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GO-DEEP: A Potential Reflection Model for Experiential Learning

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Abstract. Experiential learning is a critical approach in higher education that emphasizes learning by doing, where students engage in activities that promote hands-on learning experiences. Reflection is a crucial component of experiential learning, enabling learners to extract valuable insights and knowledge from their experiences. This study presents our synthesized reflection model, the GO-DEEP reflection model, which includes six main stages to reflect before, during, and after experiences. This study implemented a pre-experimental design to investigate the model's usefulness and effectiveness in a work-integrated learning course. The course comprised of eight learning sessions with 39 life science students. During each session, the students actively participated in the process of reflection. The students were asked to complete the GO-DEEP level of use questionnaires after sessions four and eight and they submitted their reflection reports after each session through Google Forms. In addition, they responded to the open-ended questions about their perception of the GO-DEEP reflection model and reflection practices. The collected data were analyzed using descriptive, thematic, and t-test analyses. The findings reveal that the university students who used the GO-DEEP reflection model were highly interested in its use and found it beneficial in extracting valuable insights about their learning experiences by constructing knowledge, promoting, and facilitating learning. These outcomes highlight the efficacy and potential of GO-DEEP as a helpful tool in fostering meaningful and impactful educational experiences. Moreover, based on student experience, GO-DEEP has the potential to be applied not only in academic aspects but also in non-academic activities and life experiences.

Keywords: experiential learning; higher education; work-integrated learning; reflective practice; GO-DEEP reflection model

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1. Introduction

Higher education plays a vital role in equipping students with the necessary competencies for lifelong learning, employment, and personal growth. However, achieving these goals requires active engagement from students, as learning achievement is closely linked to their level of engagement. In this context, learning engagement can be defined as students' interest in learning, which includes affective, cognitive, and behavioral domains (Kahu, 2013). Various approaches are applied to promote learning engagement, such as teaching methods, classroom discussion, engaging learning activities, project-based learning, peer grading (Collaço, 2017).

Besides focusing on academic courses and teaching methods, students must have a chance to participate in hands-on activities to enhance employability in the competitive labor market, such as experiential activities, work experiences, entrepreneurship modules, and career orientation (Knight & Yorke, 2010). Experiential programs and courses aim to provide hands-on practices and work-integrated learning to increase learning engagement. Occasionally, they can involve the industry stakeholders in the academic curriculum and training (Ferns et al., 2014; Jackson, 2018; Rowe & Zegwaard, 2017).

Reflection is a necessary stage of any experience, which can promote intention and purpose to develop a deliberate, professional after experience. It could also enhance learning engagement, satisfaction, and self-efficacy (Phan, 2014; van Seggelen-Damen & van Dam, 2016); develop lifelong learning (McKauge et al., 2011); and enable individuals' unlearning, to stop using outdated knowledge and affect work engagement (Matsuo, 2019).

Although various reflection models are applied in different learning disciplines and forms, there is still a lack of a systematic model for experiential approaches or work-integrated learning. This study, therefore, aims to synthesize a reflection model from existing frameworks for experiential learning, demonstrate how to use it in a virtual work-integrated learning environment, and determine the usefulness level from both quantitative and qualitative perspectives.

2. Literature Review

Experiential learning is an essential part of education that promotes bridging the gap between theory and practice. Kolb has defined experiential learning since 1984 — also known as Kolb's learning cycle and Kolb's experiential learning theory. The theory focuses on four stages of the learning process, learning styles, and learning spaces.

In the initial cycle, the idea mentions four stages of learning: concrete experience, reflective observations, abstract conceptualization, and active experimentation. In the concrete experience stage, students encounter a new experience or learning situation. In the reflective observation stage, students review their learning carefully and recognize their experience and understanding. The abstract conceptualization stage means students focus on constructing knowledge, theories, or concepts from experiences. Finally, students practice

what they have learned by implementing it in different situations for active experimentation (Kolb, 1984).

In addition, the experiential learning theory proposes learning as the process by which learners can create, recreate, and construct their knowledge through concrete experience (Kolb & Kolb, 2005).

