Evaluation of the first Accelerated Bachelor of Science in Nursing program as a second career in Japan

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ABSTRACT

Background: The first Accelerated Bachelor of Science in Nursing (ABSN) program with a two-year educational period in Japan was developed in a nursing university in Tokyo in 2017 (i.e., 2017-ABSN two-year program or designated as program 1) for individuals aiming to pursue nursing as a second career. It replaced program 2, the second-year bachelor's degree transfer program which is a three-year program implemented from 1997 to 2016. The original and currently on-going four-year undergraduate Bachelor of Science in Nursing (BSN) is designated as program 3.
Objective: To evaluate the 2017-ABSN two-year program from learners' perspective.
Methods: We used a case-control study design. As cases, the subjects were third-year bachelor's degree transfer students of program 1 at the nursing university in Tokyo. As controls, second-year bachelor's degree transfer students of program 2 and four-year undergraduate students of program 3 in the same university were given a questionnaire when they graduated. The survey items were grouped into five scales: (1) *The education you are receiving*, (2) *Studying nursing*, (3) *Stress level*, (4) *The highest score on the national nursing examination practice test*, and (5) *The vocational commitment*. The mean score of each item was calculated and comparisons were conducted using the Mann Whitney test.
Results: Responses from 77 students (program 1), 23 students (program 2), and 133 students (program 3) were analyzed. The program 1 students had a significantly lower mean score on (1) *The education you are receiving* item "*There is time for preparation and review*" ($p = 0.01$). The program 1 students had a significantly lower score on (2) *The studying nursing* item "*I can get the job (role) I want*" ($p = 0.01$). The program 1 students had a significantly higher score on (4) *The best score in the national nursing examination practice test* ($p = 0.01$).
Conclusion: Shortening the academic period to two years in program 1 had no effect on the knowledge base of the students. However, the program 1 students had a significantly lower score in their identity as a nurse. It is often difficult to acquire a new nursing culture in a short period from a previous culture that has already been mastered. Educators need to fully understand the characteristics of learners and provide them with individual-ized and professional guidance to further improve their skills.

1. Introduction

With employment uncertainty, people have become increasingly interested in more secure jobs. Nursing has even more attracted attention as one of the more secure career paths and has drawn an increasing number of people applying to nursing colleges (Glerean et al., 2019). In addition, the aging population, expansion of regional healthcare systems, increasing specialization of medical departments, and shortening of hospital stays in facilities continue to spur a shortage of nursing professionals (Marć et al., 2019). In Japan, the number of Bachelor of Science in Nursing Programs (BSN programs) has markedly increased in recent years. Currently, there are 275 nursing-related universities and 290 courses in Japan (JANPU, 2021). As for graduate schools, 196 universities have a master's program and 108 universities have a doctoral program in nursing, and these universities continue to develop highly specialized professionals, educators, and researchers (JANPU,

2021).

1.1. Curricular initiatives and challenges

In 2009, the number of nurses and assistant nurses was approximately 1,349,000. It is estimated that this number will increase to approximately 1,918,000 in 2025 (JNA, 2021). In 2017, a leading international nursing university in Tokyo launched a new third-year bachelor's degree transfer program called Accelerated Bachelor of Science in Nursing (ABSN) program (referred herein as **program 1**). This program accepts students with a bachelor's degree in fields other than nursing as third-year transfer students. Since 1997, the university has initially offered a second-year bachelor's degree transfer program (referred herein as **program 2**), which allows students to qualify for the national nursing examination after three years of nursing education. This initial program started in 1997 was designed for those who wish to pursue nursing as a second career as second-year bachelor's degree transfer students. Since the start of this program in 1997, various issues have become apparent. This has led to the recent creation of the ABSN two-year program in 2017 (i.e., program 1) after 20 years. The original and currently on-going four-year undergraduate Bachelor of Science in Nursing (BSN) is designated as **program 3**.

