong University

Boud, D. (2001). Using journal writing to enhance reflective practice. In L. M. English & M. A. Gillen (Eds.), Promoting journal writing in adult education. New directions in adult and continuing education No. 90 (pp. 9–18). San Francisco, CA: Jossey-Bass.

Çarkıt, C. (2020). Reflective thinking in Turkish language education. *Elementary Education Online*, *19*(2), 1078-1090. https://www.ilkogretim-online.org/?mno=121603.

Chan, C. K., Wong, H. Y., & Luo, J. (2021). An exploratory study on assessing reflective writing from teachers' perspectives. *Higher Education Research & Development*, *40*(4), 706-720. https://doi.org/10.1080/07294360.2020.1773769

Cook-Sather, A., Abbot, S., & Felten, P. (2019). Legitimating reflective writing in SoTL: 'Dysfunctional illusions of rigor' revisited. *Teaching & Learning Inquiry*, *7*(2), 14–27. https://doi.org/10.20343/teachlearninqu.7.2.2

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches*. SAGE Publications.

Dewey J. (1933) How We Think: A Restatement of the Relation of Reflective Thinking to the *Educative Process*. Boston: Heath.

Dörnyei, Z. (2007). *Research methods in applied linguistics: Quantitative, qualitative, and mixed methodologies*. Oxford University Press. El-Ashry, A., El-Din, A. N., Khairy, K., Soliman, P., Beram, R., & Nosier, S. (2022). Investigating critical success factors of e-learning: Different stakeholders' perspectives. *Anatolian Journal of Education*, *7*(2), 61-84. https://doi.org/10.29333/aje.2022.726a

Fajari, L. E. W. (2021). Open-ended questions to assess critical-thinking skills in Indonesian elementary school. *International Journal of Instruction*, *14*(1), 615-630. https://doi.org/10.29333/iji.2021.14128a

Garrison, D. R. & T. Anderson. (2003). *E-Learning in the 21st century: A framework for research and practice.* London: Routledge

Ghanizadeh, A. (2016). The interplay between reflective thinking, critical thinking, self-monitoring, and academic achievement in higher education. *Higher Education,* 74(1), 101 – 114. https://doi.org/10.1007/s10734-016-0031-y

Hatton, N., & Smith, D. (1995). Reflection in teacher education: Towards definition and implementation. *Teaching & Teacher Education*, *11*(1), 33–49. https://doi.org/10.1016/0742-051X(94)00012-U

Heliawati, L., Afakillah, I. I., & Pursitasari, I. D. (2021). Creative problem-solving learning through open-ended experiment for students' understanding and scientific work using online learning. *International Journal of Instruction*, *14*(4), 321-336. https://doi.org/10.1007/s10734-016-0031-y Heron, M., & Corradini, E. (2020). A genre-based study of professional reflective writing in higher education. *Teaching in Higher Education*, *33*(3) 1-13. https://doi.org/10.1080/13562517.2020.1824178

Kember, D., Biggs, J., & Leung, D. Y. P. (2004). Examining the multidimensionality of approaches to learning through the development of a revised version of the learning process questionnaire. Educational Psychology Journals, *74*(2), 261-279.

http://dx.doi.org/10.1348/000709904773839879

Khan, P. et al. (2006) The role and effectiveness of reflective practices in programmes for new academic staff: A grounded practitioner review of the research literature. Manchester: University of Manchester/Higher Education Academy.

King, T. (2002). Development of student skills in reflective writing. In *Spheres of Influence: Ventures and Visions in Educational Development. Proceedings of the 4th World Conference of the International Consortium for Educational Development. Perth: The University of Western Australia*

Lienenmann, T. O., & Reid, R. (2008). Using self-regulated strategy development to improve expository writing students with attention deficit hyperactivity disorder. *Reston*, *74*(4), 471-486. https://doi.org/10.1177%2F001440290807400404

Marzano, R.J. & Kendall, J.S. (2007). The new taxonomy of educational objectives (2nd ed.) Thousand Oaks, CA: Corwin Press.