Morris (2019) provided a revision of the Kolb learning cycle, emphasizing contextually rich concrete experience, which means that the present moment is a hands-on, real-world experience, rather than in all situations and arenas of life. The author also stressed critical reflection, which is necessary for the learning process and acts as a meditator of meaning-making. In addition, contextual-specific, abstract conceptualization and practical active experimentation were the optimized stages in the cycle. In higher education, experiential learning could be work-integrated learning, work-based practice, cooperative learning, collaborative learning, service learning, career development, internships, and practicums (Harvey et al., 2016).

Reflection can be viewed as a mediating stage between experience and learning, fostering the transition to learned experience (Kuk & Holst, 2018). Student learning can be promoted through reflection in constructing knowledge, identifying the missing knowledge, and promoting personal development (Ash & Clayton, 2009; Chang, 2019). Moreover, the reflection process allows students to achieve internship learning goals, including professional development, personal growth, and civic learning (Ash & Clayton, 2009). Reflection is also a powerful approach to improve leadership practice and become an effective leader by helping address personal values, establishing expectations, thinking critically, and matching the team with the organization's direction (Moon, 2013; Thaanraj, 2016).

Learners can reflect on their learning through various tools to maximize the effectiveness of reflection on learning, such as journaling (Dyment & O'Connell, 2010) and portfolios (Beka & Kulinxha, 2021). Over than that, scholars have suggested the criteria of high-quality reflection include describing experience context, linking experiences to learning (integrating the current knowledge to understand and connect recent experiences with previous experiences to construct their learning strategy); integrating learning goals and learning materials; providing deep reflection by helping clarify values and assessing in terms of critical thinking; and occurring regular scaffolding processes and specific guided questions (Moon, 2013; Roberts, 2016).

In addition, scholars developed well-structured reflection models to promote deep reflection for reflection advantages, such as

- GIBBS (description, feelings, evaluation, analysis, conclusion, action plan) (Gibbs, 1998).
- SHARP (set learning objectives, how did it go? address concerns, review learning points, plan) (Ahmed et al., 2013).
- The questioning "what? so what? now what?" (Skinner & Mitchell, 2016).

- Schön's reflection (reflect in action; reflect on action) (Schön, 1983, cited in Edwards, 2017).

3. Synthesizing Process of the GO-DEEP Model

The process of synthesizing the model included analyzing the characteristics of experiential learning; reviewing the critical criteria of high-quality reflection for experiential learning; mapping and comparing the differences and similarities of some current reflection models; identifying the missing criteria of the existing models for experiential learning; proposing the prototype model; and revising the reflection model through discussion to reach the agreement between authors. In this study, we proposed nine criteria of high-quality reflection for experiential learning, by following other scholars' suggestions and Kolb's learning cycle (1984).

They included:

1. Describing previous capacities.
2. Setting learning goals.
3. Describing the experience.
4. Providing deep reflection.
5. Linking experiences to learning (Moon, 2013).
6. Leading a future action plan (Ahmed et al., 2013).
7. Being suitable for experiential learning.
8. Occurring regularly.
9. Scaffolding process and specific guided questions (Roberts, 2016).

The nine criteria were used as criteria for the benchmark's current reflection models. The selected reflection models were mapped with criteria of high-quality reflection in Table 1.

Table 1: Benchmarking the current reflection models to criteria

Reflection approach	Author (year)	Criteria of high-quality reflection								
		1	2	3	4	5	6	7	8	9
Description, Feelings, Evaluation, Analysis, Conclusion, Action Plan	Gibbs, 1998			✓	✓	✓	✓	✓		✓
SHARP (Set learning objectives; How did it go? Address concerns; Review learning points, Plan ahead)	Ahmed et al., 2013		✓	✓	✓	✓	✓	✓		✓
What? So what? Now what?	Skinner & Mitchell, 2016			✓			✓	✓		
Reflect in action; Reflect on action	Schön (1983, cited in Edwards, 2017)			✓			✓	✓		
(1) Describing previous capacities, (2) Setting learning goals, (3) Describing the experience, (4) Providing deep reflection, (5) Linking experiences to learning, (6) Leading a future action plan, (7) Being suitable for experiential learning, (8) Occurring regularly, (9) Scaffolding process and specific guided questions										

As evident in Table 1, all selected reflection models were well-mapped with criteria 3, 6, and 7, namely, describing learning experiences, leading plans, and being suitable for experiential learning, respectively. However, all approaches do not show the link with criterion 1 about the previous capacities relevant to the new experience. They were unsure how often reflection occurs, which may lead to missing information and may not improve their reflection ability during the experience (criterion 8). Gibbs and SHARP reflection approaches provide a scaffolding reflection process and specific guided questions (criterion 9) and link experience to learning strategically (criterion 5). SHARP reflection is the only model which requires the learner to set learning goals (criterion 2). Thus, there is a need to synthesize the existing approaches to generate a unified reflection framework for experiential learning that includes all these nine criteria.

