

## Usefulness of an online learning program for new nursing faculty members

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### ABSTRACT

The purpose of this study was to examine the usefulness of an online learning program, Learning Program for New Faculty Members, in conveying knowledge of educational practice to newly appointed nursing faculty members. The study participants were assistant professors and research associates from nursing programs in Japan, with less than 5 years of educational experience. In total, 99 people participated in this study, and data from 97 were analyzed. Participants in the control group (43) were frequency matched to those in the intervention group (54) for sex, age, final degree, clinical experience, and academic experience. A pre-test was conducted using an original questionnaire, and there were no significant differences between the two groups in knowledge about educational practice. The intervention group then participated in the Learning Program for New Faculty Members online, at their convenience. After the intervention, a post-test was conducted. In the intervention group, post-test scores were significantly higher for all items except Item 3 (Conducting Class). The intervention and control groups' post-test scores were 23.55 vs 16.90 for Item 1 (Student Understanding and Support), 28.20 vs 22.17 for Item 2 (Syllabus and Class Design) and 5.40 vs 2.97 for Item 4 (Understanding of Educational Theories). The Learning Program for New Faculty Members was therefore considered to be effective in helping newly appointed nursing faculty members to acquire knowledge. The program was able to overcome the time and environmental constraints of newly appointed nursing faculty members.

Keywords: new faculty members, online program, educational practice, nursing, faculty development

Abbreviation:

BSN: bachelor of science in nursing

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### INTRODUCTION

The number of bachelor of science in nursing (BSN) programs in Japan increased from 11 in 1991 to 255 in 2017.<sup>1</sup> This has led to an urgent need to secure nursing faculty members. However, it is important to assure the quality of nursing faculty members to maintain the quality

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of basic nursing education.

The Japan Council of Colleges of Nursing conducted a survey on the educational content and methods used by graduate programs that prepare BSN faculty. Overall, 20.8% of the graduate programs did not offer courses related to nursing education/pedagogy. There were also controversies about pedagogical education among graduate programs.<sup>2</sup> It therefore seemed likely that graduate students would have difficulty acquiring both educational and research skills in the limited time available for graduate study. Educators in charge of graduate nursing programs are aware of the need for pedagogical education of potential nursing faculty members, but there seem to be barriers to acquiring this education.<sup>2</sup> It is thought that some graduate students may choose to become nursing faculty members after obtaining their degrees. The Ministry of Education, Culture, Sports, Science and Technology has suggested that efforts should be made in the latter half of nursing doctoral courses to “set up opportunities to cultivate abilities necessary for teaching knowledge or provide information on such opportunities” (so-called pre-faculty development) as preparatory education.<sup>3</sup> Education to acquire teaching ability is also being promoted.<sup>3</sup>

The Ministry of Education, Culture, Sports, Science and Technology’s Central Council for Education published a “Report on the Future of Higher Education in Japan”. This states that faculty development is “an organized effort by faculty members to improve and enhance the content and methods of their teaching”.<sup>4</sup> Faculty development is carried out in all universities and contributes to the improvement of educational content and methods.<sup>5</sup> Activities may be either formal and systematic, provided by the university, or peer-to-peer, such as veteran faculty members instructing or providing informal mentoring for new faculty members. Universities may be more attractive if faculty development is both active and effective.<sup>6</sup> However, a survey on faculty development in nursing colleges by the Chiba University Graduate Center for Nursing Practice and Research Guidance found that only 6.8% of faculty development training was aimed specifically at new faculty members. More than half of BSN programs (62.8%) reported that they considered training specific to new faculty members was inadequate, and only a few organizations were providing faculty development opportunities for newly appointed nursing faculty members. This suggests that there are not enough opportunities for newly appointed nursing faculty members to develop their teaching skills.<sup>7</sup>

We can also infer that there are constraints that hinder the professional development of newly appointed nursing faculty members. These may include miscellaneous roles and duties. Clinical practice guidance consumes most of the time and workloads of those faculty members. Direct instruction by nursing faculty members is imperative to make clinical practice effective, but it impedes long-term and off-campus training for faculty.<sup>8</sup>