Over the years, some challenges related to the curriculum of program 2 became apparent. Noticeably, the sequence of courses in the initial year of the second-year bachelor's degree transfer students was not taken into consideration compared with that of the usual first-year undergraduate students. There were fewer courses in the fourth year of enrollment for the second-year bachelor's degree transfer students which is the final year of the curriculum than the many courses in the overcrowded curriculum in their first year of enrollment. Moreover, there was a gap of more than six months between the last nursing practice and employment. In addition, the revision of Article 21 of the Public Health Nurses Midwives and Nurses Act (Act on Public Health Nurses, Midwives, and Nurses, originally promulgated in 2010) no longer stipulates three years of education for nurses at universities since 2010. This paved the way for the change of the original program 2 to the new program 1.

1.2. Creation of the 2017-ABSN two-year program

The new program 1 features a specially organized curriculum, integration of class subjects, sequential blending of lectures and practical training in a short period of time, active learning methods, use of e-learning, and assignment of course-specific faculty. In the U.S., the first ABSN program was planned and designed by Saint Louis University in 1971. Although there are various nursing programs in the U.S., their ABSN program that began in 1971 is considered a stable workforce development program. The ABSN program in the U.S. qualifies students with a non-nursing bachelor's degree to become licensed nurses by completing an 11–18-month nursing curriculum. A total of 274 ABSN programs were approved in the Fall 2016 enrollment in the U.S. (AACN, 2017). The ABSN program in the U.S. requires intensive learning in a short period, full-time commitment, high academic skills, and extensive clinical practice time (Brandt et al., 2015). Notably, the Institute of Medicine and Robert Wood Johnson Foundation set a goal to increase the percentage of baccalaureate-prepared nurses to 80% by 2020 (Kramlich et al., 2020). Aside from the U.S., several countries have developed similar programs. The Taiwan ABSN program resembles the U.S. ABSN program. It is intended for individuals who have demonstrated the ability to succeed at the college level and have already earned a bachelor's degree in a field other than nursing. The development of Taiwan's ABSN program is relatively new, with launching in 2016 at four universities (Yang et al., 2019).

Millett et al. (2015) studied 81 ABSN programs across the U.S. to determine what kind of students succeed in the programs. Interestingly, they showed that rather than a first-degree specialization in the

biological sciences, high motivation, commitment to nursing, suitability of one's values to nursing, and fitness of one's personal characteristics to nursing play a more significant role in succeeding. Previous studies (Kemsley et al., 2011) in the US that qualitatively analyzed the learning experience have been conducted to examine how to improve and make teaching and learning methods more effective. Many new graduates from ABSN programs reportedly lacked confidence in their abilities, particularly regarding organization, technical skills, and medication administration (Wiersma et al., 2020). These previous studies also looked into how nurses educated in these ABSN programs experience their nursing careers beyond the first two years, and showed that ABSN-educated nurses are well socialized in the nursing profession and experience a high degree of job satisfaction and intent to stay in the profession. However, no such studies on ABSN education have been conducted in Japan to date.

1.3. Curriculum content of the accelerated learning program

The curriculum of program 1 was specially designed so that the course subjects can be studied evenly over two years. This design is implemented to alleviate overcrowding of the curriculum in the initial year and to prevent loss of motivation to learn in the final year if the number of required subjects selected is small. In contrast, the curriculum of program 2 has been mostly joint classes with undergraduate students. However, to maintain the order of learning, the second-year bachelor's degree transfer students are taught in separate classes. To improve the efficiency of learning, the curriculum of program 1 is designed so that students can learn theory in the classroom, followed by practice, and then move on to practical training. Active learning, which is effective in adult learner theory, is also frequently used. Through group work, teaching methods have been developed to enable active and independent learning. By integrating the class subjects in the curriculum of program 1, a timetable could be created to distribute the classes more efficiently by integrating several subjects in the area of fundamental nursing as well as integrating adult nursing practice and gerontological nursing practice.

1.4. Objectives

This study aimed to evaluate the teaching and learning contents of the recently developed program 1 for third-year bachelor's degree transfer students in Japan from the perspectives of learners. It also aimed to identify differences in the self-evaluation of the teaching and learning contents among students of program 1, program 2, and program 3.