In the preliminary investigation stage of the GO-DEEP model, an invitation was sent via email to students who had finished experiential courses (i.e., internship) to respond to their reflections' perceptions about the need for reflection during their internship. The 20 students responded to the online open-ended questions in Vietnamese; participant identification was anonymous and kept confidential. The majority of 15 students (75%) confirmed that it is necessary to reflect during an internship because of several reasons, such as firstly recognizing strengths and weaknesses in the working periods so that students can improve immediately; and second recording experiences in detail. However, no effective reflection model suitable for an internship has been offered. For this reason, the authors synthesized the reflection approach for experiential learning, including a reflection process and guided questions by following nine high-quality reflection criteria, Kolb's learning cycle, Gibbs, and SHARP models.

Following the theoretical and practical approaches, the synthesized reflection model guides users to reflect before, during, and after experiences, and allows them to link previous experiences to future experiences. Before participating in a new experience, the students must list the gained knowledge, skills, or competencies which are relevant and help to succeed in the unique experience. In addition, learning objectives which include professional and personal purposes should be described carefully.

After careful consideration of the preliminary findings, and based on the existing reflection models, it was decided to develop the GO-DEEP model which stands for Gained - Objective - Describe - Evaluate - Establish - Plan (Figure 1).
After finalizing the GO-DEEP model, it was subjected to further validation. The educational experts reviewed the model and provided critical feedback to improve the model and guided questions.

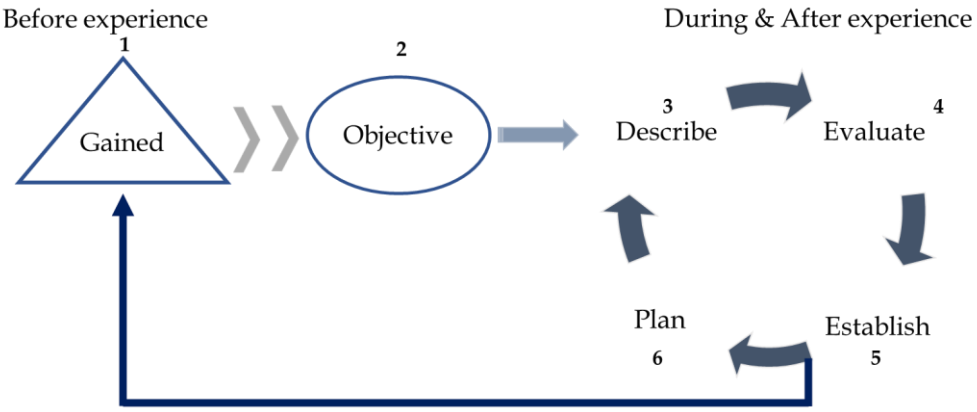

Figure 1: A synthesized framework for reflective practice: The GO-DEEP reflection model

Figure 1 shows the different stages of the GO-DEEP model. The **gained stage** should be implemented before any experience and during the experience. It requires the learners to look back on previous knowledge, skills, and competencies that are relevant and help them succeed in future experiences (criterion 1). In addition, the learners can update the new information cultivated from the current experience. The suggested questions could be "What knowledge/skills have you gained which relate to and help to succeed in the future experience?".

The **objective stage** is setting learning objectives, in which the learners could have the proper motivation and direction during the experience. The learning objectives are the measurable statements in different learning aspects, such as cognitive, psychomotor, and affective domains. Other than those, learners could think about any personal purposes that can promote learning (criterion 2). The prompt could be "What do you want to gain after learning?" or "What are the desired results/abilities/skills?".

The **describe stage** focuses on learning description (criterion 3). The guided questions could be "What have you learned?", "What did you do?", "How did you feel?" and "When did you do it?". During the describe stage, students articulate their learning content, activities, feelings, and perceptions (resembling the concrete experience phase).

