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Designing Reflective Learning Tools: Insights from a Learning Reflection Journal in Higher Education

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Abstract:

Learner reflection plays a critical role in self-regulated learning and the continuous improvement of instructional design; however, structured tools that systematically support reflection are still limited in university courses. This study aimed to develop a learning reflection journal tool and to examine university students' perceptions of its usefulness and appropriateness in authentic course settings. A preliminary reflection journal was developed based on a literature review and expert consultation. The validated tool was implemented in undergraduate courses, and data were collected from 81 students who completed the reflection journal and a perception survey. Descriptive statistics and internal consistency reliability analyses were conducted. Students reported generally positive perceptions of the reflection journal, with high scores for both appropriateness and usefulness. The reflection competency scale demonstrated excellent internal consistency (Cronbach's α = .929). Differences by academic year indicated that senior students perceived greater professional relevance and value of the reflection journal. The findings suggest that the developed learning reflection journal is a feasible and well-accepted tool for supporting reflective learning in higher education. Moreover, the journal shows potential as a learner-centered resource for reviewing and improving instructional design. Further studies with larger and more diverse samples are recommended to strengthen its validity and applicability.

Keywords — **Reflection journal, Reflective learning, Instructional design, Student perceptions.**

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I.   INTRODUCTION

Higher education aims not merely to transmit knowledge, but to support learners in understanding, regulating, and constructing meaning from their own learning processes. Recently, higher education has shifted toward emphasizing active participation, reflection, metacognition, and self-directed learning competencies [1, 2]. Accordingly, the role of the instructor is expanding beyond a transmitter of knowledge to that of an instructional designer and facilitator. Within this transition, the continuous review and improvement of instructional design has emerged as an essential task [3]. However, in actual classroom settings, instructional design is often carried out only once at the stage of preparing the course syllabus, and systematic review and reflection during the course implementation are frequently insufficient. As a result, a gap emerges between instructional design and students' real learning experiences, which is likely to lead to a decline in learning outcomes [4].

In addition, conventional course evaluations or satisfaction surveys mainly rely on overall impressions of the class or responses to a limited number of items, and therefore have limitations in fully capturing changes in learners' learning processes, emotions, and strategies [5]. As a practical approach to addressing these limitations,

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reflective journals have attracted increasing attention. A reflective journal is a tool that helps learners systematically record their learning experiences, levels of understanding, difficulties, emotional changes, and learning strategies [6], thereby promoting metacognition and self-regulated learning [2]. At the same time, students' responses documented in reflective journals can serve as basic data for instructors to identify the strengths and weaknesses of a course, evaluate the appropriateness of instructional design, and examine the actual effectiveness of learning activities [7].

Thus, reflective journals function as a medium that links instructional design review with learners' reflective practice. Nevertheless, in the context of Korean higher education, there is still a lack of common reflective journal tools that systematically support students' learning reflection, and empirical research examining how such journals are actually perceived and used remains limited [8]. In particular, studies that address both the development and implementation of learning reflection journals while simultaneously investigating learners' perceptions are relatively scarce. Therefore, this study aims to develop a learning reflection journal tool that can be applied in university courses and, by implementing it in actual classes, to explore learners' perceptions in order to provide foundational data for improving instructional design.

II. RELATED WORK

2.1. Learning Reflection and Reflective Journals

Learning reflection is defined as a process in which learners look back on their experiences, thoughts, emotions, and behaviors, and reconstruct their meaning. It is emphasized as a core component of self-directed learning and professional development. The concept of reflection has been systematically established in the works of Dewey and Schön, who viewed reflection as a key mechanism that transforms mere experience into learning [9,10]. In higher education, reflective journals have been used as tools that help learners systematically record their learning experiences, levels of understanding, emotional changes, and the learning strategies they use. A growing body of research has shown that reflective writing promotes metacognition and self-regulated learning [4-6]. In particular, the use of reflective journals has been reported to have various educational benefits, such as supporting the monitoring of learning processes, making affective domains (e.g., motivation, confidence, anxiety) visible, enhancing perceived learning outcomes, and facilitating career-related reflection [5,6]. Furthermore, according to Kolb's experiential learning theory, reflection functions as a key element in the learning cycle of experience–reflection–conceptualization–experimentation. Reflective learning activities are presented as an important mechanism that fosters deep learning and strengthens lifelong learning competencies [11].

