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米国と日本における看護大学生の実習経験の相違

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原　著

Differences in Clinical Practicum Experience between United States and Japanese Baccalaureate Nursing Students

米国と日本における看護大学生の実習経験の相違

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キーワード：実習経験，看護学生，米国，日本
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Abstract

This study aimed to clarify differences in clinical practicum experience between United States (U.S.) and Japanese baccalaureate nursing students. A questionnaire survey was conducted with senior nursing students in the U.S. and Japan; 110 U.S. and 123 Japanese students completed the survey. The data were analyzed to compare nursing skills, educational infrastructure, and links with other professions during the practicum between U.S. and Japanese students. There was a significant difference between the two groups in the proportions of the nursing skills undertaken. Regarding the educational infrastructure, the U.S. students had significantly higher "Individual guidance" scores than the Japanese students. The U.S. students were significantly more likely than the Japanese students to have the opportunity to collaborate with other healthcare professionals. Sixty-seven U.S. and 44 Japanese students responded to the open-ended questionnaire on clinical learning environments. The responses were imported into two datasets according to students' nationality and analyzed using Text Analytics. The respective relationships among the concepts based on the "clinical learning environment" concept of the U.S. and Japanese students were related to the common terms of "nurse," "patient," and "unit." The interactions between the students and other personnel were explored using the category web graph. The "student" category was more likely to have the largest numbers of documents in common with the "nurse," "staff," and "patient" categories for the U.S. students and with the "preceptor" category for the Japanese students. The results revealed the differences in clinical practicum experiences between U.S. and Japanese students. These differences may be influenced by differences in the respective clinical instructional systems.

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抄　録

本研究は米国と日本の看護大学生の実習経験の違いを明かにすることを目的とした．質問紙調査を４年次生に行い，米国学生110名と日本学生123名から有効回答を得た．看護技術の実施では米国と日本の学生間で有意差が認められた．また，米国学生は日本学生より教育インフラストラクチャーの「個別指導」が有意に高く，他のヘルスケア専門職との連携の機会をもつ者が有意に多かった．臨床学習環境に関する自由記述に回答した米国学生67名と日本学生44名のデータをText Analyticsを用いて分析した結果，「臨床学習環境」との関係には「看護師」「患者」「病棟」が共通し，「学生」と他者との相互関係において米国学生は「看護師」「スタッフ」「患者」との間，日本学生は「実習指導者」との間に多くの共通ドキュメントが認められた．以上より，米国と日本の学生間の実習経験の違いが示され，臨床教育システムの相違による影響を受けていると考える．

Introduction

Japan has seen a sharp increase in the number of nursing programs in universities, and this presents a key challenge regarding the maintenance and improvement of the standards of nursing education in the country. Thus, the model core curriculum for nursing education was formulated to improve nursing education in baccalaureate programs and to contribute to ensuring the quality of health care for the broader society (Ministry of Education, Culture, Sports, Science and Technology, 2017). An essential component of nursing curriculum is the clinical practicum. The clinical practicum provides nursing students an opportunity to enrich their experience by integrating practice with their existing knowledge and skills. Bevis et al. (2000) indicated three sources causing the emergent need of a paradigm shift in the development of nursing curricula in the American context. Those sources were “the indication for greater accessibility of baccalaureate programs,” “the natural development of nursing as a human science and its need for congruence among its parts, philosophy, theory, practice, and education,” and “the social needs of the current age of health problems and modern technology” (Bevis et al, 2000, p. 15). The background of nursing education in Japan are similar to the circumstances identified in the United States (U.S.). Improving the quality of clinical education is a challenge for worldwide, and Japan is no exception. The Ministry of Education, Culture, Sports, Science and Technology (2011) pointed out needs of critically reviewing existing clinical practicum approaches and evolving education contents in the light of changing the environment surrounding society and healthcare and increasing students' diversity.