The **evaluate stage** is an important stage to self-discover and self-evaluate through experience. Students reflect deeply on the development of ideas, skill sets, knowledge, and performances and uncover areas of strength and discomfort. In addition, the reflection allows students to determine the value of experiences/learning (criterion 4). Some questions to be asked are "In what ways did you succeed or do well in this situation? How can experience promote achieving your learning objectives? What have you gained? Which are areas of strength and discomfort?". The evaluate stage serves as a crucial stage for self-discovery and self-evaluation, similar to reflection in Kolb's cycle.

The **establish stage** allows students to conceptualize from experience, construct their knowledge, skills and competencies from their expertise, and promote professional learning. If they can describe every detail in the previous stages, they will build knowledge and information in this stage. It helps a student to self-direct their learning. In addition, students can look back at the information in the gained stage to add new concepts or modify the outdated concept/information they have accumulated from the presented experience (criterion 5). Some questions are "How can experience promote to achieve your learning objectives?" and "Which knowledge/principles/skills have you gained from experience?". In this stage, students conceptualize knowledge, skills, and competencies acquired from their experiences, paralleling abstract conceptualization.

The **plan stage** proposes action plans for future implications which are based on new knowledge. Students can determine critical actions, resources and timelines for future implications or engage in an iterative cycle of drafts; receive and reflect on feedback; and pursue the following steps until the task is completed (criterion 6). The guided questions could be "How would you achieve learning objectives?" or "How could you apply the knowledge in the future?". Additionally, the plan stage empowers students to determine critical actions, resources, and timelines based on newfound knowledge, mirroring active experimentation. This mapping highlights the suitability of Kolb's learning model for experiential learning (criterion 7).

Furthermore, the authors suggest the implementation and application of GO-DEEP for educators to facilitate the learning process in an online approach on a regular basis, ranging from before, during and after experiencing certain learning and teaching activities. The suggestion is presented in Table 2 (criterion 8).

Table 2: Instructional strategy with GO–DEEP

Stage	**Learning and teaching activities**	
	Educators	**Students**
Before experience	Introduce about GO-DEEP model	Raise questions and concerns
	Introduce learning objectives and content	Discuss and ask questions
	Guide students to complete "gained and objective" stages	Review competencies and set learning objectives
	Review students' response and deliver learning suggestion to reach learning objectives	Analyze learning materials Build learning strategy
During experience	Provide proper learning activities for specific content Feedback and discussion	Write reflection during an experience (describe, evaluate, establish, propose action stages) Repeat the reflection process during the experience *Look back gained and objective often*
After experience	Deep discussion and feedback	Record the information and respond

4. Methodology

4.1 Context and Learning Environment

The context was a virtual work-integrated learning (WIL) program for a bachelor's degree in Ho Chi Minh City in the summer of 2022. The program consists of eight consecutive sessions to introduce fundamental mindset, knowledge, and skills about the labor market opportunities and requirements, marketing strategies, technical sales principles, and practices in life science, health care, and medicine trading for bio-biotechnology students, as well as prepare students for future jobs. Students were invited to participate in different learning environments in the eight-sessions WIL program, including lecturing, role-playing, and lecturing with group work. The sequence of learning approaches is described in Table 3.

Table 3. Learning environments sequence in each learning session

	Sessions							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Learning environments	Lecture	Lecture	Lecture	Lecture and role play	Lecture and group work	Lecture and group work	Lecture and group work	Final presentation (role play)

4.2 Participants

The first author emailed students an invitation and introduced the study and GO-DEEP model to them. There were 39 students (33 female students, six male students), and all were undergraduate students in life science (12 juniors and 27 seniors). All participants did not have any experience in writing reflections.

4.3 Research Instrument

4.3.1 Level of Use Behavior

Level of use is a framework to describe and evaluate the changes or innovation that helps define an end user's experience level. In general, there are eight levels of use, including non-use (level 0), preparation (level I), orientation (level II), mechanical use (level III), routine (level IV), refinement (level V), integration (Level VI), and renewal (level VII). Levels 0 to II could be grouped as non-use, from levels III to VII show the use of intervention (Hall et al., 2006; Roach et al., 2009). This study adapted the questionnaire initially published by Threekunprapa & Yasri (2021).