2.2. Reflection Journals as Tools for Instructional Design Review

Previous studies on course improvement have tended to rely on instructor-centered data, such as course evaluations, classroom observations, and analyses of syllabi. However, these approaches have been consistently criticized for failing to adequately capture learners' actual experiences and the contextual dynamics of the classroom [3]. Recent studies have proposed approaches that directly collect students' experiences through reflective journals and use them as data for reviewing instructional design. Reflective journals are reported to be useful tools for identifying learners' responses to teaching methods, learning activities, and assessment strategies; detecting discrepancies between instructional design and actual learning experiences; and providing qualitative information about areas in need of improvement [12,13]. Therefore, reflective journals hold considerable potential as learner-experience–based tools for reviewing instructional design, complementing traditional instructor-centered and one-way evaluation methods.

2.3. Tool Development and Content Validity (Delphi and CVI)

In the development of educational measurement instruments, systematic validation procedures are

essential. In studies on the development of educational instruments, the Delphi technique and the Content Validity Index (CVI) are widely used to ensure the validity and reliability of the developed tools. The Delphi technique is a systematic method in which experts repeatedly review the appropriateness, importance, and clarity of items to reach consensus [14], while the CVI is an index that quantitatively evaluates the content validity of each item based on expert ratings [15]. In particular, a CVI value of 0.75 or higher is generally considered to indicate an acceptable level of content validity [15], and these procedures have been widely applied in the development of educational evaluation tools and learning measurement instruments. In this study as well, these procedures were employed to develop the items of the reflective journal; through expert review and content validity analysis, the items were revised and refined to secure the validity of the tool

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III. METHODOLOGY

This study adopted a two-phase methodological framework consisting of (1) the development and validation of a learning reflection journal tool and (2) an exploratory application of the tool to investigate learners' perceptions. A mixed-methods descriptive design was employed to ensure both methodological rigor in instrument development and empirical grounding through learner responses. The primary objective was not to test causal effects, but to examine the educational applicability, reliability, and perceived usefulness of the reflection journal in authentic university learning contexts.

3.1. Phase 1: Development of the Learning Reflection Journal

The initial pool of reflection journal items was generated through an extensive review of prior literature on reflective learning, self-regulated learning, instructional design evaluation, and reflective journal practices in higher education.

Existing reflection frameworks and journal prompts were analyzed and reconstructed to align with the dual purpose of (a) supporting students' metacognitive reflection and (b) providing instructors with learner-centered data for instructional design review.

To ensure content relevance and clarity, an expert consultation process based on the Delphi technique was conducted. The expert panel consisted of faculty members with backgrounds in education, instructional design, and health-related higher education. Experts evaluated each item in terms of relevance, clarity, and representativeness using a structured rating form. Based on expert feedback, items were revised, merged, or eliminated.

Content validity was quantitatively assessed using the Content Validity Index (CVI). Item-level CVI values were calculated, and items with a CVI of 0.75 or higher were retained, following established methodological standards. This iterative refinement process resulted in a finalized reflection journal composed of items addressing cognitive, affective, and professional-development dimensions of learning reflection.

3.2. Phase 2: Implementation and Data Collection

The validated reflection journal was implemented in selected university courses in the departments of Dental Hygiene and Para-medicine. Students were asked to complete the reflection journal after participating in course learning activities. Participation was voluntary, and informed consent was obtained prior to data collection.

A total of 81 undergraduate students completed the reflection journal and an accompanying perception survey. The survey assessed students' perceived reflection competency, appropriateness of journal items, and usefulness of the reflection journal as an instructional method. All perception items were measured using a 10-point Likert-type scale, with higher scores indicating more positive perceptions.

3.3. Data Analysis

Quantitative data analysis was conducted using SPSS/WIN version 25.0. Descriptive statistics

(frequencies, means, and standard deviations) were calculated to summarize participants' characteristics and overall perception trends. Internal consistency reliability of the reflection competency scale was examined using Cronbach's alpha. In addition, independent samples t-tests were performed to explore differences in perceived usefulness of the reflection journal according to academic year. The level of statistical significance was set at α = .05.

This study employed a mixed-methods approach combining instrument development and a descriptive survey design to explore the educational applicability of a learning reflection journal. The purpose of the study was not to experimentally test the effectiveness of the journal, but to examine learners' reflective experiences and perceptions. The research was conducted in two stages. In the first stage, reflection journal items were developed based on a literature review and revised through expert consultation. Content validity was examined using the Content Validity Index (CVI) based on expert ratings. Items with a CVI of 0.75 or higher were considered to demonstrate acceptable content validity. In the second stage, the validated reflection journal was applied in university courses. Students completed the reflection journal, and their responses were analyzed quantitatively to examine overall perception trends and response characteristics. Data were analyzed using SPSS/WIN version 25.0. Descriptive statistics, including frequencies, means, and standard deviations, were calculated to summarize participants' characteristics and their perceptions of the reflection journal. The level of statistical significance was set at α = .05.

