

Clarification of Self-Motivated Learning Behaviors among Undergraduate Nursing Students in Japan

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ABSTRACT

Aim : To clarify specific contents regarding self-motivated learning behaviors among undergraduate nursing students in Japan.

Methods : Twenty-three nursing students participated in semistructured interviews. Data were analyzed with descriptive qualitative methods.

Results : A total of 273 codes related to self-motivated learning behaviors were received and were divided into 19 categories and 66 subcategories. The 19 categories were : “utilize teaching material to consolidate knowledge and support skills,” “secure time for essential learning,” “participate actively for deeper learning in class,” “practice to obtain support skills,” “consult educational materials independently to provide good care,” “make effective use of support from others to provide good care during practicums,” “seek others’ opinions to provide good care during practicums,” “obtain information in advance in preparation to adapt to the practical training environment,” “make effective use of support from others in preparation for regular examinations,” “consult educational materials independently in preparation for regular examinations,” “study effectively for regular examinations,” “make effective use of support from others in preparation for national examinations,” “consult educational materials independently in preparation for national examinations,” “study effectively for national examinations,” “learn to broaden your horizons every day,” “gather information from media and books for a deeper understanding of patients every day,” “actively seek out social experiences to enhance communication skills,” “gather information to make decisions about your career path,” “and discuss others’ opinions with them to understand their values.”

Conclusions : Nursing students practice autonomous learning behaviors founded on professional ethics and a sense of responsibility, in various contexts, to consolidate their skills, develop their understanding of patients, and plan their careers.

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INTRODUCTION

Regarding its plan to change the quality of university education, the Ministry of Education, Culture, Sports, Science and Technology has called for undergraduate curricula to encourage self-motivated learning¹. Efforts are underway to address problems related to college students' weakening sense of purpose and declining motivation. Such problems also challenge nursing education, despite courses for acquiring professional qualifications. The start of educational initiatives that guide students toward self-motivated learning is an urgent task for nursing schools². In particular, Japan's aging population, the increasing pace and complexity of medical care, and the diversification of health care systems will lead to a greater demand for nursing care that is suited to the specific function of each medical institution and for highly proficient practical nursing. In addition, to autonomously provide care during their professional careers, nursing students must acquire skills for continuous, self-motivated learning — a point of the nursing profession's Code of Ethics³.

Previous studies of self-motivated learning for undergraduate nursing students have been related to the educational methods used by educators and clinical mentors in clinical practicums, skills labs, and group work⁴⁻⁶. In these studies, methods used by instructors to be related to nursing students, to heighten their interest and awareness, and to make them aware of their growth have been investigated as ways to foster autonomy. In the future, investigating educational methods that promote autonomy will remain an essential need⁷. Tools used by previous studies to evaluate student autonomy have included the Need for Uniqueness Scale⁸, the Career Decision-Making Process Scale⁹, the Identity Scale¹⁰, the Child Self-Motivated Scale¹¹, and newly created questionnaires^{12,13}. However, none of these tools are suitable for evaluating the autonomy of nursing students. Appropriate tools remain in the exploratory stage of development⁷.

In basic nursing education, learning often takes place in small-group settings, such as the clinical practicum, skills labs, and other on-campus labs, and is often connected to the student's postgraduate career path and national examinations. The learning contexts and learning behaviors that characterize nursing students must be understood. Furthermore, to investigate which educational methods en-

courage autonomy in nursing students and to evaluate these methods, an appropriate scale must be developed to evaluate the students' degree of autonomy and self-motivated learning behavior. To develop such a scale, a clearer understanding of nursing students' behaviors during autonomous learning must be obtained.

Therefore, the aim of the present study was to clarify the contents of self-motivated learning behaviors among undergraduate nursing students in Japan. In this study, "self-motivated" is defined as "acting on one's own intentions and judgment," and "self-motivated learning behavior" is defined as "the behavior of students when they voluntarily engage in learning of their own will."

METHODS

Design

This study used a descriptive qualitative approach to explore self-motivated learning behaviors among undergraduate nursing students in Japan.