4.3.2 Open-ended Questions - Student's Perception on Reflection Practice by Using GO-DEEP

Open-ended questions were used to collect students' comments and suggestions about the GO-DEEP model and reflection approach. The questions include: What do you think about the reflection using the GO-DEEP model? How did GO-DEEP impact your learning? and please provide other comments or suggestions to improve the GO-DEEP model.

4.4 Data Collection Procedure

This study is a pre-experimental design so that students participated in the same group and responded to the requirements by following the data collection

procedure which was announced. The first author introduced the reflection and GO-DEEP model in the introduction session. After each session, all participants were asked to write reflections following the GO-DEEP instruction and submit them via Google form voluntarily. Participants submitted 289 reflection reports in Vietnamese in total; this number of written reflections allowed us to analyze the textual information more profoundly and quantify the reflection outcomes in different categories. The number of reflection reports for each session is presented in Table 4.

Table 4: The number of submitted reflections reports after each session

	Sessions							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Number of reports	39	37	39	32	33	34	36	39
Number of missing	0	2	0	7	6	5	3	0

Students were asked to complete the level of use questionnaire sent in sessions four and eight. Students responded to the questionnaire virtually via Google Forms.

After experiencing the GO-DEEP reflection model, participants were asked to provide comments and suggestions about GO-DEEP and the reflection approach by responding to open-ended questions via Google form in session eight.

4.5 Ethical Considerations

This study was a part of PhD thesis research which was ethical approval by IRB of Mahidol University (COA. No. 2022/02-017). All participants were informed about the purposes of the study, and they could withdraw without conditions. The reflection results do not affect the course result. They were asked to submit consent forms virtually, and the first author also explained the study and asked them for oral consent in the course introduction session. The participant identification was anonymous and kept confidential.

4.6 Data Analysis

The analysis strategy for qualitative and quantitative data includes:
Reflection reports. The authors discussed the criteria for evaluating reflection reports. Four categories scheme is used to determine levels of reflection, including non-reflection - 1, understanding - 2, reflection - 3, and critical reflection – 4 (Kember et al., 2008). The rubric and reflection samples are shown in the appendix. All reflection reports were analyzed and provided scores by three evaluators (the first author and two invited lecturers). The mean results of three evaluators were used for further analysis. After that, data analysis was analyzed by performing descriptive statistics and comparisons of means through t-tests.

Qualitative data from the open-ended questions. Thematic analysis was conducted to analyze students' responses. The first author read students' responses several times to become familiar with the language and ideas. Then, the themes were identified, the students' opinions about the reflection practice and GO-DEEP

model were categorized into themes, and the representative statements were quoted. The first author selected the proper quotations, translated them into English, and discussed them with the second author until a consensus was reached.

The level of use. The results from level-of-use questionnaires were calculated as the descriptive analysis and the frequency percentage.

5. Results

5.1 GO-DEEP Level of Use

Table 5 shows the GO-DEEP levels of use by the students. In the virtual course, in session 4, 54.1 % of students chose either non-use, orientation, or preparation level *(non-use group*), and only 45.9 % chose either mechanical routine, refinement, or renewal level *(use group)*. The percentage is changed in session 8 for the non-use and use levels, 29.7 % and 70.3 %, respectively. The result shows an increasing change in GO-DEEP levels of use towards a more positive position of perceived usefulness.

Table 5: The GO-DEEP levels of use

Level of use	Statement	Session 4		Session 8	
		No	%	No	%
0. Non–use	I think GO-DEEP is NOT useful to me at all.	1	2.7	2	5.4
1. Orientation	I am INTERESTED in using GO-DEEP in my own study.	7	18.9	2	5.4
2. Preparation	I MAY use GO-DEEP in my own study.	12	32.4	7	18.9
3. Mechanical	I WILL use GO-DEEP in my own study.	8	21.6	9	24.3
4. Routine	I WILL REGULARLY use GO-DEEP in my own study.	5	13.5	9	24.3
5. Refinement	I am CONFIDENT I can use GO-DEEP to improve my study.	3	8.1	6	16.2
6. Integration	I am confident I can TEACH others how to use GO-DEEP.	0	0.0	2	5.4
7. Renewal	I am confident I can DEVELOP a reflection model like this for my own study.	1	2.7	0	0.0

5.2 Students' Perceptions of GO-DEEP

Based on a thematic analysis, the results show three benefits that the students could get from using GO-DEEP, namely 1) construct knowledge; 2) promote learning proactively and facilitate learning; and 3) expand application in different subjects and promote personal development.

