

Change of Critical Thinking Disposition by Applying Learning Portfolio Completion

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Abstract

This study was a similar experimental study that analyzed the effect by applying the learning portfolio completion. The study period lasted from October 1, 2019 to November 20, 2019. A total of 47 people participated in the study, and the effectiveness of the program was analyzed with the SPSS 18.0 program for critical thinking disposition. The statistical analysis method was frequency analysis and paired t-test. As a result of the analysis, the critical thinking disposition increased significantly in the application of the learning portfolio completion (Truth-seeking MD= -0.05, $p < 0.01$), Open-mindedness MD= 0.11, $p < 0.001$), Analyticity MD= 0.76, $p < 0.001$), Systematicity MD= -0.25, $p < 0.001$), Self-confidence MD= -0.54, $p < 0.001$), Inquisitiveness MD= 0.29, $p < 0.001$), Maturity MD= -0.33, $p < 0.001$). In conclusion, the teaching method applied with the learning portfolio completion actually helped nursing students learn nursing students learn based on critical thinking. Based on these result, further research using learning portfolio is to be done and more systematic and practical application of learning portfolio completion to nursing students. This study would be used as a basic data for the study guideline development for learners.

Keywords: Critical thinking disposition, Learning Portfolio Completion, Study guideline Development.

1. INTRODUCTION

According to a survey by the Korea Educational Development Institute, the difficulty of college students adaptation to college life was attributed to the passive learning method in the competition for admission before becoming a college student [1]. This situation implies that the learner lacks an active learning process that sets goals for his or her ability and uses self-regulation strategies. It is an urgent matter for university education, Korea's formal final education institution, to achieve learners' goals and gain confidence in learning beyond passive learning. Moreover, in the face of the Fourth Industrial Revolution, it is difficult to cope with the demands of the times by educating students with passive learning methods. The Fourth Industrial Revolution era refers to an intelligent information society in which artificial intelligence and big data are realized. In this rapidly changing social structure, it is very important to acquire the knowledge and information necessary for oneself. It is emphasized that it is possible to survive in the intelligent information society in which big data is realized through learning by finding itself [2]. Therefore, in the demands of the times, the teaching method is not an instructor or learner-centered one-way teaching method, but the teaching and learning person must thoroughly acquire the existing academic knowledge and acquire a new discipline [3]. In other words, education should be changed from teaching organization to learning organization, teaching-centered learning from learner-interactive learning, and out-of-time and off-space ubiquitous as on-site platform class rather than fixed class. The learning method required in modern times should change from learning alone to interactive

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and collaborative learning. In addition, the educational methods required in modern times should be conducted with multidimensional experiences in the linear and sequential curriculum. In other words, the paradigm of education from formalized learning to field-based problem solving ability is changing [4]. This change of education paradigm is an active learning process that allows learners to find and learn by themselves. Active learning process is to achieve the goals set by students by establishing detailed action plans and learning activities [5]. In this learning process, students experience presentation and self-reflection. The active learning process is learner-centered learning rather than external control of learning acquisition by instructors [6]. Recently, the learning method developed according to the needs of the times is the learning portfolio.

The term portfolio of the learning portfolio is used in the art fields such as architecture, design, and art. It is used to refer to a collection of his works through creative activities. A learning portfolio is where learners record and organize their learning. Learners create a learning portfolio and create an environment where they can reflect and reflect on their learning. In other words, the learner summarizes his learning process and the process of change [7]. By creating a learning portfolio, learners can help them diagnose their learning needs, set learning goals, secure resources for learning, and do self-regulated learning to achieve them. There is also flexibility to apply. Learning portfolios must include goals, data, and reflection. There are three types of learning portfolio: formal, summarative, and marketing [8]. Application to the program was a fusion of formal and summarative. The study of the effect of the learning portfolio is said to contribute to the improvement of learning outcomes, and it is reported to improve the learning achievement by improving the learner's learning attitude and improving the motivation for learning [9]. By creating a learning portfolio, learners can help them reflect on their own learning process and outcomes and can improve in a better way [10]. This was not just the result of a course of study over a period of time, but also focuses on the course of learning, so some people see their learning more valuable [11]. The learning portfolio is also necessary for adapting to social life as a member of society by making a systematic collection of work-related materials and critical reflection after graduation. By working actively, the portfolio can give people the confidence to become experts in their field and build a comprehensive management system for the results. For this reason, it is important to develop a learning portfolio as a learning system in the university education in order to cultivate confident social workers in the future rather than intensive injecting learning. However, no individualized and validated learning portfolio has been developed for each major, and no studies have been conducted to further analyze the opinions of participants by applying it to the students of all majors. Therefore, the purpose of this study was to apply the developed learning portfolio completeness to analyze the learning effect with the critical thinking tendency and to provide the basic data of the guidelines for the effective learning support program operation through the analysis results.