Interviewed students

Interviewed students were undergraduate nursing students attending a university; students were excluded if they had experienced full-time employment as an adult. Requests to participate in this research were sent to 30 universities randomly selected from among the 241 registered with the Japan Association of Nursing Programs in University. Nursing students were recruited from universities that had agreed to collaborate in our research as interviewed students. Members of the teaching staff at each university acted as points of contact and recruited interviewees by attaching posters to student notice boards.

Interview Procedure

Data were collected from the subjects via semistructured interviews conducted in Japanese from February 2015 through October 2016. Each interview was scheduled at a convenient time and place (at the student's university). The interview room was prepared by a university faculty member, who ensured that the student's privacy would be protected.

The interview guide asked students to recall times as college students when they had engaged in learning and felt that learning on their own was essential, along with the sit-

uation, motivation, and type of learning behaviors at that time. During each interview, the interviewer confirmed his or her understanding of the participant's words while being spoken and attempted to correctly understand the participant's statements. The interviews were recorded with an integrated circuit recorder, with each interviewee's permission. The duration of interviews had a mean value of 40.7 minutes and a range of 20 to 51 minutes.

Data Analysis

Data were analyzed with descriptive qualitative methods¹⁴. After transcripts of the recorded interviews were carefully read, specific self-motivated learning behaviors of the participants were identified via qualitative coding. All extracted data and codes related to each learning situation were assembled and compared to identify similar and different content areas. Codes with similar content were grouped to form subcategories, and subcategories with similar content were grouped into categories. Categories and subcategories were labeled with words that were believed, via discussion, to accurately describe the self-motivated learning behavior they contained. Data processing involved an inductive process of creating potential codes, labeling and clarifying the codes, and subsequently generating categories and constructive analysis. Further processes to refine the categories included comparing codes that were applicable to each category, integrating categories and their properties, and performing a thorough literature review. Members of the research team discussed these processes and selected categories and codes that best accounted for the results. To verify the confirmability of the findings, 2 experts in qualitative research were consulted on the accuracy, relevance, and meaning of the data.

Ethical Considerations

This study was approved by the Ethics Committee of The Jikei University School of Medicine for Biomedical Research 27-240 (8125) and 28-061(8304). First, we obtained consent to cooperate with the research from department manager of the university with which each participant was affiliated. Next, participants were informed of the purpose, procedures, and potential publication of this study, as well as their rights of refusal and confidentiality. In addition, they were informed that the contents of the interview would not be reflected in the results or disclosed to teach-

ers at their university. Written informed consent was obtained from participants ; we respected individuals' willingness to participate in order to avoid undue influence on the results caused by participants' concerns about their teachers' judgments.

RESULTS

Interviewed students Characteristics

Twenty-three nursing students, all of whom were women, were interviewed. They consisted of 4 freshmen, 1 sophomore, 6 juniors, and 12 seniors from 4 universities (Table 1).

Self-Motivated Learning Behaviors among Undergraduate Nursing Students

The results suggested 273 codes across the following learning scenarios : lectures/exercises, practical training, regular examinations, national examinations, and daily life. In total, 19 categories and 66 subcategories of self-motivated learning behaviors were identified (Table 2).

Table 1. Demographic Characteristics of Interviewed Nursing Students

| Student number | School year | University |
|----------------|-------------|------------|
| 1 | 1 | A |
| 2 | 1 | A |
| 3 | 1 | A |
| 4 | 4 | A |
| 5 | 4 | A |
| 6 | 4 | A |
| 7 | 1 | A |
| 8 | 3 | A |
| 9 | 3 | A |
| 10 | 3 | A |
| 11 | 4 | A |
| 12 | 4 | A |
| 13 | 2 | A |
| 14 | 4 | A |
| 15 | 3 | A |
| 16 | 3 | A |
| 17 | 3 | A |
| 18 | 4 | B |
| 19 | 4 | B |
| 20 | 4 | C |
| 21 | 4 | C |
| 22 | 4 | D |
| 23 | 4 | D |