Theme 1: Construct knowledge

Students were interested in reflecting on learning by following GO-DEEP instruction because it helps them construct knowledge systematically from previous to current learning and future applications.

Student 19 wrote:

"GO-DEEP model is advantageous in systematizing knowledge."

The students confirmed that reflection by GO-DEEP is the proper approach to synthesizing what they have learned or experienced, preparing for the future, and applying knowledge. In addition, by following GO-DEEP instructions, students can look back and evaluate their personal learning goals and think about the application in other contexts.
In this regard, student 36 mentioned:

> *"…an effective method to review and update the knowledge…new knowledge which is combined with personal opinion/experience, lead the knowledge have learned from instructors, alumni become of mine."*

In addition, the model positively affects students by asking students to set learning goals for upcoming lessons, which can lead to the best performance.
Student 30 wrote:

> *"Model positively affected me because I know what to do in the next lesson to achieve the highest results."*

Theme 2: Promote learning proactively and facilitate learning
Besides constructing knowledge, GO-DEEP could promote learning proactively and facilitate learning. GO-DEEP is not only a proper model to support students learning in aspects of knowledge but also encourages students to consider their professional skills and well-prepared attitude about learning.

Student 31 explained:

> *"By using GO-DEEP, I become more concentrated during the lesson, try to take note of the information…prepare for the next lesson. It helps me understand my learning approach's strengths and improvement areas."*

In addition, GO-DEEP could be a potential learning facilitation approach that encourages learning proactively and effectively through a well-structured process.

Student 7 mentioned:

> *"Help me to overview all learning and activities and recognize what I have done, what I need to develop and improve."*

Theme 3: Expand application in different subjects and promote personal development
The results showed that the students widened the application of the GO-DEEP model in different subjects and promoted personal development.

Student 28 explained:

> *"This is an interesting model I applied when learning new things in life and work. It helps me to recognize my potential and limitation during learning; also foster me to accumulate skills more quickly and effectively."*

In specific, a student suggested that they can apply GO-DEEP to learn English. Student 27 wrote:

> *"I can apply GO-DEEP in school and learn English. I find my learning becomes systematic and reach my learning expectations."*

While students expressed their interest in GO-DEEP, it also needs improvement in some aspects, such as modifying the guided questions, extending the duration of reflection, and considering the frequency of reflection during the learning.

5.3 Reflective Practice Change in the Different Learning Environments of the Work-Integrated Learning Program

In this study, three evaluators assessed reflection reports independently by following the rubric in the appendix. Figure 2 shows the mean score of reflection reports performed by the students in response to the activity set for each session. Sessions 1, 4, and 8 had the highest mean score of 2.5. During these sessions, students could reflect on their learning; they began to apply it in practical situations with personal insight. Session 6 had the lowest score, which was 1.6. Sessions 2, 3, 5, and 7 were around 2.0, meaning that the students could understand the learning concepts and topics but still lack personal experiences, real-life applications, or practical situations. In sessions 4 and 8, students participated in hands-on activities/role-playing to become a salesperson, such as contacting strangers, selling some products in session 4, and implementing the mini workshop in session 8.

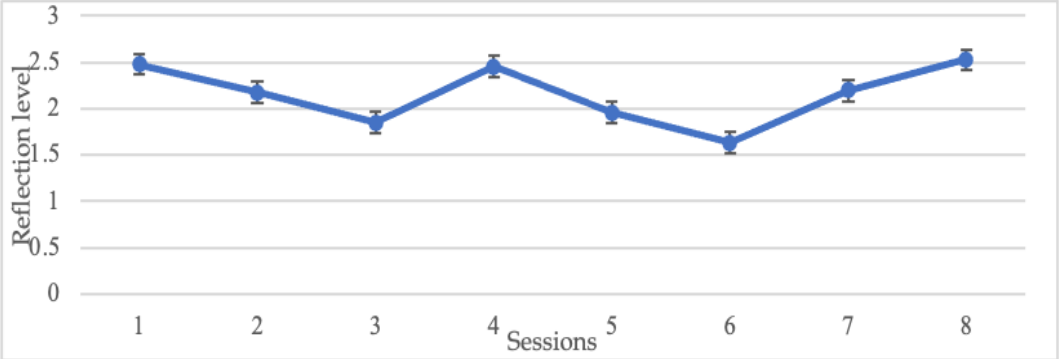

Figure 2: Reflection levels at each learning session

The results indicated that GO-DEEP can guide students on how to reflect on their learning experiences. To identify the reflection changes in different learning environments. We calculated the reflection level into three main learning environment groups: the traditional lecture for sessions 1, 2, and 3; the traditional lecture combined with group work for sessions 5, 6, and 7; and the role-playing in sessions 4 and 8. The mean reflection score of each learning environment is shown in Table 6.