Clinical practicum experiences are essential to foster students' clinical nursing competence. Gubrud-Howe et al. (2008) identifies various categories of experiences, such as “focused direct client care experience,” “concept-based experience,” “case-based experience,” “intervention skill-based experience,” and “integrative experience” (Gubrud-Howe et al., 2008). According to Dewey (1938), “an experience is always what it is because of a transaction taking place between an individual and what, at the time, constitutes his environment” (p. 43). He further states that the principles of “continuity” and “interaction” exist in an experience (Dewey, 1938). Such experiential learning is also an important element in skill acquisition; learners gain skills by participating in a practical community (Suzuki et al., 2014). With respect to nursing practice, Benner (2001) explains that nurses need to gain “experience” to develop clinical knowledge when events occur in a real clinical situation that refine, generate, or contradict their foreknowledge formed by theory, principles, and past experiences. Considering the nature of clinical situations, the clinical practicum experience can be comprehensively understood as the events, knowledge, and skills students obtain through interactions in and with their environment.

As healthcare becomes increasingly advanced

and complex, it is important for students to exercise nursing skills safely during their clinical practicums. The outcomes of students' clinical practicums have been found to vary widely depending on how educational infrastructure is organized (Hosoda, 2007). Barker (2002) argues that the education and learning process constitutes an educational infrastructure involving the utilization of resources and states that its fundamental categories are human resources, communication facilities, and pedagogic materials. It has been said that the clinical learning environment is "a holistic notion involving every aspect of a clinical setting involving the students themselves" (Oliver et al., 1994, p. 91) for over the past decades. It is further suggested that a supportive clinical learning environment can be created only when educators and service providers cooperate; it is also essential that students adopt a positive attitude toward their own learning to fully utilize the helpful learning opportunities offered by the practicum (Chuan et al., 2012). It is important to engage actively in a clinical learning environment, rather than passively as a third party.

Recently, the introduction of theories and education methods in nursing practice has been advancing from the U.S. in Japan (Hosoda, 2017; Abe, 2016). As a prerequisite to the appropriate implementation of such measures, it is essential to investigate the differences between the clinical practicum experiences of U.S. and Japanese students. However, this has thus far been limited to experiential investigation, such as through study abroad or observation, and has not provided much clarification of any emergent issues. Accordingly, this study compares the clinical practicum experiences of U.S. and Japanese baccalaureate nursing students with an emphasis on nursing skills undertaken, educational infrastructure, collaboration with other health professionals, and clinical learning environments. It is thought that revealing discrepancies among these factors will deepen understanding in the event of future collaboration between Japan and the U.S. in clinical education and lead to consideration of new pedagogical approaches.

Aim

This study aimed to elucidate differences in clinical practicum experience between U.S. and Japanese baccalaureate nursing students.

Definition of terms

The term "clinical practicum experience" used in this study was defined as events, knowledge, and skills that students derived from interaction with their environment in nursing practice.

Methods

Research design

This study used a descriptive comparison design.

Participants and data collection

The participants were a total of 313 senior undergraduate nursing students recruited from a university in the U.S. and a university in Japan; 138 were from the U.S. university, and 175 were from the Japanese university. Both universities are public schools and meet the accreditation standard for nursing programs in each country.

The survey was a self-administered questionnaire covering the following components: characteristics including age and gender, unit and period of the participant's last clinical practicum in a health care facility, 19 nursing skills commonly seen in textbooks, educational infrastructure on a 5-point Likert scale, links with other professions during the last clinical practicum, and an open-ended question on clinical learning environments conducive to improving one's competence. A survey questionnaire was distributed to all the students. A collection box was set up for participants to return their completed questionnaires anonymously in preaddressed envelopes. Data were collected from December 2010 to January 2011 and from November 2011.

Data analysis

The data were analyzed using IBM SPSS Statistics for descriptive statistics of participants' characteristics among U.S. and Japanese students. Chi-square or Fisher's exact test was used to assess whether the two groups differed in terms of nursing skills. Mann-Whitney U tests were used to identify differences between the two groups' item scores on the educational infrastructure. Chi-square test was used to compare the groups in their collaboration with other health professionals. An acceptable significance level was set at $p<0.05$.