Table 2. Self-Motivated Learning Behaviors among Undergraduate Nursing Students

| Lectures/Exercises scenario | |
|---|---|
| Categories | Subcategories |
| Utilize teaching material to consolidate knowledge and support skills | Organize class materials to consolidate knowledge |
| | View web materials to consolidate support skills |
| | Confirm class and textbook materials with friends to practice support skills |
| | Visualize skill procedures on your own to consolidate support skills |
| Secure time for essential learning | Spend time learning interesting subjects |
| | Spend time learning about the subjects of future courses |
| | Use free time to prepare and review |
| | Use free time to do class work |
| Participate actively for deeper learning in class | Take notes on important content in lectures/exercises |
| | Ask the teacher questions about content you did not understand in lectures/exercises |
| | Listen carefully during interesting classes |
| Practice to obtain support skills | Concentrate on practicing skills during class to pass skills tests |
| | Take advice from friends and practice skills to consolidate them |
| | Practice skills by role-playing as the patient/nurse with friends to consolidate support skills |
| | Practice skills with the help of family to consolidate support skills |
| Practical Training scenario | |
| Categories | Subcategories |
| Consult educational materials independently to provide good care | Conduct research on the Internet for a deeper understanding of subjects |
| | Conduct research at the library for a deeper understanding of subjects |
| | Review textbooks and class materials for a deeper understanding of subjects |
| | Review web and textbook materials relating to procedural skills to provide safe support to patients |
| | Carry out preliminary learning to prepare for practical training |
| Make effective use of support from others to provide good care during practicums | Consult instructing nurses and teachers for a deeper understanding of subjects |
| | Consult with other students for a deeper understanding of subjects |
| | Give opinions at practical conferences to understand subjects better |
| | Listen to others' opinions at practical conferences for a deeper understanding of subjects |
| | Observe and learn from care provided by nursing instructors and teachers to provide safe support to patients |
| Seek others' opinions to provide good care during practicums | Ask questions about nursing instructors' and teachers' support plans for patients to provide safe support to patients |
| | Listen to opinions from family and acquaintances for a deeper understanding of patients |
| Obtain information in advance in preparation to adapt to the practical training environment | Ask someone for an evaluation in order to reflect on your own communication skills |
| | Ask questions and consult with nursing instructors and teachers to adapt to the practical training environment |
| | Obtain information from senior colleagues and friends regarding practical training to get an idea of it in advance |

Regular Examinations scenario

| Categories | Subcategories |
|---|---|
| Make effective use of support from others in preparation for regular examinations | Exchange problems and confirm knowledge with friends in preparation for regular exams |
| | Ask friends about things you do not understand in preparation for regular exams |
| | Seek information from friends in preparation for regular exams |
| | Make a study plan with friends in preparation for regular exams |
| | Ask teachers questions in preparation for regular exams |
| Consult educational materials independently in preparation for regular examinations | Ask senior colleagues questions in preparation for regular exams |
| | Use the national exam questions to study for regular exams |
| | Research the things you do not understand at the library in preparation for regular exams |
| | Research the things you do not understand using the textbook in preparation for regular exams |
| | Research the things you do not understand using the Internet in preparation for regular exams |
| | Organize class materials in preparation for regular exams |
| | Memorize class materials in preparation for regular exams |
| Reread the textbook to help remember previously-learned content | |
| Study effectively for regular examinations | Use free time to study in preparation for regular exams |
| | Make a study plan in preparation for regular exams |
| | Summarize notes on prediction problems for regular exams |
| | Review the points that teachers have said are important in preparation for regular exams |

National Examinations scenario

| Categories | Subcategories |
|--|---|
| Make effective use of support from others in preparation for national examinations | Consult with teachers on study methods for the national exam |
| | Ask teachers about questions you do not understand in preparation for the national exam |
| | Exchange problems and confirm knowledge with friends in preparation for the national exam |
| Consult educational materials independently in preparation for national examinations | Research things you do not understand on the Internet in preparation for the national exam |
| | Participate in the National Examination Preparation Course in preparation for the national exam |
| | Use the National Exam Preparation Application |
| | Repeatedly solve the national exam problem collection |
| | Review the practice problems |
| Study effectively for national examinations | Make a study plan in preparation for national exams |
| | Summarize important notes in preparation for national exams |