It therefore seems likely that there are insufficient opportunities for newly appointed nursing faculty members to systematically learn pedagogy. It may be helpful to provide timesaving learning opportunities for these faculty members to improve the quality of their teaching. Online education may be a suitable way to meet these needs. This may be either synchronous or asynchronous. Both types can be accessed from any location with a network environment. Asynchronous online education allows learners to view and listen at their own pace, which can be an advantage for time-constrained learners. The effectiveness of online learning has been reported in a variety of disciplines.<sup>9-11</sup>

We therefore developed an online learning program, the Learning Program for New Faculty Members and examined its effectiveness.

## MATERIALS AND METHODS

### *Research objective*

This study was a pre-test/post-test interventional design with a control group. The purpose was to examine the effect of attending an online learning program on the acquisition of knowledge about educational practice among newly appointed nursing faculty members.

### *Study participants*

All BSN programs in Japan listed in the Nursing School Handbook were invited to participate in this study.<sup>12</sup> Assistant professors or research associates with less than 5 years of teaching experience in BSN programs were selected as research participants by program administrators. Faculty members who had previously participated in three particular official or other programs (listed in Table 1) were excluded because the content of our program overlapped with these other programs.

**Table 1** Programs whose participants were excluded from the study

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The Nursing Teacher Training Course at the Center for Nursing Training and Research, Ministry of Health, Labor and Welfare
The Future Nurse Faculty Program at St. Luke's International University Graduate School
The Future Faculty Program at the University of Tokyo Graduate School; and "Interactive Teaching"

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### *Structure of the Learning Program for New Faculty Members*

The intervention program used in this study was an excerpt from a course produced under the supervision of the University of Tokyo's Center for Interdisciplinary Education and Research, and released free of charge on "gacco", a Japanese Massive Open Online Courses (MOOC) platform. Associate Professor Kurita, the creator of the original course, gave permission for us to name this course the Learning Program for New Faculty Members in this study. At the time of this research study, the course was no longer available on "gacco", but could be viewed free of charge at the University of Tokyo Faculty Development site (<https://www.utokyofd.com>).

The program contains eight sections: 1) What is interactive teaching, 2) Techniques of active learning, 3) Science of learning, 4) Design a 90-minute class, 5) Writing a more useful syllabus, 6) Evaluations to motivate learning, 7) Career path: being a faculty member, and 8) Career path: using a portfolio. Each section contains (1) a "knowledge session" to teach knowledge related to education, (2) a "skill session" to teach communication skills other than teaching methods, such as how to talk to others and how to relax, and (3) a "story session" responding to learners' requests, in which faculty members from the University of Tokyo were interviewed about various issues related to education and the educational methods they used. In this study, three "knowledge sessions", "Science of learning" (Week 3), "Design a 90-minute class" (Week 4), and "Writing a more useful syllabus" (Week 5), were required, and the other sections were optional. Table 2 shows all sections and sessions of the Learning Program for New Faculty Members.

The Council of Japanese Nursing Colleges conducted a study on the formulation and evaluation of education standards in graduate schools of nursing. It suggested the abilities required of nursing faculty members (assistant professors and research associates). These included "the ability to look at education in general", especially "the ability to understand the characteristics

**Table 2** Sections and sessions of the Learning Program for New Faculty Members

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(Week1)
Knowledge session
Intro: What is interactive teaching? “Get to know active learning”
Active learning
Current active learning
Choosing the method of active learning
Applying the method of active learning
Discussion: self-introduction
Skill session
Philosophy of skills: Significance is invisible
Story session
Active learning for the scientific field
Learning by cases: Learning by the case method at business school
(Week 2)
Knowledge session
Techniques of active Learning
Think–pair–share
Jigsaw method
Poster tour
Peer interaction
Discussion: Group work what if...
Skill session
Case study: Making space
Story session
Facilitate students’ discussion
Cooperative learning, making high school lessons interactive
(Week 3)
Knowledge session
Science of learning
Motivation 1
Motivation 2
Road to Master
Practice and feedback
Discussion: Categorizing into partial skills
Skill session
Case study: Speak to communicate
Story session
Nutrition topic: Importance of creating step by step learning
Project-based learning to passion-based learning

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(Week 4)

Knowledge session

Design a 90-minute class

Definition of class design and its model 1

Definition of class design and its model 2

Basics of class components

Using design sheets

Discussion: Want to have a class like this...