IBM SPSS Modeler Premium was used to analyze links between the open-ended question data in either English or Japanese. The responses were imported into two different datasets according to students' nationality and analyzed using the Text Analytics application. This software is used to uncover relationships between chosen linguistic items. Concepts were extracted from the two datasets. In the extraction process, terms were grouped synonymously. For example, the terms "instructor(s)," "teacher(s)," and "faculty" were considered as one concept: "instructor." The terms included both singular and plural. The process was supplemented by reviewing concepts in the texts. The data were categorized focusing on person-related concepts using linguistic techniques. The interactions between the students and other personnel were explored for the two datasets using the category web graph function.

In terms of using both English and Japanese in conducting this study, the researchers, including one who was bilingual, often gathered and carefully discussed terms to address credibility.

Ethical considerations

Ethics approval was granted by the institutional review boards of the two universities to which the participants belonged in the U.S. (IRB #: IRB00007809) and Japan (Application #: 22-51). Potential participants were given a written explanation of the purpose and methodology of the research and were guaranteed anonymity. Participation was voluntary, and the students signified their consent by completing and returning the questionnaire. The researcher provided a contact address and assured the participants that all inquiries would be answered. Participants' confidentiality was protected by deidentifying the data, restricting access to identifiable information, and securely storing data.

Results

One hundred ten U.S. (response rate 79.7%) and 123 Japanese students (response rate 70.3%) completed the survey. The demographic characteristics of the participants are shown in Table 1. The gender ratio of the U.S. students

Table 1. Demographics and characteristics of participants

Variables	U.S. students (n=110)		Japanese students (n=123)	
Gender, n (%)				
Men	22	(20.0)	5	(4.1)
Women	88	(80.0)	118	(95.9)
Age				
Mean (SD)	29.9	(7.8)	22.6	(2.6)
Unit type of clinical placement, n (%)				
Medical unit	28	(25.5)	61	(49.6)
Surgical unit	8	(7.3)	11	(8.9)
Mixed unit	37	(33.6)	10	(8.1)
Pediatric unit	7	(6.4)	20	(16.3)
Mother/baby unit	1	(0.9)	16	(13.0)
Other unit	29	(26.4)	5	(4.1)
Period of the clinical setting (days)				
Mean (SD)	23.2	(18.3)	18.5	(7.3)

was 80.0% women to 20.0% men, and that of the Japanese students was 95.9% to 4.1%. The mean ages of the participants at the time of the survey were 29.9 in the U.S. and 22.6 in Japan. Participants in both countries did their last clinical placement in various settings. Periods of the last clinical practicum were 23.2 days for U.S. students and 18.5 days for Japanese students.

Comparisons of the Students' Experience regarding Clinical Practicum in the U.S. and Japan

Comparisons of the students' experience focused on their nursing skills undertaken, educational infrastructure, and collaboration with other health professionals in their last clinical practicum.

For nursing skills, the proportion of "Physical assessment" (94.4%) students undertook was the highest in the U.S. whereas the proportion of "Vital signs" (100%) was the highest in Japan. There was a significant difference in the proportion of the nursing skills undertaken between U.S. and Japanese students, as shown in Figure 1. The U.S. students were significantly more likely than the Japanese students to undertake the following 15 nursing skills: "Physical assessment" ($p<0.001$), "Changing position" ($p<0.001$), "Movement/transfer of patients" ($p<0.001$), "Help with nutrition/meals" (except for tube feeding) ($p<0.001$), "Tube feeding" ($p<0.001$), "Help with elimination" (except for urethral catheterization/enema) ($p<0.001$), "Urethral catheterization/enema" ($p<0.001$), "Wound care" ($p<0.001$), "Prevention of infection" ($p<0.001$), "Help with hygiene" ($p<0.01$), "Drug therapy" (except for injections and inhalation) ($p<0.001$), "Injections" ($p<0.001$), "Inhalation" ($p<0.001$), "Oxygen therapy" ($p<0.001$), and "Aspiration" ($p<0.01$). The Japanese students were significantly more likely than the U.S. students to undertake the following two nursing skills: "Vital signs" ($p<0.01$) and "Compresses" ($p<0.05$). There was no significant difference between the U.S. and Japanese students in terms of "Maintenance of patient environment" and "Emergency resuscitation." These results suggest that the nursing skills students undertook during the practicum differed significantly between the two groups.