2. Methods

2.1. Study design, programs, and subjects

A case-control study was used as research design. As cases, the subjects were third-year bachelor's degree transfer students of program 1 at a nursing university in Tokyo. As controls, second-year bachelor's degree transfer students of program 2 and fourth-year undergraduate students of program 3 in the same university were given a questionnaire when they graduated. All program 1 students (maximum of 30 students per academic year), program 2 students (maximum of 20 students per academic year), and program 3 students (maximum of 100 students per academic year) who graduated in the academic years 2018, 2019, and 2020 were targeted for recruitment. At the time of recruitment, 81 transfer students who agreed to participate were asked to complete a questionnaire on basic characteristics such as their employment status and major at their previous university. The completed questionnaire could be obtained from 77 students at graduation. Our research assistants recruited students at the time of graduation, conducted information sessions on research cooperation via e-mail, and distributed the

questionnaires directly or conducted web surveys.

2.2. Survey scales and their items

The survey scales, their items and scoring were as follows:

Scale 1 *The education you are receiving* (18 items)
(Possible responses: 1 = Strongly disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, and 5 = Strongly agree)
Scale 2 *Studying nursing* (10 items)
(Possible responses: 1 = Strongly disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, and 5 = Strongly agree)
Scale 3 *Stress level* (1 item)
(10-point scale: 1 point = no stress, 10 points = strong stress)
Scale 4 *The best score on the national nursing examination practice test*
(Maximum score = 300 points)
Scale 5 *The vocational commitment scale* (18 items)
(Possible responses: 1 = Strongly disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, and 5 = Strongly agree) (Sato et al., 2015).

Scale 1 and Scale 2 are the scales that were used in a previous study by Oku (2012). Their content validity has already been confirmed. Scale 3 is the numerical rating scale that a person rates their stress on a scale of 0 to 10. Zero means "no stress," and 10 means "the worst stress." Scale 4 shows the results of the highest scores in the practice tests taken several times in 4th grade. Scale 5 is the Occupational Commitment Scale (OCS) which originally developed by Meyer et al. (1993) for nursing students and nurses. In this study, we used the Japanese version of the OCS, which has been validated for reliability and validity by Sato et al. (2015).

2.3. Statistical analysis and ethical consideration

Descriptive statistics were used for the basic attributes. The Kruskal-Wallis test was used to compare the mean score of each item. IBM SPSS Statistics 19 was used for statistical analysis. This study was approved by the Ethics Committee of the university (Approval No. 17-A011).

3. Results

The characteristics of the program 1 students at enrollment are shown in Table 1. A total of 81 participants were recruited, of whom 77 responded to the questionnaire survey at graduation.

The average age of the students in program 1 was 30.1 years (minimum 22, maximum 50), and nearly 80% of them had work experience. Most of these students majored in the social sciences at the university they graduated from. The majority of these students had less than five years of experience from the time they graduated from their previous university to the time they enrolled to the university in this study.

Responses from 77 third-year bachelor's degree transfer students (program 1 students), 23 s-year bachelor's degree transfer students (program 2 students), and 133 fourth-year undergraduate students (program 3 students) were included in the analysis. The results of the three-group comparison of the group 1 students (cases) with the group 2 students and group 3 students (controls) are shown in Tables 2–5.

3.1. Survey items for Scale 1 The education you are receiving (Table 2)

The 2017-ABSN students had significantly lower mean scores for two out of the 18 items in **Scale 1 *The education you are receiving*** as follows: "*There is an atmosphere where you can freely express your opinions*" (program 1 students 3.67; program 2 students 4.17; program 3 students 3.99; *p* = 0.03) and "*There is time for preparation and review*" (program 1

Table 1
Characteristics of 2017-ABSN students at enrollment (*n* = 81).

		n	%
Gender	Male	6	7.4
	Female	75	92.6
Work experience	Yes	62	76.5
	No	19	23.5
Job description	Administrative occupations	5	6.2
	Professional and technical occupations	11	13.6
	Administrative occupations	23	28.4
	Sales occupations	7	8.6
	Service occupations	11	13.6
	Production process occupations	1	1.2
	Transportation and mechanical operation	1	1.2
	Other	1	1.2
	N/A	21	26
Number of years between graduation from the previous university and enrollment	<5 years	40	49.4
	6–10 years	20	24.7
	11–15 years	9	11.1
	16–20 years	4	4.9
	>20 years	6	7.4
		2	2.5
Majors at the university where the student graduated from	Humanities	17	21
	Social sciences	21	25.9
	Science	3	3.7
	Engineering	1	1.2
	Agricultural science	4	4.9
	Health sciences	1	1.2
	Education	6	7.4
	Domestic sciences	2	2.5
	Art	1	1.2
	Other	21	25.9
	N/A	3	3.7