Skill session

Interaction 1: Self icebreaker

Story session

Seeing by eyes and listening by ears English class: Use of audiovisual resources

Comparison of teaching and learning, and what an instructor can do

(Week 5)

Knowledge session

Writing a more useful syllabus

More on the role of the syllabus

Setting targets and purpose

Designing class schedules

Making class components visible

Discussion: Setting targets and purpose

Skill session

Interaction 2: Inducing reactions

Story session

Comparison of college education and students in Japan and Germany

Making a classroom with students: Challenge for project-based learning

(Week 6)

Knowledge session

Evaluations to motivate learning

Purpose of evaluation

How to set evaluations

Discussion: Let's make rubrics

Skill session

Application: Q&As (1)

Story session

Targeting "fun education" as a driving force for researching

Organizational change and training by communication

(Week 7)

Knowledge session

Career path: Being a faculty member

Higher education in Japan

An ideal college faculty

A role model for college faculty

Discussion: Balance between education and research

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Skill session

Application: Q&As (2)

Story session

Future college? What is required to be a member of college faculty?

Utilizing skits in the classroom

(Week 8)

Knowledge session

Career path: Using a portfolio

Structuring an academic portfolio

Meaning of making a Structured Academic Portfolio (SAP) chart

Making SAP chart 1-education

Making SAP chart 2-research

Making SAP chart 3-service and compilation

Skill session

Conclusion: Do not be afraid to make mistakes

Story session

Think about future college faculty in the historical context of the university

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of teaching styles appropriate for educational purposes” and “the ability to understand basic knowledge required for lesson planning”.<sup>13</sup> Feldman investigated the factors that influence learning outcomes in university teachers’ classes and found that “teacher preparation and class design” and “teaching according to class objectives” influenced learning outcomes.<sup>14</sup> These two studies suggest that these competencies and factors are essential for newly appointed nursing faculty members. The University of Tokyo’s Center for Integrated Research on Universities gave us permission to use the Learning Program for New Faculty Members. The program was available to the research participants at any time and any place they wanted, throughout the intervention period. They were allowed to view the lectures in any order. They could also split a single piece of content over several viewing sessions.

*Data collection*

**Preliminary questionnaire survey.** Before the study, we conducted an anonymous self-administered questionnaire on knowledge of educational practices. We mailed a research explanation form and consent form with a self-addressed stamped envelope to presidents or deans of all BSN programs listed in the Nursing School Handbook.<sup>10</sup> We then mailed research explanation forms, research participation consent forms, and return envelopes to the assistant professors and research associates with 5 years or less of university teaching experience who agreed to cooperate, as reported by the presidents or deans. The study materials were distributed to potential participants by their president or dean.

The pre-test questionnaire and return envelopes were mailed directly to all newly appointed nursing faculty members who returned the consent form. The pre-test was conducted from September to November 2017. This asked the participants about their readiness for education, personal attributes, and willingness to participate in peer support group sessions. Readiness items were extracted from the content of the Learning Program for New Faculty Members. They included Item 1 Student Understanding and Support, Item 2 Syllabus and Class Design, Item 3 Conducting Class, Item 4 Understanding of Educational Theories, and free space for thoughts

and questions about extramural support and lectures, exercises, and clinical practice teaching. The content of the questionnaire is shown in Table 3. Personal attributes included sex, age group, final degree, years of clinical experience, years of educational experience on BSN programs and/or at diploma nursing institutions, and average number of times attending on- and/or off-campus training. These attributes are considered to influence educational competencies.<sup>15,16</sup> The participants were divided into intervention and control groups based on their personal attributes. The participants in the control group were frequency matched to those in the intervention group by sex, age, final degree, clinical experience, and academic experience.

