

Pedagogical Strategies for Reflection That Promote Student Growth

Tomoko Maruyama, Ehime University, Japan
Masahiro Inoue, Keio University, Japan

The Asian Conference on Education 2023
Official Conference Proceedings

Abstract

Institutions of higher education are the starting point for students in pursuing lifelong autonomous careers. To become autonomous learners, they must make independent choices and decisions about the content of and strategy for learning. In this regard, reflection is an essential component of quality learning and the expression of such learning. In addition, it forms part of learning in which learners seek to understand new knowledge and relate it to previous knowledge. Intentional reflection in learning influences one's involvement in the learning process, the interpretation of a task at hand, and strategies selected and adopted. This study analyzed a learning portfolio that continuously recorded the results of the reflection of students on their experiences, which was conducted in a leadership education program for first-year master's students in the Graduate School of Engineering and Science. Based on the results of this analysis, the study conducted interviews with students who demonstrated positive behavior changes. To elucidate the mechanism of behavior, change through reflection, the study focused on the type of semantic environment and factors involved in each other to produce behavior change. On the basis of the results of the quantitative and qualitative analyses and of the literature review on reflection, we propose educational strategies for reflection that promote student growth.

Keywords: Reflection, Leadership Education, E-portfolio

iafor

The International Academic Forum
www.iafor.org

Introduction

Society is rapidly changing with the advent of a volatile, uncertain, complex, and ambiguous world, the use of artificial intelligence (AI) due to the coronavirus pandemic, and the acceleration of digitalization. Students can look forward to a future in which they will continually adapt to new situations, inspire themselves, and carve out unique careers under uncertain and unpredictable circumstances. Universities must be places for the development of autonomous learners in which students are aware of their goals, proactively engage in learning, appropriately evaluate achievements, and move forward to further necessary learning.

Leadership, which is the core of this research, is a highly interdisciplinary theme examined in multiple fields such as engineering education, business administration, educational technology and psychology. At present, leadership research is being transformed from exploring the nature to developing leadership. Learning from experience is gaining attention as an excellent method for leaders to grow, and empirical research on leadership development through experience learning is progressing. Previous studies demonstrate the importance of reflection on experience (McCauley, 2013). Thus, the process of reflection is important for promoting effective reflection from experience.

The current study analyzed a learning portfolio that continuously recorded the results of the reflection of students on their experiences, which was conducted in a leadership education program for first-year master's students in the Graduate School of Engineering and Science. Based on the results of the analysis, we conducted interviews with students who demonstrated positive behavior change. To elucidate the mechanism of behavior change through reflection, we focused on which type of semantic environment and the factors involved in each other to produce behavior change. Using the results of quantitative and qualitative analyses and of a literature review on reflection, we propose educational strategies for reflection that promotes student growth.

1 Reflection and Metacognition

In the modern age, the social system of graduating from college, getting a job, and working at that company until retirement has come to an end. People are expected to develop their careers by utilizing their strengths and areas of expertise and updating their skills. Determining the skills you need requires the ability to reflect on and evaluate your own learning. Continuous self-improvement is based on the desire to grow and is accompanied by the feeling that one is making progress. Visualizing learning outcomes with the support of digital technology will encourage innovation in individual learning.

Metacognition is the perception of cognition from a bird's eye view, and the intentional reflection that learners engage in after an activity enhances metacognition (Moon, 2005). Metacognitive activity is also about thinking about one's own thinking, which is considered essential for effective learning and problem solving (Smith, 2004).

Opportunities to look at the self through others' perspective are important to enable learners to work at higher levels of metacognitive functioning. Mechanisms to enhance learners' metacognition can be intentionally incorporated into lesson design. Working with others is one such mechanism. Learners recognize differences in their own and others' thought

processes, cultural backgrounds, and working approaches. A new objective perspective is fostered by discussing how to collaborate successfully with others.

Advice from faculty members on the results of learners' learning is also an indispensable element. Visualization of learning results accumulated in the learning management system enables learners to analyze the data from an objective viewpoint and select their own learning strategies. However, in order to be able to do this independently, the scaffolding of the faculty members is necessary. The key is how faculty members can support the development of individual learners. This also requires the improvement of metacognitive functions that allow faculty members to objectively see how they themselves relate to learners.