Table 6: The reflection levels in learning environments

A. Descriptive analysis			
Learning environment	**Number of reflection reports**	**Mean (M)**	**SD**
Lecture	115	2.17	0.591
Lecture and group work	103	1.96	0.494
Role-playing	71	2.48	0.679
B. T-test comparison			
Paired	**t**	**Two-tailed (α = 0.05)**	
		p-value	
Role-playing and lecture	2.86	0.007	
Role-playing and group work	5.62	0.000	
Lecture and group work	2.74	0.010	

The t-test analysis of the findings revealed that the students exhibited significantly higher levels of reflection during their participation in role-playing activities compared to the other settings, with a significance level of 95%. In contrast, no statistically significant difference was found in the level of reflection displayed by the students during lecture sessions, whether conducted individually or coupled with group work (Table 6.B T-test comparison). In other words, a role-playing learning environment, a form of experiential learning, improved student reflective thinking using the GO-DEEP model, compared to different learning approaches, such as lecturing and group work.

6. Discussion

This study focuses on the synthesis of the new reflection model for experiential learning and investigates its effectiveness and usefulness. We systematically reviewed and synthesized the potential reflection model for experiential learning, namely GO-DEEP. The six stages, with guided questions, can encourage students to reflect on the action regularly, set learning goals, review past capabilities, link experiences, construct new knowledge, and propose future action. In terms of usefulness, the results demonstrate that over 70% of users are at use behavior of the GO-DEEP at the end of the program.

The results confirmed that students could accept the GO-DEEP intervention to reflect on their learning. In addition, students increasingly changed their intention about using GO-DEEP in the user group from 45.9% in session 4 to 70.3% in session 8. Most students responded optimistically to using the GO-DEEP reflection model at levels 3 (mechanical use) and 4 (routine use) by replying to the levels of use questionnaire.

The spectrum of product usage levels spans from non-users to future developers of the product (i.e., renewal). In this particular context, students are classified as users, so it was not anticipated for them to reach the developer end of the spectrum. It is argued that enthusiastic users typically remain at the mechanical or routine use stage. Various factors may affect the higher level of use, such as learning context, individual capacities, attitudes, learning support, and learner efforts (Roach et al., 2009; Tung & Chang, 2008).

Furthermore, students also shared the application of GO-DEEP outside class in different experiences, such as learning English and developing soft skills. This means that GO-DEEP is a potential reflection model for experiential learning, which allows recognition of the interconnections of knowledge and transforms student learning (Chang, 2019).

Regarding the effectiveness of reflection practice, students participated in the virtual course with different learning activities in each session. The means score of the reflection level was assessed and calculated. We recognized interesting findings, including a high level of reflection at the beginning and an actual fluctuation in reflecting practice between sessions. The students performed a high level of reflective practice by using GO-DEEP in the first session, followed by a drop in the subsequent two lecture sessions. Although the reflection quality went up again in sessions 4 and 8, it declined in sessions 5, 6, and 7.

The novelty effect could explain this phenomenon: students began to decrease engagement motivation for using the new intervention (Hur & Oh, 2012). In addition, emotional valence may decline if the learning activities are repeated (Tatiana et al., 2021). Thus, educators should consider reflection frequency because the students suggested reducing the frequency of reflection. If students have to reflect overwhelmingly during the course, it could reduce their interest in reflecting. For future implications, we encourage educators interested in experiential learning to seriously consider the usefulness and effectiveness of the GO-DEEP reflection model and its guided questions presented in this paper.

Initially, not all students reflected; perhaps there should be a training session, allowing students to become familiar with reflection practices and the GO-DEEP reflection model. It could take time and challenge to learn reflection practices at the beginning. Thus, students can reflect by simply responding to the first stages, such as listing the previous capacities, setting up learning objectives, and describing tasks and experiences. Moreover, students may face boredom and lose the motivation to reflect if they must reflect too often. Educators can suggest minimal reflection practices should be conducted during the experience.