2. Research Methods

2.1 Research Design

This study is part of a program operated by the Center for Teaching and Learning Development of C University. The researcher participated in the program, reviewed the literature on the learning portfolio, recruited the participants, conducted an orientation on the already developed learning portfolio completeness assessment tool, and applied the learning portfolio. The effect of applying the learning portfolio was evaluated as critical thinking tendency before and after the program.

2.2 Research tools

2.2.1. Learning Portfolio Completion Assessment

The purpose of this study was to provide the basic data for developing the learning support program operation guidelines using the learning portfolio completeness evaluation tool developed by SE Seo [12]. The learning portfolio completion tool used in this study was a self-report format consisting of 10 score motives for taking classes, 50 score for weekly study journals, 20 score for self-reported reflections on learning, and a total of 80 scores (Table 1).

Table 1. Learning Portfolio Completion Assessment

Education	Education	Yes	Mid	No
Motives for taking classes (10)	Have you described your motivation to enroll in the course with the goals you would like to gain from learning?	5	3	1
	Did you describe the course objectives in specific behavioral terms (apply, acquire, etc.)?	5	3	1
1 st Weekly study journals (25)	Did you submit a weekly study journal?	10	5	3
	Have you outlined the content of your lessons each week using a variety of conceptual tools (mind maps, strategic notes, etc.)?	5	3	1
	Have you reviewed your learning content and methods each week, and have you established a specific learning strategy plan based on the results?	5	3	1
	Did you submit your own study materials (test preparation, note taking, etc.) for each week of study?	5	3	1
2 nd Weekly study journals (25)	Did you submit a weekly study journal?	10	5	3
	Have you outlined the content of your lessons each week using a variety of conceptual tools (mind maps, strategic notes, etc.)?	5	3	1
	Have you reviewed your learning content and methods each week, and have you established a specific learning strategy plan based on the results?	5	3	1
	Did you submit your own study materials (test preparation, note taking, etc.) for each week of study?	5	3	1
Reflections on learning (20)	Have you described in detail how you have applied the learning method and how you organize notes?	10	5	3
	Have you described in detail the problems and improvement directions of the learning method you used?	5	3	1
	Did you reflect on how you felt compared to your course objectives and the actual learning process?	5	3	1
Total		80		

2.2.2 Critical Thinking Disposition

Critical thinking disposition refers to the personal characteristics, habits, attitudes, and emotional dispositions needed to think critically [13]. Critical thinking disposition tool for analyzing the effects of program application developed by Facione A in 1990 [14]. The sub-components of the tool for measuring critical thinking tendency consisted of 27 questions including truth-seeking (5), open-mindedness (4), analyticity (4), systematicity (3), critical thinking self-confidence (4), inquisitiveness (4), and maturity (3). Critical thinking disposition, which was configured to be measured on a 5-point scale, mean that the higher the score, the higher the critical thinking disposition.

Table 2. Critical Thinking Disposition

Sub-factors of Critical Thinking Disposition	Question No	No
Truth-seeking	1-5	5
Open-mindedness	6-9	4
Analyticity	10-13	4
Systematicity	14-16	3

Critical thinking self-confidence	17-20	4
Inquisitiveness	21-24	4
Maturity	25-27	3

2.2.3 Research process

The purpose of this study was to provide basic data for developing guidelines for efficient learning support program through application of learning portfolio. Data collection period for this study was from October 1, 2019 to November 20, 2019. The developed learning portfolio was distributed to participants, and the results were analyzed by the learning portfolio completeness evaluation tool.