**Intervention methods.** An e-mail was sent to the intervention group inviting them to attend the Learning Program for New Faculty Members. Members of the control group were informed that they were allocated to the control group and would be given an opportunity to attend the

**Table 3** Questionnaire items

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Item 1 Student Understanding and Support
Enabling creative thought for students during lectures
Checking students' comprehension during lectures
Able to explain and define "value", "forecast" and "environment", which are the keys to maintaining student motivation
Grasping the students' readiness before lectures
Able to explain the main and supporting methods for mastering nursing techniques.
Able to explain effective practices and feedback for nursing techniques.
Item 2 Syllabus and Class Design
Able to explain and define the role and definition of the syllabus
Able to set the goals and targets while making the syllabus
Able to design an effective schedule while making the syllabus
Able to write an evaluation method properly on the syllabus
Able to define an applicable method for a graphic syllabus
Able to explain the 90-minute class design
Able to design a class with a class design sheet
Able to make a lesson plan for every lecture
Item 3 Conducting Class
A meeting is held with all specialized faculty before the lecture to produce lesson
Conduct a simulated lesson for lectures before the actual lesson
Conduct a tools and devices operational check for lectures
A meeting is held with all specialized faculty after the lecture
A meeting is held after the lecture to prepare the next lecture
Item 4 Understanding of Educational Theories
Able to explain lesson design using the Analysis Design Development Implementation Evaluation (ADDIE) model
Able to explain the basic lesson components based on Gagne's 9 events of instruction

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4: fit

3: almost fit

2: not very fit

1: not fit

Learning Program for New Faculty Members after the post-test survey.

**Post-test.** The post-test consisted of the same content as the pre-test questionnaire for both groups, excluding information about personal attributes. It was conducted from March to May 2018. An invitation to attend the Learning Program for New Faculty Members was sent to the control group via personal e-mail in June 2018. We did not confirm whether the participants in the intervention group had taken the program before the post-test. However, we explained to them that we would like them to complete the post-test after taking the program.

#### *Data analysis*

Descriptive statistics for all variables were collected for all participants and for the intervention and control groups overall. To determine the effectiveness of the intervention, we used Student's t test to compare post-test results between the intervention and control groups for four items: "Student Understanding and Support", "Syllabus and Class Design", "Conducting Class", and "Understanding of Educational Theories". The pre-test and post-test data were both anonymized.

#### *Ethical considerations*

This study was conducted with the approval of the Bioethics Review Committee of the Nagoya University Graduate School of Medicine (approval no. 17–132).

## RESULTS

#### *Analysis target and treatment of missing values*

In total, 74 (29.4%) of the 252 BSN programs agreed to cooperate. A pre-test questionnaire was mailed to 99 participants who returned the consent form, and all 99 participants returned the questionnaire. All but two potential participants completed the personal attributes section (valid response rate: 96.0%). A total of 54 (55.7%) were allocated to the intervention group, and the remaining 43 (44.3%) to the control group. Of the 97 participants, 51 (20 in the intervention group and 31 in the control group) who returned the post-test questionnaire were included in the final analyses.

#### *Comparing demographic information with the results of interventions*

**Attributes of the analysis participants.** A summary of the personal attributes of the intervention and control groups is shown in Table 4. The participants were 22 men (22.7%) and 75 women (77.3%). The biggest group comprised participants in their 30s (49.5%), followed by those in their 40s (29.9%). More than three-quarters held master's degrees (75.3%).

Table 4 shows the average length of clinical and academic experience, the number of times participating in faculty development activities, and the number of times participating in off-campus training in the intervention and control groups.