Daily Life scenario

| Categories | Subcategories |
|--|--|
| Learn to broaden your horizons every day | Study in advance in preparation for overseas nursing training |
| | Learn English in preparation for overseas nursing training |
| Gather information from media and books for a deeper understanding of patients every day | Read the written experiences of others to understand the subject of nursing |
| | Watch television shows about medical care systems to understand the subject of nursing |

| | |
|--|---|
| Actively seek out social experiences to enhance communication skills | Work part-time within the medical care system to study nursing Join clubs and work part-time jobs to learn interpersonal skills |
| Gather information to make decisions about your career path | Gather information to make decisions about your career path |
| Discuss others' opinions with them to understand their values | Give opinions during group work to obtain insight into others' values Listen to others' opinions during group work to obtain insight into others' values |

Representative excerpts from the interviews are presented. To avoid identifying participants, these excerpts omit parts of some stories, and quotations that were difficult to understand are supplemented. The remainder of the results section consists of examples pertaining to each learning scenario and identified category, with an explanation of their contents.

Lectures/exercises situation. Material pertaining to this scenario comprised 4 categories : “utilize teaching material to consolidate knowledge and support skills,” “secure time for essential learning,” “participate actively for deeper learning in class,” and “practice to obtain support skills.”

The category “utilize teaching material to consolidate knowledge and support skills” comprised 4 subcategories : “organize class materials to consolidate knowledge,” “view web materials to consolidate support skills,” “confirm class and textbook materials with friends to practice support skills,” and “visualize skill procedures on your own to consolidate support skills.”

“When I was a first-year student, I did not expect that there would be so much class material, and I filed all of the materials from lessons appropriately into clear plastic folder. In my second year, I kept it for each subject and kept it for the first lesson. I manage to learn everything from the materials and reviewed the contents of the lesson.” (Student 4)

The category “secure time for essential learning” comprised 4 “subcategories” : “spend time learning interesting subjects,” “spend time learning about the subjects of future courses,” “use free time to prepare and review,” and “use free time to do class work.”

“I did assignments with my friends on vacant class hours as early as possible. Because I was not able to be

tired for extracurricular activities or part-time job after school, I always did assignments.” (Student 2)

The category “participate actively for deeper learning in class” comprised 3 subcategories : “take notes on important content in lectures/exercises,” “ask the teacher questions about content you did not understand in lectures/exercises,” and “listen carefully during interesting classes.”

“When I took nursing classes of critical care, I thought “How is this going?” and I studied critical care many times more than other subjects did. When I looked back at the notebooks and class materials of critical care, I memorized a lot of notes and my teacher’s words exactly.” (Student 8)

The category “practice to obtain support skills” comprised 4 subcategories : “concentrate on practicing skills during class to pass skills tests,” “take advice from friends and practice skills to consolidate them,” “practice skills by role-playing as the patient/nurse with friends to consolidate support skills,” and “practice skills with the help of family to consolidate support skills.”

“For technical exercises, I look at the print-outs that are distributed first, and I learn the procedure to a certain extent in this way. After this memorization process, if I can practice a few times, I have confidence that I can do it next time, so in class I am focused on practicing things.” (Student 7)

Practical training scenario. Material pertaining to the scenario of practical training comprised 4 categories : “consult educational materials independently to provide good care,” “make effective use of support from others to provide good care during practicums,” “seek others’ opinions to provide good care during practicums,” and “obtain

information in advance in preparation to adapt to the practical training environment.”