2017-ABSN students: third-year bachelor's degree transfer students.
ABSN: Accelerated Bachelor of Science in Nursing.
N/A: Not applicable.

students 2.98; program 2 students 3.22; program 3 students 3.43; *p* = 0.01).

3.2. Survey items for Scale 2 Studying nursing (Table 3)

The program 1 students had significantly lower mean scores for two out of the 10 items in **Scale 2 *Studying nursing*** as follows: "*I can get the job (role) I want*" (program 1 students 3.67; program 2 students 4.17; program 3 students 4.01; *p* = 0.01) and "*I am proud to be a student of nursing*" (program 1 students 3.86; program 2 students 4.48; program 3 students 4.09; *p* = 0.01).

3.3. Survey items for Scale 3 Stress level and Scale 4 The best score in the national nursing examination practice test (Tables 4 and 5)

There was no significant difference in the stress level between the program 1 students and the program 3 students and program 2 students (*p* = 0.07) (Table 4). However, the program 1 students had a significantly higher mean score for *The best score in the national nursing examination practice test* out of 300 points (program 1 students 221.0; program 2 students 183.6; program 3 students 193.2; *p* = 0.01) (Table 5).

3.4. Survey items for Scale 5 The vocational commitment scale (Table 6)

There was a significant difference in the mean score for the item "*I dislike being a nurse*," with the program 1 students showing the highest mean score (program 1 students 1.96; program 2 students 1.48; program 3 students 1.90; *p* = 0.048). On the other hand, the mean score for the following items were significantly lower in the program 1 students than

Table 2

Scale 1: The education you are receiving.

		2017-ABSN students (Program 1) (*n* = 77)		1997-ABSN students (Program 2) (*n* = 23)		BSN students (Program 3) (*n* = 133)		*p*-Value
		Mean	SD	Mean	SD	Mean	SD	
1	I think I am learning to repeat what I already know.	3.39	0.94	3.39	0.99	3.64	0.84	0.11
2	I have a desire to learn more deeply	4.23	0.54	4.17	0.89	4.17	0.67	0.86
3	I tend to memorize rather than think	3.35	0.79	3.09	0.85	3.34	0.86	0.29
4	I have opportunities to talk privately with faculty members	3.68	0.89	3.65	0.98	3.59	1.07	0.96
5	I have opportunities to talk with faculty members about nursing	3.74	0.94	3.96	0.93	3.76	0.93	0.68
6	The faculty members treat me as an adult	4.09	0.93	4.30	0.82	4.11	0.73	0.38
7	**There is an atmosphere where you can freely express your opinions**	**3.67**	**0.95**	**4.17**	**0.72**	**3.99**	**0.80**	**0.03**
8	Manners and rules are respected	3.93	0.75	3.91	1.12	3.98	0.68	0.93
9	Adequate facilities (study space, supplies, books, etc.)	3.68	0.98	3.83	0.89	3.87	0.76	0.50
10	**There is time for preparation and review**	**2.98**	**0.92**	**3.22**	**0.74**	**3.43**	**0.79**	**0.01**
11	I am an active learner	3.77	0.76	3.74	0.62	3.58	0.72	0.16
12	I am a passive learner	3.04	0.73	3.26	1.18	3.30	0.79	0.07
13	The learning experience meets my expectations	3.56	0.87	3.65	0.65	3.59	0.73	0.89
14	Every day is fulfilling	3.96	0.89	3.96	0.77	4.02	0.71	0.94
15	The level of difficulty of the content is appropriate to my level	3.68	0.74	3.83	0.65	3.86	0.87	0.20
16	My clinical supervisor treats me as an adult	3.60	1.02	3.78	0.80	3.91	0.77	0.12
17	I feel comfortable talking to my clinical supervisor	3.28	1.01	3.57	1.04	3.26	1.04	0.51
18	I have had a moving experience when interacting with patients	4.07	0.80	3.91	1.00	4.09	0.87	0.67