**Group comparison of factors influencing the acquisition of knowledge about educational practices.** The participants were matched by sex, age group, educational background, years of educational experience at university, and years of clinical experience before being allocated to the intervention or control groups. There were therefore no differences between groups for these factors. There were also no statistically significant differences in other attributes between the two groups (the number of faculty development courses,  $p = 0.70$ , and the number of extramural training courses,  $p = 0.44$ ) (Table 4).

**Comparison of knowledge about educational practice after attending the Learning Program for New Faculty Members.** As shown in Tables 5 to 7, there were significant differences

**Table 4** Comparison of intervention group and control group (mean ± standard deviation)

Age, sex and educational background	Intervention group (n = 54)		Control group (n = 43)		P value	$\chi^2$
	n	%	n	%		
<b>Age</b>						
20s	4	7.4	3	7.0	0.58	2.342
30s	27	50.0	21	48.8		
40s	18	33.3	11	25.6		
50s	5	9.3	8	18.6		
<b>Sex</b>						
Male	11	20.4	11	25.6	0.54	0.342
Female	43	79.6	32	74.4		
<b>Highest degree</b>						
Bachelor's	12	22.2	6	14.0	0.65	1.414
Master's	39	72.2	34	79.0		
Doctoral	3	5.6	3	7.0		
Teaching and training experience	Intervention group (n = 54)		Control group (n = 43)		P value	t-value
Years of university teaching experience	2.01 ± 1.09		2.47 ± 1.41		0.06	1.903
Years of vocational school teaching experience	2.85 ± 1.82		5.80 ± 2.71		0.09	1.712
Years of clinical experience	9.43 ± 6.09		10.8 ± 6.64		0.14	1.488
Frequency of faculty development participation (number of times per year)	5.70 ± 3.94		5.04 ± 3.78		0.70	0.386
Frequency of off-campus training session participation (number of times per year)	3.65 ± 3.37		3.36 ± 4.05		0.44	0.775

**Table 5** Pre- and post-intervention comparison of the intervention group (mean ± standard deviation)

Items	Pre-intervention (n = 54)	Post-intervention (n = 20)	P value	t-value
<b>Item 1</b>				
Student Understanding and Support	15.19 ± 4.21	23.55 ± 2.48	< 0.01	2.897
<b>Item 2</b>				
Syllabus and Class Design	18.83 ± 6.47	28.20 ± 5.22	< 0.01	2.729
<b>Item 3</b>				
Conducting Class	12.90 ± 3.81	15.65 ± 2.94	0.05	2.975
<b>Item 4</b>				
Understanding of Educational Theories	2.54 ± 1.01	5.40 ± 2.06	< 0.01	2.832

**Table 6** Pre- and post-intervention comparison of the control group (mean  $\pm$  standard deviation)

Items	Pre-intervention (n = 43)	Post-intervention (n = 31)	P value	t-value
Item 1				
Student Understanding and Support	16.81 $\pm$ 3.61	16.90 $\pm$ 3.51	0.69	0.400
Item 2				
Syllabus and Class Design	19.87 $\pm$ 5.43	22.17 $\pm$ 5.53	0.17	1.386
Item 3				
Conducting Class	14.21 $\pm$ 3.75	14.50 $\pm$ 3.96	0.96	0.038
Item 4				
Understanding of Educational Theories	2.51 $\pm$ 1.26	2.97 $\pm$ 1.50	0.18	1.341

**Table 7** Pre-and post-intervention comparison of the intervention and control groups (mean  $\pm$  standard deviation)