McGuire, L., Lay, K., & Peters, J. (2009). Pedagogy of reflective writing in professional education. *Journal of the Scholarship of Teaching and Learning*, *9*(1) 93-107 https://scholarworks.iu.edu/journals/index.php/josotl/article/view/1718

Momsen, J. L., Long, T. M., Wyse, S. A., & Ebert-May, D. (2010). Just the Facts? Introductory undergraduate biology courses focus on low-level cognitive skills. *CBE—Life Sciences Education*, *9*(4), 435-440. https://doi.org/10.1187/cbe.10-01-0001

Moon, J. (2006). Learning Journals: A handbook for reflective practice and professional development. London: Routledge.

Morrison, K. (1996). Developing reflective practice in higher degree students through a learning journal. *Studies in Higher Education*, *21*(3), 317-332. https://doi.org/10.1080/03075079612331381241

Moussa-Inaty, J. (2015). Reflective writing through the use of guiding questions. *International Journal of Teaching and Learning in Higher Education*, *27*(1), 104-113. https://eric.ed.gov/?id=EJ1069801

Newcomb, M., Burton, J., & Edwards, N. (2018). Pretending to be authentic: Challenges for students when reflective writing about their childhood for assessment. *Reflective Practice*, *19*(3), 333–344 https://doi.org/10.1080/14623943.2018.1479684

Nguyễn, T. M. T., & Nguyễn, T. T. L. (2017). Influence of explicit higher-order thinking skills instruction on students' learning of linguistics. *Thinking Skills and Creativity*, *26*, 113-127. https://doi.org/https://doi.org/10.1016/j.tsc.2017.10.004

Nguyen, T.M.T., Nguyen, H.D., Nguyen, L.T.T., Doan, N.T. (2016). An investigation into How QH2012.F1 Students use higher-order thinking skills in English Linguistics Assessments at VNU-ULIS. VNU Journal of Foreign Studies 32(3), 57-66.

Prosser, M., & Trigwell, K. (1999). *Understanding learning and teaching: The experience in higher education*. McGraw-Hill Education (UK).

Ramlal, A., & Augustin, D. S. (2020). Engaging students in reflective writing: an action research project. *Educational Action Research*, *28*(3), 518-533. https://doi.org/10.1080/09650792.2019.1595079

Reidsema, C., and P. Mort. (2009). Assessing Reflective Writing: Analysis of Reflective Writing in an Engineering Design Course. *Journal of Academic Language and Learning 3*(2), 117–129. https://journal.aall.org.au/index.php/jall/article/view/97

Ryan, M. (2011). Improving reflective writing in higher education: A social semiotic perspective. *Teaching in Higher Education*, *16*(1), 99-111. https://doi.org/10.1080/13562517.2010.507311

Schön, D. A. (2017). The Reflective Practitioner: How Professionals Think in Action. New York: Basic Books.

Shaules, J. (2018). Shaules, J. (2018). Deep learning: Unconscious cognition, the intuitive mind, and transformative language learning. *Juntendo Journal of Global Studies*, *3*, 1-16.

Schmidt, N. A., & Brown, J. M. (2016). Service learning in undergraduate nursing education: Strategies to facilitate meaningful reflection. *Journal of Professional Nursing*, *32*(2), 100-106. https://doi.org/10.1016/j.profnurs.2015.06.006

Sutton, L., Townend, M., & Wright, J. (2007). The experiences of reflective learning journals by cognitive behavioural psychotherapy students. *Reflective Practice*, *8*(3), 387–404. https://doi.org/10.1080/14623940701425048

Sykes, C., & Dean, B. A. (2013). A practice-based approach to student reflection in the workplace during a Work-Integrated Learning placement. *Studies in Continuing Education*, *35*(2), 179–192. https://doi.org/10.1080/0158037X.2012.736379

Taylor, B. (2006). Reflective practice: A guide for nurses and midwives. 2nd Ed. Maidenhead: Open University Press.