The category ***consult educational materials independently to provide good care*** comprised 5 subcategories : *conduct research on the Internet for a deeper understanding of subjects ; conduct research at the library for a deeper understanding of subjects ; review textbooks and class materials for a deeper understanding of subjects ; review web and textbook materials relating to procedural skills to provide safe support to patients ; and carry out preliminary learning to prepare for practical training.*

“There was a time when I had to write information in the charts of patients who had three diseases, and I got the feeling that I did not understand the meaning of all the material, so I referred to the relevant books and then told the instructor I felt like learning about this topic.” (Student 14)

The category ***make effective use of support from others to provide good care during practicums*** comprised 6 subcategories : *consult instructing nurses and teachers for a deeper understanding of subjects ; consult with other students for a deeper understanding of subjects ; give opinions at practical conferences to understand subjects better ; listen to others’ opinions at practical conferences for a deeper understanding of subjects ; observe and learn from care provided by nursing instructors and teachers to provide safe support to patients ; and ask questions about nursing instructors’ and teachers’ support plans for patients to provide safe support to patients.*

“If I have no knowledge of a patient’s illness, I will put the patient in a dangerous situation. So, when I studied about a patient’s illness and so on and did not understand, I consulted the teacher, consulted the nurse, and confirmed them at conference.” (Student 17)

The category ***seek others’ opinions to provide good care during practicums*** comprised 2 subcategories : *listen to opinions from family and acquaintances for a deeper understanding of patients ; and ask someone for an evaluation in order to reflect on your own communication skills.*

“When there is a patient who is suffering from dementia and cannot communicate easily, because of practice in gerontology, I know that communication is not possible, so nursing cannot be tailored to that person individually, as a nurse [normally] does. At that time, I did not know whether it was dementia or delirium, so I checked the difference in the textbook. In addition, because my grandfather began to suffer from dementia, I listened to how my own mother and other family members were taking care to communicate with him and thought about how to change the kinds of communication suggested by the hospital teacher, or devised new ones, in order to communicate better.” (Student 10)

The category ***obtain information in advance in preparation to adapt to the practical training environment*** comprised 2 subcategories : *ask questions and consult with nursing instructors and teachers to adapt to the practical training environment ; and obtain information from senior colleagues and friends regarding practical training to get an idea of it in advance.*

“It was common for me to listen to senior students. I think that experiences are tremendously important, so I asked them : ‘What do you do in a clinical practice setting?’ and ‘What kind of things are you doing?’” (Student 11)

Regular examinations. Material pertaining to the scenario of regular examinations comprised 3 categories : ***make effective use of support from others in preparation for regular examinations ; consult educational materials independently in preparation for regular examinations ; and study effectively for regular examinations.***

The category ***make effective use of support from others in preparing for regular examinations*** comprised 6 subcategories : *exchange problems and confirm knowledge with friends in preparation for periodic exams ; ask friends about things you do not understand in preparation for periodic exams ; seek information from friends in preparation for periodic exams ; make a study plan with friends in preparation for periodic exams ; ask teachers questions in preparation for periodic exams ; and ask senior colleagues questions in preparation for periodic exams.*

“I studied with my friends as much as possible, because I might have lost important information about examinations, for example, the teacher said this part will be made into a test.” (Student 4)

The category *consult educational materials independently in preparation for regular examinations* comprised 7 subcategories: *use the national exam questions to study for regular exams*; *research the things you do not understand at the library in preparation for regular exams*; *research the things you do not understand using the textbook in preparation for regular exams*; *research the things you do not understand using the Internet in preparation for regular exams*; *organize class materials in preparation for regular exams*; *memorize class materials in preparation for regular exams*; and *reread the textbook to help remember previously-learned content*.

“Before the exam, there were lots of lecture materials, so I summarized what is important in different papers, reviewed and used the red sheet to remember knowledge. When I could not understand, I research the textbooks and the Internet about them, and I summarized them.” (Student t 10)

The category *study effectively for regular examinations* comprised 4 subcategories: *use free time to study in preparation for regular exams*; *make a study plan in preparation for regular exams*; *summarize notes on prediction problems for regular exams*; and *review the points that teachers have said are important in preparation for regular exams*.

“Since I am not good at last-minute cramming, I was studying with my school steadily. Because my commuting time was very long, I had a lesson material, watched it and studied it on the train. I filled out my calendar about 1 month or 2 months ago and thought about my priorities and the examination schedule, allocated time to the lecture materials, and studied by giving priority to certain subjects, etc.” (Student 8)

“If the problem is not merely revising or if I am having trouble with a particular problem, I put the contents together in notebooks and on loose-leaf paper while using the class materials and textbooks, etc., and in

places where a term is likely to become a keyword, I write it in orange pen, and later I understand it.” (Student 9)

National examinations. Material pertaining to the scenario of national examinations comprised 3 categories: *make effective use of support from others in preparation for national examinations*; *consult educational materials independently in preparation for national examinations*; and *study effectively for national examinations*.