Pre-intervention items	Intervention group (n = 54)	Control group (n = 43)	P value	t-value
Item 1				
Student Understanding and Support	15.19 $\pm$ 4.21	16.81 $\pm$ 3.61	0.05	1.967
Item 2				
Syllabus and Class Design	18.83 $\pm$ 6.47	19.87 $\pm$ 5.43	0.36	0.902
Item 3				
Conducting Class	12.90 $\pm$ 3.81	14.21 $\pm$ 3.75	0.13	1.499
Item 4				
Understanding of Educational Theories	2.54 $\pm$ 1.01	2.51 $\pm$ 1.26	0.92	0.097
Post-intervention items	Intervention group (n = 20)	Control group (n = 31)	P value	t-value
Item 1				
Student Understanding and Support	23.55 $\pm$ 2.48	16.90 $\pm$ 3.51	< 0.01	2.939
Item 2				
Syllabus and Class Design	28.20 $\pm$ 5.22	22.17 $\pm$ 5.53	< 0.01	2.765
Item 3				
Conducting Class	15.65 $\pm$ 2.94	14.50 $\pm$ 3.96	0.27	1.108
Item 4				
Understanding of Educational Theories	5.40 $\pm$ 2.06	2.97 $\pm$ 1.50	< 0.01	3.265

in three items of knowledge on educational practice, “Student Understanding and Support” ( $p < 0.01$ ), “Syllabus and Class Design” ( $p < 0.01$ ), and “Understanding of Educational Theories” ( $p < 0.01$ ), between the intervention and control groups at the post-test. However, there was no

statistically significant difference in “Conducting Class” ( $p = 0.27$ ).

The open-ended section of the pre-test questionnaire contained several comments, such as “I am groping around without knowing how to plan lectures and labs, and I am not sure if this is a good idea” and “It takes me until midnight to plan classes because I do not know how to plan lectures and labs”. In the post-test questionnaires, many of the participants stated that they wished they had known earlier about existing learning tools, such as the Learning Program for New Faculty Members. They reported now having a concrete understanding of how to plan classes, that they would like to have more opportunities to learn in this way, and that they had learned a lot. Many participants also said that they wanted to incorporate what they learned in the e-learning program into their own classes.

## DISCUSSION

This study had some limitations that should be considered when interpreting the findings. First, it did not address the individual needs of newly appointed nursing faculty members. In the future, it is desirable to identify specific needs and problems of newly appointed nursing faculty members and develop research and educational programs that focus on these. Second, the Learning Program for New Faculty Members used in this study was open to the public and could be viewed by anyone. Cross-contamination could therefore threaten the study’s internal validity. We excluded potential participants who had already taken the Learning Program for New Faculty Members or a similar program, but it was not possible to prohibit the control group from accessing the program during the study period. Last, participation in this study was voluntary. It is therefore possible that only nursing faculty members with a high level of interest in basic nursing education participated. The results may therefore not be generalizable to newly appointed nursing faculty members with lower levels of interest in basic education.

### *Effects of the online Learning Program for New Faculty Members on the acquisition of knowledge about educational practices*

This study examined the effects of taking the online Learning Program for New Faculty Members on the acquisition of knowledge about educational practices. Overall, the results indicate that the program was effective in enabling new faculty members to acquire knowledge about educational practice.

Item 1 in Table 3, “Student Understanding and Support”, is essential knowledge in educational practice.<sup>17</sup> In nursing science, teachers’ understanding of students is relevant to nurses’ understanding of patients.<sup>18</sup> Yamashita stated that in teaching nursing practice, understanding students’ behaviors and experiences will lead to intentional involvement, which will effectively support students in achieving their practice goals.<sup>19</sup> It is therefore important for newly appointed nursing faculty members to know about student understanding and support to help their students to learn effectively and understand what they are learning.

Item 2 in Table 3, “Syllabus and Class Design”, was designed to help newly appointed nursing faculty members to learn methods of designing classes. The free descriptions in the pre-test survey suggested that the research participants had few opportunities to learn how to design a 90-minute class. They often spent a considerable amount of time designing their classes, but they were not confident about the quality, making comments like, “I am not sure whether this is good enough”.

The post-test questionnaires showed that the participants felt that they had learned a lot by systematically and practically learning the significance of syllabi, how to create them, what to

keep in mind when creating them, and how to design classes. They planned to make use of this learning in their lectures and labs. A study by Osawa on the learning needs of nursing research associates found that the most commonly selected categories in the survey were “knowledge and skills required to develop classes for each type of class”, “necessary to develop classes that enhance student learning”, and “knowledge and skills category”.<sup>20</sup>

Imoto and Kaneko studied nursing teachers’ competencies and workplace support by years of experience and found that new nursing teachers felt deficient in educational practice skills, communication skills, and management skills, of the five competencies required of nursing teachers.<sup>21</sup> Our results are consistent with these previous studies.