2 Leadership Education Programme

2.1 Definition of Leadership

In this education, leadership is defined as a relational process of people attempting to accomplish change or make a difference to benefit the common good (Komives, 2013). In addition, leadership is not an ability bestowed upon a special person; instead, it is for everyone to exhibit and develop.

2.2 Leadership Education Model

The leadership education model (Fig. 1) presents five modules, namely, knowledge, training by simulation, real action, reflection, and assessment (Maruyama & Inoue, 2018). At the start of a program, a diagnostic evaluation is conducted. Next, a student enters a cycle of skill acquisition. The first step is for students to gain knowledge in the leadership arena through lectures. Then, they utilize simulation to experience leadership actions repeatedly. Simulation provides a safe environment in which they can attempt many approaches to leadership in various situations. A simulation exercise increases awareness of daily improvement and the necessity for new action as a result of self-reflection, all of which stem from various virtual experiences.

In the next step, students as a team utilize project-based learning (PBL), such that the abovementioned simulated experiences can help them exhibit leadership. Students can apply this leadership training to actual projects, which can increase their leadership skills. The application of conscious leadership to a project aimed at a specific goal in limited circumstances is highly effective.

The program repeats the above two steps in an upward spiral of leadership skills. Furthermore, learners reflect on the simulated experiences and action in practice and identify the skill correction component and the skill that requires training. In the end, students complete a comprehensive evaluation. This study focuses on the reflection component, specifically, individual reflection. An e-portfolio was used as a tool to promote reflection. Over a period of seven weeks, the students recorded and reflected on their leadership experiences in the e-portfolio on a weekly basis.