The category *make effective use of support from others in preparing for national examinations* comprised three sub-categories: *consult with teachers on study methods for the national exam*; *ask teachers about questions you do not understand in preparation for the national exam*; and *exchange problems and confirm knowledge with friends in preparation for the national exam*.

“If I read the reference book, I could not understand, I confirmed whether I truly understand with my friends. We asked each other questions.” (Student 5)

The category *consult educational materials independently in preparation for national examinations* comprised 5 subcategories: *research things you do not understand on the Internet in preparation for the national exam*; *participate in the National Examination Preparation Course in preparation for the national exam*; *use the National Exam Preparation Application*; *repeatedly solve the national exam problem collection*; and *review the practice problems*.

“I purchased past exam collections myself, bought a collection of anticipated questions, and I solved them so hard. I used the applications of anticipated questions and past exam questions. Between the trial test and the trial test, while I reviewed previous examination questions again, I reviewed the commentary.” (Student 10)

The category *study effectively for national examinations* comprised two sub-categories: *make a study plan in preparation for national exams*; and *summarize important notes in preparation for national exams*.

“I bought a national exam question collection early. I was raising my feeling of study by buying it. In April, May, and June, I got employment and practical training, so I solved it at my own pace. There was also a practice exam at the end of August, but I had a part-time job in August, so I planned to finish it from the beginning to the end at least once by the end of August.” (Student 5)

Daily life. Material pertaining to scenarios in daily life comprised 5 categories : *learn to broaden your horizons every day*; *gather information from media and books for a deeper understanding of patients every day*; *actively seek out social experiences to enhance communication skills*; *gather information to make decisions about your career path*; and *discuss others’ opinions with them to understand their values.*

The category *learn to broaden your horizons every day* comprised 2 subcategories : *study in advance in preparation for overseas nursing training* ; and *learn English in preparation for overseas nursing training.*

“I knew before enrolling in the school, from the school briefing session, that there was an overseas training program, and I was interested in overseas medical care and welfare, so I decided to take English elective courses from the first year onward. I took (the courses), went to English conversation classes, took the TOEIC (Test of English for International Communication), studied English, and I participated in 2 of 3 available overseas training programs while I was in college.” (Student 21)

The category *gather information from media and books for a deeper understanding of subjects every day* comprised 2 subcategories : *read the written experiences of others to understand the subject of nursing* ; and *watch television shows about medical care systems to understand the subject of nursing.*

“I read 2 books written by a sick person. These gave me insight into the perspective of a person who is actually sick. Because my feelings and patient’s feelings are different, it is difficult to keep the patient’s feelings

when I am nursing, but I thought that I should know them.” (Student 13)

The category *discuss others’ opinions with them to understand their values* comprised 2 subcategories : *work part-time within the medical care system to study nursing* and *join clubs and work part-time jobs to learn interpersonal skills.*

“I am happy to be able to use sign language. So, I joined the sign language club because I wanted to learn more, and I would like to talk with students of hearing impairments at the same university. I communicated with them positively.” (Student 22)

“Although I was able to do a part-time job in visiting nursing care, I was able to provide nursing skills for patient model doll and my friends at university, but I was not able to provide them for service users. I was shocking. I should save people’s lives, but I will provide damage for service users in the present state. I read the books of nursing skills many times, and I simulated and practiced nursing skills for service users many times.” (Student 20)

The category *gather information to make decisions about your career path* comprised 1 subcategory : *gather information to make decisions about your career path.*

“When I was worried about a hospital where I was employed, or when I was considering going to graduate school, such as looking at candidate hospitals and so on, I asked for a graduate school briefing for myself and attended a briefing session. We gathered information by acting independently to consult the teacher or by thinking about the course.” (Student 8)