The content of the Learning Program for New Faculty Members therefore meets the learning needs of newly appointed nursing faculty. Even those working outside universities found it helpful to understand the necessity, use, and basic content of a comprehensive syllabus to enable them to design appropriate classes. The participants also found it helpful to have specific methods, procedures, and design sheets for designing a 90-minute class.

Item 4 in Table 3 was about understanding educational theory and its significance. Smith and Liehr stated that “every discipline has its own focus that directs research in the field, distinguishes it from other disciplines, and develops knowledge”.<sup>22</sup> Educational theories taught in the Learning Program for New Faculty Members can help newly appointed nursing faculty members to design and self-evaluate classes. This is relevant to using nursing theory to reflect personal nursing practice. We consider that the newly appointed nursing faculty members in this study develop by recognizing that the program provides value because its contents can be understood and used in the future.

#### *Responding to the constraints on newly appointed nursing faculty members*

Newly appointed nursing faculty members had not participated in off-campus training very often. This may reflect limitations on their time, or the constraints imposed by their workload.

The pre-test questionnaire showed that the average number of times participants attended off-campus training was 3.7, compared with 6.3 times for on-campus development. This shows that off-campus training sessions, which are limited by location and date, are likely to be attended on a one-off basis. However, participants only attended on-campus faculty development sessions about once every 2 months. It may be difficult for newly appointed nursing faculty members to participate in long-term, venue-based training because of time and space constraints. The online Learning Program for New Faculty Members used in this study was therefore perhaps particularly suitable for the study participants. In addition, approximately 80% (79.4%) of the participants were in their 30s or 40s. A survey showed that approximately 50% of this age group use computers, and approximately 80% use smartphones.<sup>23</sup> People in these age groups are therefore accustomed to using digital devices to obtain information. The program used in this study can be viewed on both computers and smartphones. No research was found on the internet environment of each university or newly appointed nursing faculty members. However, it seems likely that the participants were well prepared for the course, including the use of the internet environment and digital devices. Scollin noted that “it is important to be able to use online resources and to receive support for connection and stress-free use”.<sup>24</sup> In this study, the participants were given procedural instructions on how to connect and use the educational program along with its URL before the survey. The program was also easy to use because participants only had to click on the content they wished to view. There were therefore unlikely to be any major difficulties related to ease of use. In response to the spread of the internet and the diversity of society, educational methods are changing in various ways, and an increasing number of universities are allowing students to obtain degrees by taking courses online. The effectiveness

of online education has also been examined in nursing colleges.<sup>25</sup> It therefore seems likely that online learning programs are extremely suitable for newly appointed nursing faculty members with high time and space constraints.

#### *Impact on educational practice ability of newly appointed nursing faculty members*

There was no statistically significant difference between the intervention group and the control group in implementation of lectures and exercises after the intervention. According to Natsume et al, teaching skills need refinement through trial and error in actual educational activities.<sup>15</sup> This skill may therefore not be acquired solely through online sessions. It is expected that repeated lecture and lab practices following this program will improve participants' competency and confidence in this area.

## CONCLUSION

This study demonstrated the effectiveness of an online learning program to enable newly appointed nursing faculty members to acquire knowledge on educational practice. The program used in this study, the Learning Program for New Faculty Members, was effective in supporting knowledge acquisition on "Student Understanding and Support", "Syllabus and Class Design", and "Understanding of Educational Theories". However, it was less effective on "Conducting Class". The online course can be taken anytime and anywhere, enabling it to overcome time and space constraints. In the future, researchers should create training programs on nursing that can be tailored to meet individual learning needs.

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## DISCLOSURE STATEMENT

The authors have no conflicts of interest to declare.

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