Possible responses: 1 = Strongly disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly agree.
Kruskal-Wallis.
ABSN: Accelerated Bachelor of Science in Nursing.
BSN: Bachelor of Science in Nursing.
SD: Standard deviation.
2017-ABSN students: third-year bachelor's degree transfer students (Program 1).
1997-ABSN students: second-year bachelor's degree transfer students (Program 2).
BSN students: four-year undergraduate students (Program 3).
Bold means the items of significant difference of the three groups.

Table 3

Scale 2: Studying nursing.

		2017-ABSN students (Program 1) (*n* = 77)		1997-ABSN students (Program 2) (*n* = 23)		BSN students (Program 3) (*n* = 133)		p-Value
		Mean	SD	Mean	SD	Mean	SD	
1	It fits my personality to learn about nursing	3.75	0.87	3.78	0.80	3.90	0.84	0.41
2	It suits my interests to learn about nursing	4.00	0.91	4.39	0.66	4.08	0.71	0.11
3	I can make use of my abilities	3.60	0.90	3.65	0.71	3.86	0.78	0.12
4	I can make the most of my strengths and specialties	3.61	0.92	3.61	0.99	3.77	0.86	0.49
5	**I can get the job (role) I want**	**3.67**	**0.87**	**4.17**	**0.72**	**4.01**	**0.76**	**0.01**
6	I can create the kind of life I want	3.70	0.87	4.04	0.77	3.80	0.82	0.35
7	**I am proud to be a student of nursing**	**3.86**	**0.95**	**4.48**	**0.59**	**4.09**	**0.87**	**0.01**
8	If I could study nursing again, I would choose it again	3.51	1.02	3.78	0.85	3.36	1.16	0.31
9	I would choose the nursing profession even if I could earn the same salary in another profession	3.44	0.95	3.61	0.78	3.34	1.07	0.66
10	I would like to have a career in nursing	3.91	0.76	4.35	0.71	3.95	0.96	0.08

Possible responses: 1 = Strongly disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly agree.
Kruskal-Wallis.
ABSN: Accelerated Bachelor of Science in Nursing.
BSN: Bachelor of Science in Nursing.
SD: Standard deviation.
2017-ABSN students: third-year bachelor's degree transfer students (Program 1).
1997-ABSN students: second-year bachelor's degree transfer students (Program 2).
BSN students: four-year undergraduate students (Program 3).
Bold means the items of significant difference of the three groups.

in the program 2 students and program 3 students: "*I have put so much into my nursing career that I am not sure I want to change it now*" (program 1 students 2.70; program 2 students 3.48; program 3 students 3.17; p = 0.01), "*It would be difficult for me to change my occupation at this time*" (program 1 students 2.77; program 2 students 3.43; program 3 students 3.41; *p* = 0.001), "*If I were to change professions, I think my life would be in a confusing situation*" (program 1 students 2.40; program 2 students 2.87; program 3 students 3.00; *p* = 0.001), "*Changing my occupation at this time would be a financial burden for me*" (program 1 students 3.12; program 2 students 3.74; program 3 students 3.41; *p* = 0.03), and "*I would have to make a significant personal sacrifice to change professions at this time*" (program 1 students 2.77; program 2 students 3.35; program 3 students 3.32; p = 0.001).

Table 4

Scale 3: Stress level.

	n	Mean	SD	p-value
2017-ABSN students (Program 1)	77	4.88	2.90	
1997-ABSN students (Program 2)	23	3.67	2.63	0.07
BSN students (Program 3)	133	5.02	2.41	

Kruskal-Wallis.

ABSN: Accelerated Bachelor of Science in Nursing.

BSN: Bachelor of Science in Nursing.

SD: Standard deviation.

2017-ABSN students (Program 1): third-year bachelor's degree transfer students.

1997-ABSN students (Program 2): second-year bachelor's degree transfer students.

BSN students (Program 3) : four-year undergraduate students.