The category *discuss others’ opinions with them to understand their values* comprised 2 subcategories : *give opinions during group work to obtain insight into others’ values* and *listen to others’ opinions during group work to obtain insight into others’ values.*

“It was fun to co-teach with the medical department. I

thought about why doctors' and nurses' thinking is so different. I thought about why doctors' thinking is different from when I was a medical student. When I thought about the roles of medical students, I was able to understand the position of the doctor. Conversely, when thinking about the patient, I thought about how I had to give my opinion as a nurse to the patient." (Student 14)

DISCUSSION

This study examined self-motivated learning behaviors among undergraduate nursing students in Japan. Nursing students engage in diverse and often subjective learning activities, such as practicing, investigating, reviewing, confirming, observing, asking questions, and consulting, in scenarios related to lectures, exercises, practical training, regular tests, national exams, and their daily lives. In addition, data were extracted if they were related to educational activities for consolidating skills in using aid technologies, for providing safe assistance via technology, and for understanding patients when taking charge in practical training. Interviewed students reported taking subjective learning actions that they believed could be useful when providing care in the future as part of their daily lives.

In the lectures/exercises scenario, the present study identified subjective learning behaviors for acquiring knowledge and skills and correcting misunderstandings. These behaviours can be compared with the items of the learning behavior scale developed for university students by Mitsunami¹⁵, particularly in regard to items related to learning behavior in class; in the present study, the category "participate actively for deeper learning in class" was composed of the subcategories "take notes on important content in lectures/exercises," "ask the teacher questions about content you did not understand in lectures/exercises," and "listen carefully during interesting classes." In regard to nursing skills, the findings of the present study were similar to those of a study by Miyoshi and Hosoda¹⁶ in the category "utilize teaching material to consolidate knowledge and support skills," consisting of the subcategories "view web materials to consolidate support skills" and "confirm class and textbook materials with friends to practice support skills," and in the category of "practice to obtain support skills," consisting of the peer learning-related subcatego-

ries "take advice from friends and practice skills to consolidate them" and "practice skills by role-playing as the patient/nurse with friends to consolidate support skills." When learning nursing skills, students must practice techniques and review their knowledge and develop, with teaching materials, new understandings of content that was previously unfamiliar. We believe that this explains why, in the present study, data relating to learning behaviors regarding learning knowledge and peer learning were extracted.

Identified by the present study in the scenario of practical training were categories related to engagement in specific learning behavior to provide good care for patients and their families. Students were conscious of the need to deepen their understanding of target skills and of how to offer aid technologies safely to patients; they reported studying on the internet, textbooks and class materials to improve their ability to provide good care while being supported by people around them. We found that students reviewed material, sought guidance from instructors and teachers, engaged in discussions at practicum conferences, and held training conferences during the practicum to listen to others' opinions. We suggest that students' subjective learning behavior during practical training particularly indicates their belief in professional nursing ethics and their sense of responsibility toward patients. The goal of clinical training is for students to practice the roles of a nurse and of administering care from a nurse's position. As part of this learning process, nursing students must integrate the knowledge, skills, and attitudes they have learned at a university. Practical training is said to be how nursing methods are mastered². Students were found to be engaged in subjective learning behaviors outside their practical training programs to help them provide good quality and safe care despite being nervous about working with patients.

In the scenarios of regular examinations and national examinations, identified were such categories as "make effective use of support from others" and "consult educational materials independently." These examinations assess a student's ability to memorize material but also present interpretive problems, in which the student must interpret and respond to a given task or consider how to solve a problem¹⁷. To acquire knowledge, learning as an individual is effective, but to synthesize and make use of knowledge, what is likely needed is the effective use of support, such as help for solving unfamiliar problems. In scenarios related to lec-

tures/exercises, regular tests, and national examinations, important activities for students were of the categories “secure time for essential learning” and “study effectively.”

Data were also extracted from how learning plans were formed, such as codes related to planning and setting time aside. Nursing students are overwhelmed with curriculum content and have many tasks; thus, they should devise their own study plans and study ahead. Therefore, subcategories extracted were “use free time to prepare and review,” “use free time to do class work,” and “use free time to study in preparation for exams.”