Trigwell, K., & Shale, S. (2004). Student learning and the scholarship of university teaching. *Studies in Higher Education*, *29*(4), 523-536. http://dx.doi.org/10.1080/0307507042000236407

Veloo, A., Krishnasamy, H. N., & Harun, H. M. (2015). What are the learning approaches applied by undergraduate students in English process writing based on gender? *International Education Studies*, *8*(6), 46-55. https://repo.uum.edu.my/id/eprint/17503

Yilmaz, F. G. K., & Keser, H. (2016). The impact of reflective thinking activities in e-learning: A critical review of the empirical research. *Computers & Education*, *95*, 163-173. https://doi.org/https://doi.org/10.1016/j.compedu.2016.01.006

Yuan, R., & Mak, P. (2018). Reflective learning and identity construction in practice, discourse and activity: Experiences of pre-service language teachers in Hong Kong. *Teaching and Teacher Education*, *74*, 205-214. https://doi.org/10.1016/j.tate.2018.05.009

APPENDIX A

Reflection Prompts

Assignment 1

Choose ONE of two topics.

Write an essay (100-200 words), answering the question. Do you agree or disagree?

(1) I'm better prepared to develop my pronunciation when I have learned about the basic concepts such as IPA, letters vs. sounds, voiced vs. voiceless sounds.

(2) I'm better prepared to develop my pronunciation and/or help other English language learners to develop theirs when I have learned how the English sounds are described and classified.

Support your answer with illustrations and examples.

Assignment 2

Provide an extended answer to TWO of the following questions. Word-count for each answer must be within 70-100.

(1) Have you ever been involved in any practice of pronunciation by means of MINIMAL PAIRS? If 'Yes', describe the practice and state whether or not such practice is effective.

(2) Have you ever been aware of the fact that a phoneme may have different realizations in English? Now that you have learned about allophones, what do you think a learner of English as a foreign language should do in order to be good at pronunciation, i.e. to achieve native-like accuracy in pronunciation?

(3) What are the differences and similarities in the structure of the syllable in English and in Vietnamese?

Support your answer with examples.

Assignment 3

Choose ONE of the following questions:

(1) Basing on what you have learned about *word stress* and *sentence stress*, design a lesson on stress (as long as you can; without word-limit) to instruct the Vietnamese learners of English on how to pronounce English words with correct stress, and/or speak English naturally with correct sentence stress.

(2) Write an ESSAY, reflecting on the following issues, concerning stress:
  - Have you had difficulties in learning how to pronounce words with correct stress? Why (or why not)?
  - Has stress ever stricken you as a typical characteristic of English pronunciation, which is not present in Vietnamese words?
  - Have you ever been aware of sentence stress as a feature to speak English clearly and naturally?

  Assignment 4

Write a *complete essay* (150-200 words), reflecting how useful the lesson on strong & weak forms and rhythm is beneficial to YOU as a learner of English as a foreign language. You may find the following guiding questions helpful:

- Have you ever been taught these features of English?

- Are these features your strengths or weaknesses in your pronunciation?

- What do you think you're going to do in order to improve your pronunciation regarding these features?

  Assignment 5

Listen to as many English pop songs as you like. Choose ONE, TWO or MORE songs with many cases of elision, linking, and/or assimilation.

- Provide the lyrics (or a link if available)

- Analyze/Indicate (by highlighting, underlying, …) these cases of aspects of connected speech;

Write a PARAGRAPH on what you have learned from listening to songs with such cases.

Appendix B

Questions for student interviews

(1) Please describe the procedures you went through to finish the reflective writings. Did you discuss with your friends? Did you try to gain further knowledge besides the lecture notes? What sources of documents did you access? How did you go about structuring and editing your writing?

(2) How do you feel about writing reflections on the theoretical issues? What areas interested and/motived you most? What have posed challenges to you?