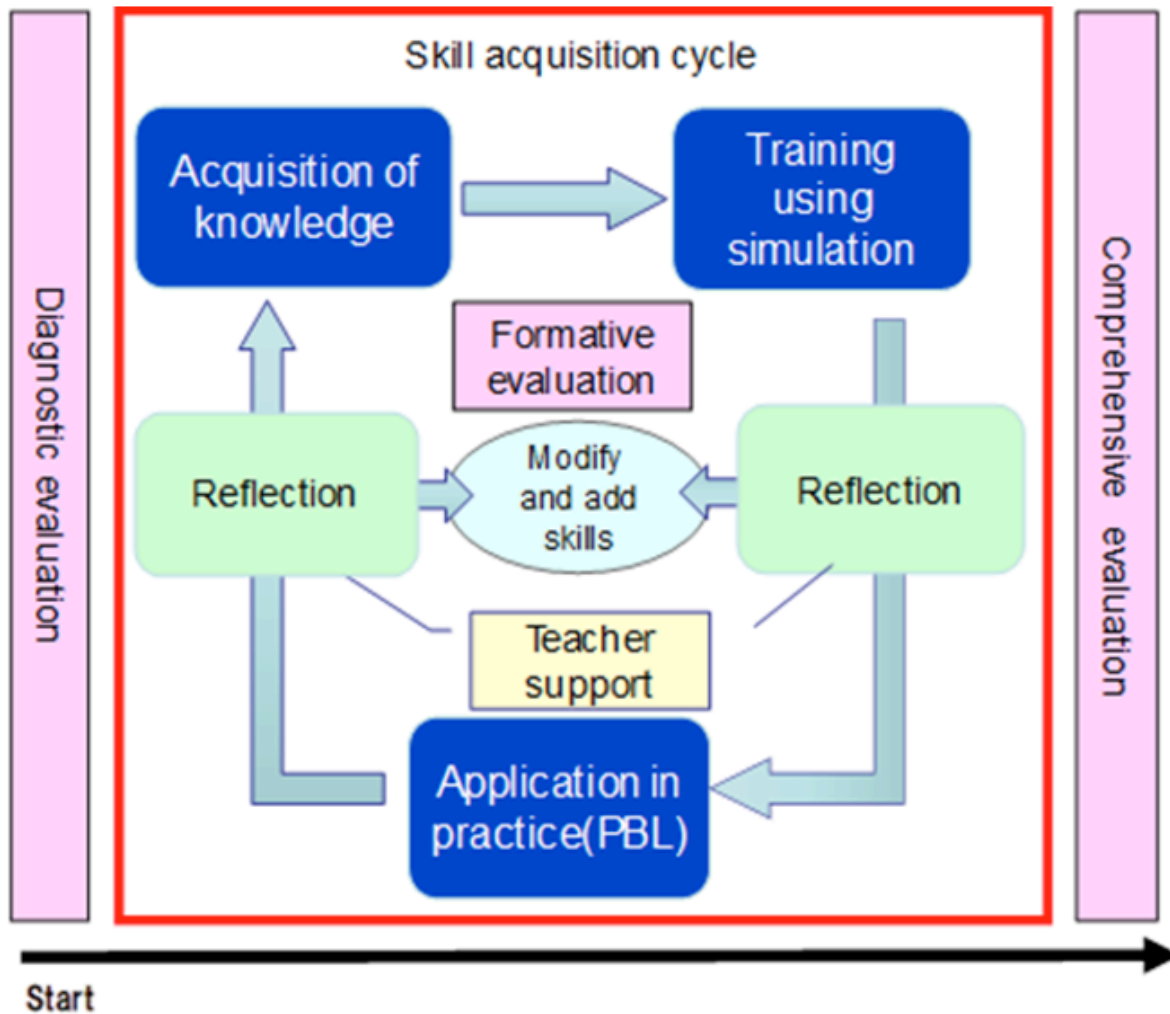


Figure 1: Leadership education model.

2.3 Education Using Simulation

Students who lack experience exhibit large gaps between knowledge and action, which makes immediately transforming knowledge into action impossible for them. Therefore, we utilize simulation as a means of bridging these gaps. The study developed a simulator with the goal of strengthening interpersonal skills and acquiring leadership skills to involve the members around them in achieving goals. Training using the simulator aims to ensure that repeated thoughts and actions are ingrained in the mind, such that they eventually and naturally surface without students being conscious of them as actual actions. The simulated experiences that students acquire through repetitive practice can provide a smooth bridge to reality.

2.4 E-portfolio Design

Table 1 presents the design of the e-portfolio. Students record and review their leadership experiences in the e-portfolio once per week for 7 weeks. For the reflection on leadership in PBL activities, the study uses five levels of prompts to promote deeper reflection.

#	Item	Questions that encourage reflection
1	Reflection of simulated experience	What did you learn from the simulated experience of the simulator? How do you use it in your PBL activities?
	Simulation score	What were the highest and lowest scores in the simulation practice?
2	Reflection of leadership in project-based learning (PBL) activities	1) What happened? (What needs improvement?)
		2) What were your feelings and thoughts at the time?
		3) Where do you think the cause of the failure was?
		4) What are the lessons learned from the experience?
		5) What action do you want to try next time for better results?
3	Evaluation of the frequency of leadership behavior by rubric	Choose your frequency of leadership behavior and enter the applicable number (1 = <i>always</i> , 2 = <i>often</i> , 3 = <i>occasionally</i> , and 4 less)

Table 1: E-portfolio design.

3 Methods

3.1 Survey Target

This study analyzed a learning portfolio in which the results of the reflection of students on their experiences were continuously recorded. The experiences were provided in a leadership education program for first-year master's students in the Graduate School of Engineering and Science. Afterward, interviews were conducted with five students who demonstrated positive behavior change. To elucidate the mechanism of behavior change through reflection, we focused on which type of semantic environment and factors were involved with one another to produce behavior change.

3.2 Survey Method and Contents

The survey was conducted in the form of semi-structured interviews that lasted for approximately 60 min per person. The survey was conducted in the following order: (1) explanation of the objective of the training and ethical considerations and signing of a research consent form and (2) the semi-structured interview. The main 10 questions of the interview were as follows:

- When were you conducting reflection?
- Where were you conducting the reflection?
- With whom were you reflecting?
- What did you reflect on?
- For what reason did you reflect?
- How did you reflect?
- Have you ever changed internally through reflection?
- Are there any behaviors that changed as a result of reflection?
- How did you use the results of peer reflection?
- What kind of support did you wish to receive from faculty?