Table 5

Scale 4: The best score in the national nursing examination practice test.

	n	Mean	SD	p-Value
2017-ABSN students (Program 1)	77	221.0	32.7	
1997-ABSN students (Program 2)	23	183.6	28.6	0.01
BSN students (Program 3)	133	193.2	36.6	

Kruskal-Wallis.

ABSN: Accelerated Bachelor of Science in Nursing.

BSN: Bachelor of Science in Nursing.

SD: Standard deviation.

2017-ABSN students: third-year bachelor's degree transfer students (Program 1).

1997-ABSN students: second-year bachelor's degree transfer students (Program 2).

BSN students: four-year undergraduate students (Program 3).

4. Discussion

In the comparison between the program 1 students (cases) and the program 2 students and program 3 students (controls), there was no significant difference in the mean scores of the *Stress level* among the three groups of students. However, the program 1 students showed significantly lower mean scores in the **Scale 1 *The education you are receiving*** items "*There is an atmosphere where you can freely express your opinions*" and "*There is time for preparation and review*", suggesting that they felt more constrained by the short time frame of two years. These results are consistent with previous studies in the U.S. which found that ABSN students scored significantly lower in the item "*I feel that I am able to ask the questions I want compared with students in traditional programs*" (Payne, 2013). In addition, because of the wide age range of the students, some students may find it difficult to keep up with the fast pace of learning and to maintain enough time to prepare and review. The results suggest that the program 1 students felt the time constraints of the two-year academic period more strongly. Previous studies have shown that in the U.S., teachers and peers are perceived as being the most significant source of support during the learning process in ABSN programs (Cangelosi, 2007; Kemsley et al., 2011). Kramlich et al. (2020) conducted a cohort study to introduce strategies for promoting the success of academically at-risk accelerated Bachelor of Science in Nursing students. The program consisted of a specific strategy wherein the student and faculty collaboratively developed a remediation plan to modify habits, with mutually agreeable checkpoints as needed to monitor progress. Other previous studies (Jeffreys, 2015; Freeman and All, 2017) described the influence of mitigating factors, placing students at risk of delayed or interrupted program progression.

Thus, it is important to create an environment that encourages students to respond positively to the challenges they face (e.g., academic and financial burdens) and to support them in building a network of

Table 6

Scale 5: The vocational commitment scale.

		2017-ABSN students (Program 1) (n = 77)		1997-ABSN students (Program 2) (n = 23)		BSN students (Program 3) (*n* = 133)		
		Mean	SD	Mean	SD	Mean	SD	p-value
1	Nursing is important to my self-image	3.49	0.89	3.61	0.72	3.76	0.81	0.11
2	I regret my choice of nursing as a career	1.98	0.81	1.83	0.78	2.19	0.92	0.09
3	I am proud to be in the nursing profession	3.65	1.06	4.13	0.55	3.97	0.74	0.13
4	**I dislike being a nurse**	**1.96**	**1.00**	**1.48**	**0.67**	**1.90**	**0.80**	**0.048**
5	I do not have an identity as a nurse	2.54	0.98	2.30	0.93	2.42	0.90	0.71
6	I am passionate about nursing	3.30	1.03	3.52	0.67	3.32	0.95	0.89
7	**I have put so much into my nursing career that I am not sure I want to change it now**	**2.70**	**1.12**	**3.48**	**0.99**	**3.17**	**0.99**	**0.01**
8	**It would be difficult for me to change my profession at this time**	**2.77**	**1.05**	**3.43**	**1.47**	**3.41**	**1.14**	**0.00**
9	**If I were to change professions, I think my life would be in a confusing situation**	**2.40**	**1.00**	**2.87**	**1.32**	**3.00**	**1.13**	**0.00**
10	**Changing my occupation at this time would be a financial burden for me**	**3.12**	**1.23**	**3.74**	**1.57**	**3.41**	**1.09**	**0.03**
11	There is no pressure that would discourage me from changing my profession	3.37	0.99	3.00	1.28	2.99	1.14	0.11
12	**I would have to make a significant personal sacrifice to change professions at this time**	**2.77**	**1.05**	**3.35**	**1.19**	**3.32**	**1.02**	**0.00**
13	I am convinced that a person trained for a particular profession has an obligation to remain in that profession for an appropriate period of time	2.46	1.15	2.74	1.01	2.81	1.15	0.15
14	I have no doubts about continuing in the nursing profession	3.05	0.99	2.91	1.28	2.84	1.03	0.49
15	I feel responsible for the nursing profession and intend to continue	3.40	0.86	3.57	1.04	3.31	1.04	0.57
16	I do not think it is right for me to leave nursing at this time, even if it is to my advantage	2.84	0.98	3.09	1.20	2.76	1.08	0.44
17	If I were to leave the nursing profession, I would feel guilty	2.40	1.03	2.65	1.27	2.54	1.12	0.65
18	I am in nursing because I am loyal to this profession	2.65	1.06	2.96	1.02	2.74	1.08	0.43