IV. RESULTS

4.1. Participants' General Characteristics

A total of 81 students participated in this study. Of the participants, 14 were male (17.3%) and 67 were female (82.7%), indicating a higher proportion of female students. Regarding academic year, 47 students (58.0%) were second-year students and 34 students (42.0%) were third-year students. In terms of major, 47 students (58.0%) were from the Department of Dental Hygiene and 34 students (42.0%) were from the

Department of Para-medicine. With regard to clinical practice experience, 14 students (17.3%) reported having prior clinical practice experience, whereas 67 students (82.7%) reported no such experience. Most participants reported high satisfaction with their major, with 34 students (42.0%) indicating "strongly agree" and 39 students (48.1%) indicating "agree." Only 8 students (9.9%) reported a neutral level of satisfaction, and no participants reported dissatisfaction. In addition, 46 students (56.8%)reported having prior experience with writing reflection journals in previous courses, while 35 students (43.2%)reported no prior experience. (Table 1)

Table 1. Participants' General Characteristics

Variables		N	%
Gender	Male	14	17.3
	Female	67	27.7
Academic Year	Second year	47	58
	Third year	34	42
Major	Dental Hygiene	47	58
	Paramedicine	34	42
Clinical Practice Experience	Yes	14	17.3
	No	67	82.7
Satisfaction with Major	Strongly agree	34	42
	Agree	39	48.1
	Neutral	8	9.9
	Disagree	-	-
	Strongly disagree	-	-
Prior Experience with Writing Reflection Journals (excluding general education courses)	Yes	46	56.8
	No	35	43.2

4.2. Descriptive Statistics and Reliability of Learning Reflection Competency

Descriptive statistics were calculated to examine students' perceptions of learning reflection competency. The results showed that the mean scores for all items were above 7.0, indicating that students generally perceived themselves as engaging positively in reflective thinking about their learning experiences and cognitive processes.

Among the items, the statement related to deep reflection on internal learning-related issues

showed the highest mean score. Other items related to examining learning from multiple perspectives and integrating learning experiences with personal growth also demonstrated relatively high mean values, suggesting that the reflection journal supported expanded and integrative reflection. The internal consistency of the four reflection competency items was examined using Cronbach's alpha. The results indicated excellent reliability, with a Cronbach's α of .929, demonstrating a high level of internal consistency. (Table 2)

Table 2.Descriptive Statistics and Reliability of Learning Reflection Competency

Variables	M±SD
To what extent can you critically reflect on rules and biases?	7.52±1.89
To what extent can you critically reflect on your internal issues related to the course?	7.59±1.66
To what extent can you reflect on the connection between your learning experiences and yourself from multiple perspectives?	7.53±1.79
To what extent can you reflect on the course context related to yourself from multiple perspectives in order to derive solutions to your challenges and support personal growth?	7.57±1.86

4.3. Perceived Appropriateness of Reflection Journal Items

Students evaluated the appropriateness of the reflection journal items using a 10-point scale. Overall, the mean scores for all items were above 7.0, indicating that students perceived the reflection prompts as appropriate and meaningful for facilitating reflection. Items related to identifying personal weaknesses through the course and perceived contribution of the course to major or career development received particularly high ratings. In addition, items addressing changes in thinking, the influence of learning activities on problem-solving processes, and future professional growth also showed high mean scores. Items that directly required self-evaluation of participation or understanding of the course syllabus showed relatively lower mean scores or greater variability, suggesting differences in students' self-awareness and reflective depth. Nevertheless, the overall results indicate that the

reflection journal items were perceived as suitable for eliciting diverse cognitive and affective reflections.(Table 3)

Table 3.Perceived Appropriateness of Reflection Journal Items

Variables	M±SD
What new insights or changes in your thinking did you gain through this course?	8.33±1.57
What aspects did you feel you were lacking or needed to improve through this course?	8.43±1.7
In what ways do you think this course contributed to your major-related competencies or career preparation?	8.44±1.63
How do you think the learning activities in this course influenced your thinking processes or problem-solving abilities?	8.33±1.64
Based on your learning experiences in this course, what kind of professional in your field do you hope to become in the future?	8.59±1.5
How well did you understand the course syllabus presented during the first class session?	6.88±2.73
How actively did you participate in the learning activities during class?	8.17±1.9
How would you evaluate your own learning attitude in this course (e.g., preparedness, engagement, sincerity)?	7.85±2.0
Overall, how satisfied are you with your learning attitude in this course?	7.86±1.93
Please re-evaluate your level of participation in the various learning activities conducted during the course.	7.38±2.56