Although Google Forms was used to collect reflection reports in this study, educators can facilitate students to use other tools (e.g., journaling, diary notebook, recording, etc.) in which they are interested, with the GO-DEEP reflection model serving as a guideline to organize the reflection content.

The GO-DEEP reflection model and reflective practices should be used as learning movements and support learning rather than assessments to reduce stress. Educators and institutions can encourage reflection by implementing a debriefing session and providing bonus scores or rewards for proper situations. Last, educators must create a trustworthy learning environment where students can share the reflection report and ensure student privacy.

Future research should explore the reflection frequency in experiential learning and how to enhance individual interest in reflection. Balancing reflection and

validity helps students develop self-assessments properly (Melrose, 2017). In addition, we realized that the learning environments may affect reflection practice. The result confirmed that the role-playing learning environment is linked with the highest mean score of reflection level compared to lecturing learning environment. In general, the findings informed the link between the learning environment and the quality of reflection, and reflective practice could be trained and changeable (Bruno & Dell'Aversana, 2018).

7. Conclusion

According to the results, this study demonstrated the effectiveness and usefulness of the GO-DEEP reflection model in experiential learning with specific role-playing learning environment. Generally, the findings demonstrated a notable shift in GO-DEEP usage levels towards a more positive perception of usefulness.

Through thematic analysis, three key benefits of employing GO-DEEP were identified for students: the ability to construct knowledge, proactive learning promotion, and the facilitation of learning across various subjects, thereby fostering personal development. Notably, in a comparative analysis with other learning approaches, such as lecturing and group work, a role-playing learning environment, which aligns with experiential learning, proved to enhance students' reflective thinking when utilizing the GO-DEEP model.

8. References

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Appendix

	Level of reflection	Indicators	Sample
1	Non-reflection	● The answer shows no evidence of the student attempting to understand the concept or theory underpinning the topic. ● Material has been placed into an essay without the student thinking seriously about it, trying to interpret the material, or forming a view.	*"Company structure and speaker's experiences, improve job application, learn marketing course, prepare LinkedIn profile, and improve teamwork" – Student 11 (week 2)*

		● Largely reproduction, with or without adaptation, of the work of others.	
2	Understanding	● Evidence of an understanding of a concept or topic. ● Material is confined to theory. ● Reliance upon what was in the textbook or the lecture notes. ● Theory is unrelated to personal experiences, real-life applications, or practical situations.	*"I have learned communication, negotiation, pursue the customers. I practiced buying goods, defining prices, finding new customers, pursuing, etc. It must show clear original, suitable price, nice attitude to pursue and sales products. In general, I have achieved a good result. The limitations include not finding a cheaper product, improving communication with strangers, and negotiating capabilities. I am to complete the current course to accumulate the knowledge and experience." – Student 14 (week 4)*
3	Reflection	● Theory is applied to practical situations. ● Situations encountered in practice will be considered and successfully discussed according to what has been taught. There will be personal insights that go beyond book theory.	*"I have learned […]. In addition, I discussed this with my classmate […]. At this time, I can identify the mistakes in my personal CV. However, I am still not proactive during the discussion. […] I also lack the skills for sales relevant position at the company. […] In the future, I will try to improve my English capacity, communication skills, and sales […] – Student 15 (week 1)*
4	Critical reflection	● Evidence of a change in perspective over a fundamental belief of understanding a key concept or phenomenon. ● Critical reflection is unlikely to occur frequently.	*During the program, I learned proactively (asking questions, responding to the questions, taking notes, completing all assignments, being open-minded with friends, presenting group projects, etc.) […] After the program, my strengths are confidence to discuss with strangers, brave to try the new things. […] My weakness is postponing the deadline. I have accumulated fundamental knowledge about commercial and selling biotechnology products and professional skills to become a salesperson in life science. I also recognize that becoming a technical sale is not irrelevant to the major. Before the program, I only knew about being a lab technician or working in a lab position for biotechnology employment. […] I have reached all the learning objectives which I aimed to. In some ways, the program is beyond my estimation/expectation. I will apply the knowledge and skills which I have learned in my future career…" – Student 38 (week 8)*