In scenarios related to their daily lives, nursing students reported engaging in subjective learning activities that they believed would be useful when later providing care. The category “learn to broaden your horizons every day” had the subcategories “study in advance in preparation for overseas nursing training” and “learn English in preparation for overseas nursing training.” Responding to globalization is an important issue to be addressed in general by universities and specifically by nursing colleges, many of which arrange for overseas training¹⁸⁻²⁰. To prepare for working overseas, students learn English and about local health, welfare, and nursing. Additionally, some students had a goal of studying abroad or advancing to university in future and were working on learning English.

A survey suggests that more Japanese university students have a resistance to studying abroad because of a lack of interest of other countries and concerns about language, but some students are interested in living abroad²¹. In the same way, some nursing students in the present study also hope for overseas work or study and, therefore, engaged in subjective learning behaviors geared toward the future.

Recognizing that students are required to learn independently as part of college life, in the present study we interviewed students about their learning behavior when they are self-motivated to study. We identified many subcategories describing studying-related behavior in fixed scenarios, such as assignments, examinations, and set conditions for the acquisition of qualifications, but identified few subcategories describing autonomous learning behavior outside these fixed situations. However, in the United States, classes are held with the premise that work, such as preparation, reviews, reports, and exercises, will be done outside of class. Such extracurricular learning has both significance and effects²²⁻²⁴. Among freshman university and college stu-

dents in the United States the amount of time spent studying outside class is reportedly 58.4% of that spent in class, and the amount of time most often spent for such independent learning is 11 or more hours per week. In Japanese universities, the amount of time spent on class-related studying by first-year students is 57.1% of class time, with the most frequent amount of time spent in independent learning being 1 to 5 hours per week; 14.8% of students spend more than 11 hours per week²⁴. College students in health-related fields in Japan spend more time studying than do students in other fields; about 40% of students in health-related fields report studying for 6 or more hours per week²⁴. Compared with university students in the United States, those in Japan spend much less time in class-related studying; therefore, extracurricular learning is reported to be particularly significant in Japan.

A study of personal growth among university students²⁴ has found that a learning attitude in which students are willing to take initiative and to acquire knowledge and skills is important for their performance in class work and reports. The finding of this earlier study is consistent with our present finding that many subcategories referred to such situations as exercises and tests and fixed situations relating to the acquisition of qualifications, but acting on a subjective basis outside the classroom was meaningful for students.

Strengths and Limitations of the Study and Future Research

A limitation of this study was that the number of universities that cooperated in this research was low, at only 4. In addition, although 23 students were interviewed, their year of study was biased (12 students were in their fourth year). The interviewed students were also recruited unevenly from the participating schools, with 17 of 23 attending university A. Therefore, for further research, changes should be considered to the method of sampling cooperating universities, such as increasing the number of universities randomly selected, and a recruitment method that encourages nursing students to participate.

CONCLUSIONS

This study described self-motivated learning behaviors among undergraduate nursing students in Japan. Data were collected from 23 students through semistructured inter-

views. Analysis was conducted with a descriptive qualitative method. As a consequence, 273 codes, 66 subcategories, and 19 categories emerged from the data analysis. The study revealed that undergraduate nursing students practice various kinds of learning behaviors in the contexts of lectures and skills labs, practicums, regular examinations, the national examination, and their daily lives. In addition, the learning behaviors that we identified as characteristic of nursing students were those that targeted the consolidation of their personal assistance skills, the ability to provide personal assistance safely, and the development of understanding toward their assigned patients in clinical practicums. Furthermore, like typical college students, during day-to-day life the interviewed nursing students engaged in types of study they thought would be put to use in their own futures in nursing. These learning behaviors appear to be founded on the ethical perspective of the nursing profession and on a sense of responsibility toward patients.

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DISCLOSURE

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AUTHOR CONTRIBUTIONS

Y.K., F.K., K.T., S.S., J.I., R.M., J.S., and M.K. contributed to the conception and design of the study, to the statistical analysis, and to the drafting of the manuscript. All authors read and approved the final manuscript.

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