Utterances during the interviews were recorded using a digital voice recorder with the approval of the research collaborators. Data analysis was conducted using the KJ method.

4 Results

The results of the analysis identified the following characteristics in the reflections of students with significant positive behavior change.

- (1) They view the learning environment as a special opportunity instead of a norm, and they understand which aspect they need to focus on.
- (2) They are objective about how reflection can lead to their behavior change.
- (3) If they are going to spend time learning, then they want it to be meaningful. If they are going to reflect, then they want it to lead to my personal growth.
- (4) They are evaluating their abilities and discovering the characteristics of their learning methods. They analyze which aspects are lacking and recognize the need for change.
- (5) They are working on integrating the trajectory of their learning by revisiting the past and checking for changes in their learning.
- (6) They recognize that learning outcomes are an individual responsibility.

5 Conclusion

The Graduate School of Engineering and Science has conducted leadership education for first-year students of its master's program. The simulator is used to improve the experience of students in a safe environment, because students have limited opportunities to learn leadership from hands-on experience. The program has five modules, namely, knowledge, training by simulation, real action, reflection, and assessment. The e-portfolio was introduced to invite students to review their behavior.

Thus far, through qualitative and quantitative research results (Inoue & Maruyama, 2016) (Maruyama & Inoue, 2019) (Maruyama & Inoue, 2020), we have identified positive changes in behavior through reflection. Furthermore, we conducted interviews with students with significant positive behavior change to determine the type of reflection they are implementing. By integrating the results of the analyses with those of previous qualitative and quantitative research, we propose some teaching strategies for reflection that promote positive behavior change.

- (1) Understand the concepts and terminology of reflection. In other words, reflection literacy should be fostered.
- (2) Continually record the results of reflection and visualize changes using e-portfolio and other tools.
- (3) Recognize the transformation toward growth through personal reflection.
- (4) Discover and utilize one's strengths from the record of reflection results.

(5) Identify events of one's growth.

(6) Discover the relationship of one's actions to the growth of others.

(7) Set life goals and reflect in light of these goals.

In the future, we intend to design a curriculum that introduces reflection that incorporates the abovementioned perspectives. To adjust one's learning, effectively conducting reflection is necessary. This ability is essential for becoming an autonomous learner throughout life.

References

- Inoue, M., & Maruyama, T. (2016). Leadership Education at a Large-scale class including foreign students with E-portfolio Analysis, *EDULEARN16 Proceedings: 8th annual International Conference on Education and New Learning Technologies*, Barcelona, Spain. July 4-6.
- Komives, S. R., Lucas, N., & McMahon, T. R. (2013). *Exploring leadership: For college students who want to make a difference*, Jossey-Bass, San Francisco, CA.
- Maruyama, T., & Inoue, M. (2018). Leadership education learning cycle integrating knowledge, simulated-experience, real action, reflection, and assessment, *Japan Leadership Association*, Vol. 1, pp. 1-8.
- Maruyama, T., & Inoue, M. (2019). Peer Reflection using an E-portfolio Improves Students' Leadership Behaviour, *Proceedings of SEFI 47th Annual Conference*, pp.745-754. Budapest, Hungary.
- Maruyama, T., & Inoue, M. (2020). Continuous Reflection using an E-portfolio Improves Students' Leadership Behaviour, *Proceedings of SEFI 48th Annual Conference*, pp.1000-1009, Enschede, The Netherland.
- McCauley, C. D., DeRue, D. S., Yost, P. R., & Taylor, S. (2013). *Experience-driven leader development: Models, tools, best practices, and advice for on-the-job development*, John Wiley & Sons, Indianapolis, IN.
- Moon, Jennifer. (2005). Learning through reflection, Guide for Busy Academics No. 4. York UK: HE Academy.
- Smith, B. L., MacGregor, J., Matthews, R. S., & Gabelnick, F. (2004). *Learning communities: Reforming undergraduate education*, Jossey -Bass, San Francisco, CA.

Contact email: maruyama.tomoko.xl@ehime-u.ac.jp