Possible responses: 1 = Strongly disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly agree.

Kruskal-Wallis.

ABSN: Accelerated Bachelor of Science in Nursing.

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2017-ABSN students (Program 1): third-year bachelor's degree transfer students.

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BSN students (Program 3): four-year undergraduate students.

Bold means the items of significant difference of the three groups.

teachers, relatives, friends, and classmates to whom they can turn to for help in the pursuit of their goal of becoming nurses in a shorter period.

In previous courses of program 2, the sequential system of classroom lectures, exercises, and practical training was not maintained despite making improvements at some points, and classes were scheduled jointly with undergraduate students, resulting in excessive coursework in the first year of transfer. On the other hand, program 1 has a number of noteworthy features such as a specially organized curriculum, integration of class subjects, sequential blending of lectures and practical training in a short period of time, active learning methods, and utilization of e-learning. The results showed no significant differences in the following items of Scale 1 ***The education you are receiving***: "*I tend to memorize rather than think*", "*I have a desire to learn more deeply*", "*I am an active learner*", and "*I am a passive learner*". In previous studies, blended learning has been shown to contain especially active learning approaches when compared with traditional methods. Thus, blended learning appears to be more effective than traditional methods in some cases (Posey and Pintz, 2017). On the other hand, other studies found no significant difference in learner performance (Mehrdad et al., 2011). The absence of a significant difference in some items of Scale 1 ***The education you are receiving*** in the present study may possibly be due to the proactive introduction of active learning in the traditional undergraduate education of previous universities where the transfer students came from. The theoretical underpinnings of flipped classroom teaching, including active learning strategies, allow students to become self-directed learners and develop skills to become lifelong learners (El-Banna et al., 2017).

The program 1 students had significantly lower mean scores than the program 2 students and program 3 students on the following items of Scale 2 ***Studying nursing***: "*I am proud to be a student of nursing*" and "*I can get the job (role) I want*". The mean score of the item "*I dislike being a nurse*" of Scale 5 ***The vocational commitment scale*** tended to be higher in the program 1 students. All these items are related to the development of identity as a nurse, suggesting the difficulty of adapting to a completely new nursing culture in a short period after a working experience. Program 1 students have diverse learning situations, with fast-paced and overscheduled learning styles. Some students were able to learn at a fast pace, whereas others were unable to move forward owing to their inability to adapt to nursing and medical learning. It was necessary to instill the nursing culture in them at a faster pace than usual, but the limited time frame may have made it difficult for them to develop a nursing identity.

Regarding the results of program 1 wherein students dislike being a nurse more than other students, they are able to succeed as they are likely more motivated to overcome the challenges of changing careers again because it is less difficult for them than for other students, especially if they have done it once.

In addition, the five items related to "changing occupation" of Scale 5 ***The vocational commitment scale*** suggest a low level of difficulty and resistance to changing occupations. Previous studies have shown that occupational commitment is affected by age and education; influences career turnover intention (Nogueras, 2006); affects turnover behavior and professional behavior (Meyer et al., 1993; Mehrdad et al., 2011); influences work motivation (Gambino, 2010); and is related to professional challenge and progression, job enjoyment, and self-efficacy for the profession (Cherniss, 1991). Rouse and Rooda (2010) reported higher attrition rates in ABSN students than in traditional entry-level nursing students in relation to both academic and nonacademic factors. Another study has reported conflicting findings as follows: based on 19 studies on attrition rates and/or success rates in their systematic review, Doggrell and Schaffer (2016) showed that the information available makes it unclear as to the attrition and/or success of international students in accelerated programs.