3. RESULTS

3.1 Characteristics of Participants

Frequency analysis was conducted to confirm the general characteristics of the study participants (Table 3). As a result, 10 men (21.3%) and 37 women (78.7%). Participants were 19 years old at 5 (10.7%), 20 years old at 4 (8.5%), 21 years old at 3 (6.4%), over 22 years old at 34 (72.3%), and over the 23 years old at 1 (2.1%). The current housing type was Dormitory 24 (51.1%), Commuting 15 (31.9%), Live apart 5 (10.6%), and Others 3 (6.4%). Religions consisted of 15 Protestants (31.9%), 1 Catholic (2.1%), 2 Buddhism (2.1%), and 30 (63.8%) None. Community service activities consisted of 7 people (14.9%) who made regular, 25 students (53.2%) made Irregular, and 15 people (31.9%)

Table 3. General Characteristics (N=47)

Characteristics		N	%
Gender	Male	10	21.3
	Female	37	78.7
Age	19	5	10.7
	20	4	8.5
	21	3	6.4
	22	34	72.3
	≥23	1	2.1
Housing	Dormitory	24	51.1
	Commuting	15	31.9
	Live apart	5	10.6
	Others	3	6.4
Religion	Protestant	15	31.9
	Catholic	1	2.1
	Buddhism	1	2.1
	None	30	63.8
Community	Regular	7	14.9

service	Irregular	25	53.2
	None	15	31.9

3.2 Critical thinking disposition effect with learning portfolio completion

Paired t-test was conducted to analyze the effects before and after application of the learning portfolio completion (Table 4). As a result of the normality test to perform the paired t-test, the skew value of Age showed more than 3 absolute values, and a total of 46 people were used for the analysis except one pair over the age of 26 from the paired t-test. The sub-factors of critical thinking tendency were composed of Truth-seeking, Open-mindedness, Analyticity, Systematicity, Self-confidence, Inquisitiveness, and Maturity. The results of the analysis showed that the learning portfolio differs in the average in all the sub-compositions of critical thinking. Mean difference of Truth-seeking = -0.05 ($p < 0.01$), Mean difference of Open-mindedness = 0.11 ($p < 0.001$), Mean Difference of Analyticity = 0.76 ($p < 0.001$), Mean difference of Systematicity = -. 25 ($p < 0.001$), Mean Difference of Self-confidence = -0.54 ($p < 0.001$), Mean Difference of Inquisitiveness = 0.29 ($p < 0.001$), Mean difference of Maturity =-. 0.33 ($p < 0.001$). There was a difference before and after applying the learning portfolio completion

Table 4. Critical Thinking Disposition Effect with Learning Portfolio Completion

Paired t-test		n	Mean	SD	MD	t	p
Truth-seeking	Pre	46	2.23	4.67	-.05	-2.81*	< 0.01
	Post	46	2.27	4.60			
Open-mindedness	Pre	46	2.82	.49	.11	-6.01**	< 0.001
	Post	46	2.92	.47			
Analyticity	Pre	46	2.20	.67	.76	-6.85**	< 0.001
	Post	46	2.96	.59			
Systematicity	Pre	46	2.65	.69	-.25	-5.47**	< 0.001
	Post	46	2.91	.65			
Self-confidence	Pre	46	2.65	.69	-.54	.32**	< 0.001
	Post	46	2.91	.65			
Inquisitiveness	Pre	46	1.84	.50	.29	-7.94**	< 0.001
	Post	46	2.14	.59			
Maturity	Pre	46	2.35	.55	-.33	.51**	< 0.001
	Post	46	2.68	.53			

* $p < 0.01$, ** $p < 0.001$, SD=Standard Disposition, MD=Mean Difference.

4. Conclusion

This study was conducted from October 1, 2019 to November 20, 2019. Participants were recruited for the assessment of the completion of the learning portfolio, and the evaluation tool developed by EH Seo [12] was applied. The effectiveness of the program was analyzed by the critical thinking disposition developed by Ficone [14]. As a result, this study found that students' intellectual enthusiasm, curiosity, and self-confidence increased significantly compared to before application. However, there was no marked improvement in systematicity. The results of this study suggest that there is a need for in-depth study to find systematic methods that can be applied to clinical practice. However, it should be noted that the limitation of this study was a program with a small number of people. Nevertheless, the field of nursing, which is a practical study, seems to require systematic research to be applied to clinical and practical learning sites. In other words, according to the existing research results, it is necessary to refer to the contents of textbooks and develop continuous and phased development without placing weight in limited time. Specific procedures for further research suggest investigating the sample size and results of the design, developing program quality and standard reporting criteria, applying systematic reviews, ensuring the validity of the findings and applying them in practice.

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