4.4. Perceived Usefulness of the Reflection Journal

Students' perceptions of the usefulness of the reflection journal were assessed using a 10-point scale. The mean scores across items ranged from 7.56 to 8.16, indicating generally positive perceptions of the reflection journal as a learning tool. In particular, items related to the usefulness of the reflection journal for enhancing learning reflection competency received the highest ratings. Students also perceived the reflection journal as an effective educational method that supports reflective learning and higher-order thinking, such as critical thinking and problem-solving. Furthermore, items addressing the intention to use reflection journals in other courses and the willingness to recommend the method to students

in other majors also demonstrated relatively high mean scores, suggesting the perceived applicability and scalability of the reflection journal beyond a single course context.(Table 4)

Table 4.Perceived Usefulness of the Reflection Journal

Variables	M±SD
Availability: Reflective journal writing is an educational method that can be used to enhance self-(learning) reflection competence.	8.16±1.67
Effectiveness: Reflective journal writing is an effective educational method for strengthening self-(learning) reflection competence.	8.10±1.86
Professional Competence: Reflective journal writing helps learners improve critical thinking and problem-solving skills required for problem solving.	7.96±2.08
Intention to Use:Reflective journal writing is worth applying to other courses, and I am willing to continue participating in reflective journal activities in the future.	7.56±2.38
Intention to Recommend: Reflective journal writing is an educational method worth recommending to students in other majors.	7.95±2.21

4.5. Differences in Perceptions of Reflection Journal Usefulness by Academic Year

Independent samples t-tests were conducted to examine differences in perceptions of reflection journal usefulness by academic year. The results indicated that third-year students reported significantly higher scores than second-year studentsin perceived professional relevance and intention to use the reflection journal in future learning contexts. Specifically, third-year students demonstrated significantly higher perceptions regarding the contribution of the reflection journal to developing problem-solving and critical thinking skills, as well as a stronger intention to apply reflection journals in other courses. However, no statistically significant differences were found between academic years in perceived availability, effectiveness, or recommendation intention. These findings suggest that while overall perceptions of usefulness were consistently positive across academic years, senior students tended to recognize greater professional value and future applicability of the reflection journal.(Table 5)

Table 5. Differences in Perceptions of Reflection Journal Usefulness by Academic Year

Variables	Academic Year	N	M±SD	t	*P*
Availability: Reflective journal writing is an educational method that can be used to enhance self-(learning) reflection competence.	2	47	7.91±1.72	-1.57	.12
	3	34	8.50±1.56		
Effectiveness: Reflective journal writing is an effective educational method for strengthening self-(learning) reflection competence.	2	47	7.89±1.93	-1.17	.246
	3	34	8.38±1.76		
Professional Competence: Reflective journal writing helps learners improve critical thinking and problem-solving skills required for problem solving.	2	47	7.55±2.23	-2.13	.036
	3	34	8.53±1.73		
Intention to Use:Reflective journal writing is worth applying to other courses, and I am willing to continue participating in reflective journal activities in the future.	2	47	7.09±2.39	-2.14	.036
	3	34	8.21±2.24		
Intention to Recommend: Reflective journal writing is an educational method worth recommending to students in other majors.	2	47	7.66±2.20	-1.40	.164
	3	34	8.35±2.19		

V. CONCLUSION

This preliminary study aimed to develop a structured learning reflection journal tool for higher education and to examine students' perceptions of its applicability and educational

value through implementation in actual university courses. The reflection journal was systematically developed through literature-based item reconstruction, expert Delphi review, and content validity analysis, resulting in a tool with demonstrated validity and high internal consistency reliability.

The findings indicate that students perceived the reflection journal as both appropriate and useful for supporting reflective learning. Participants reported that journal writing facilitated deeper reflection on their learning experiences, thinking processes, and professional development, suggesting its potential role in strengthening self-regulated learning and metacognitive awareness. Notably, senior students showed higher perceptions of professional relevance and stronger intentions to apply reflection journals in future learning contexts, highlighting the tool's alignment with developmental learning stages in higher education.

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