In their meta-analysis, Lee et al. (2000) reported that the higher the occupational commitment, the higher the job involvement and job satisfaction, and the lower the burnout and turnover intentions. Thus,

job commitment is an extremely important factor related to job retention and turnover. In recent years, the turnover of nurses has become a serious problem in Japan, not only from organizations but also from the nursing profession. Moreover, there is concern regarding the loss of valuable human resources. Implicit in much of the prior studies is that individuals who are more resilient will stay on the job. Enhancing the ability to stay in the course, even when the path becomes difficult and stressful, would require both the sustained effort characteristic of resilience and the consistent interest necessary for individuals to "stick". This is related to grit, which was described by Shukla (2017) as "the power of passion and perseverance". Another view is that grittiness develops in people who take pride in their work (McKibben, 2018). Therefore, to develop individuals who take pride in their work and are willing to put in sustained effort, it is necessary to encourage program 1 students to increase their vocational commitment in the future. In terms of the learning process, each student has a career to build on before entering the university. However, a nursing identity must be fostered at a much faster pace than usual and at a limited time frame. We believe that a certain period is necessary for students to transform their own experiences of what nursing means, as well as what it means to acquire clinical judgment skills to "think like a nurse". It is necessary to consider how to support these transformations during the second year. Moreover, it is necessary to further examine the depth of their awareness as professionals and how this awareness affects their career development after employment.

On the other hand, the score of Scale 4 ***The best score on the national nursing examination practice test*** of the program 1 students was significantly higher among the three groups of students. This suggests that knowledge-based learning among these students is sufficiently implemented. In addition, the program 1 students are highly motivated and they spend much time preparing for and reviewing their lessons. They also have a high level of self-learning ability and basic academic skills. These characteristics suggest that the program 1 students can achieve their learning goals in a shorter period. The same trends were shown by Youssef and Goodrich (1996) who reported that accelerated students showed consistently higher stress levels than traditional students. On the other hand, the accelerated group had significantly higher grade averages in nursing courses than the traditional students. Differences in the GPA and critical thinking ability (CTA) between traditional and accelerated students were also examined, showing that accelerated students had significantly higher GPAs than traditional students. Everett et al. (2013) reported that Austrian students who were enrolled in the graduate-entry program were more likely to report using Peer Learning, Help-Seeking, and Critical Thinking as learning strategies compared with those enrolled in the standard-entry program ($p < 0.001$).

In the future, we aim to follow up program 1 graduates to determine if they would like to further pursue graduate education and become advanced nursing practitioners, researchers, or administrators.

This study had some limitations. First, the sample size was small, which decreases the likelihood of detecting potential differences. Second, the recruitment period was limited. Finally, the generalizability of the findings is limited owing to the limited study area and small sample size. Despite these limitations, we believe that the key factors for the success of program 1 were the flexible support that matches the learning pace of each student and not a routine response.

5. Conclusion

The present findings revealed that although shortening the academic period of the ABSN program to two years had no effect on the knowledge base of ABSN students as reflected in their test scores, the two-year period may have affected other aspects of the students such as the development of their identity as a nurse and the cultivation of a nursing culture. For students who aim to pursue nursing as a second career, this rapid learning program is a process of "acquisition and loss", and it is occasionally difficult for them to acquire a new nursing culture from the

previous culture that they have already mastered. It is necessary for educators to fully understand the characteristics of learners and provide them with clear and professional guidance to further improve their strengths. In the future, new aspects and issues of ABSN graduates will be analyzed to elucidate their performance after graduation and ways to further improve the program.

CRediT authorship contribution statement

Aya Saitoh: Conceptualization, Formal analysis, Methodology, Software, Writing – original draft. **Kana Shimoda:** Methodology, Supervision, Validation, Visualization. **Ai Kawabata:** Methodology, Supervision, Validation, Writing – review & editing. **Hiromi Oku:** Formal analysis, Software. **Shigeko Horiuchi:** Funding acquisition, Supervision, Validation, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no conflicts of interest associated with this study.

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