As shown in Table 2, with regard to the

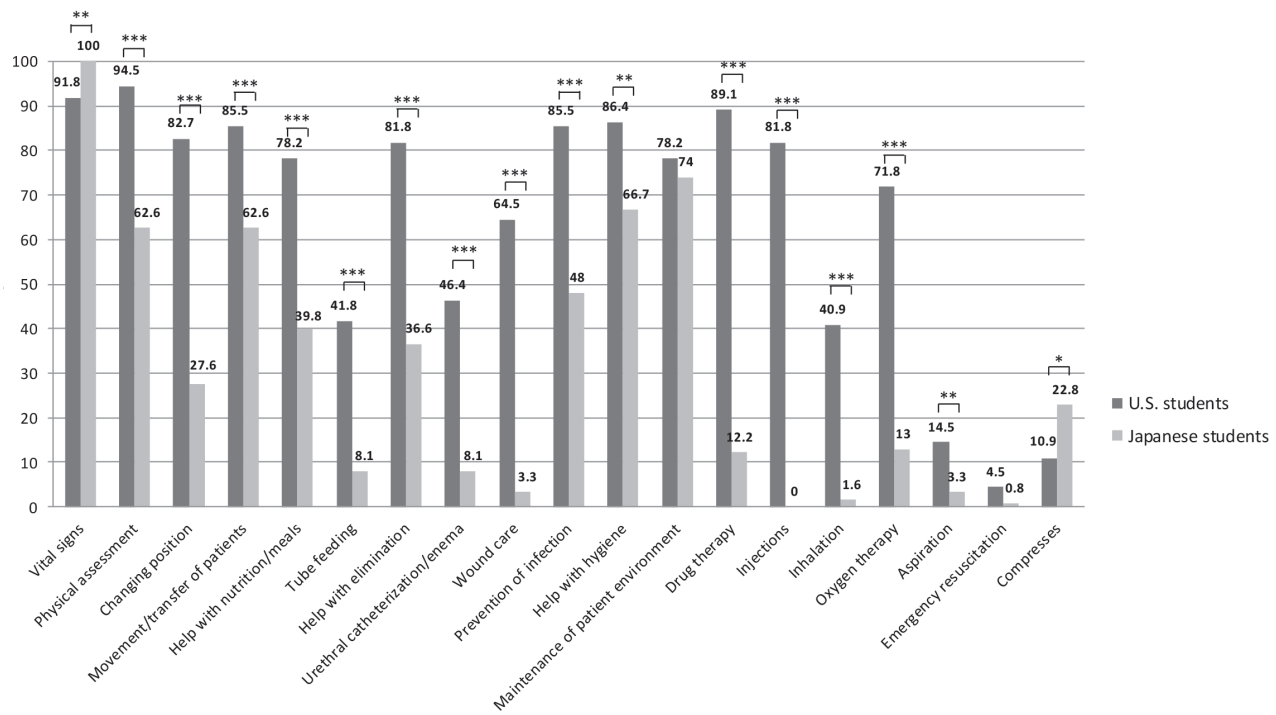

Figure 1. Comparison of nursing skills students undertook during the practicum
χ^2 or Fisher's exact test $^*p<0.05$ $^{**}p<0.01$ $^{***}p<0.001$

educational infrastructure, "Availability of books and documents" had the highest mean score for both U.S. and Japanese students. The score for "Individual guidance" differed significantly between the two groups ($p<0.001$). The U.S. students had significantly higher scores for "Individual guidance" than did the Japanese students. No significant difference between the scores of the two groups was observed for "Availability of books and documents," "Staff allocation in the clinical setting," and "Collaboration between the institution and the university."

The demographics of collaboration with other health professionals are shown in Table 3. The U.S. students were significantly more likely than the Japanese students to have the opportunity to collaborate with other healthcare professionals ($p<0.001$). For the relevant healthcare professionals, "Doctor" was reported as having the highest proportion by both the U.S. and Japanese students.

A Text Mining Analysis of a Clinical Learning Environment for U.S. and Japanese Students

Sixty-seven U.S. and 44 Japanese students responded to an open-ended question on clinical learning environments.

Concept maps based on the selected concept of "clinical learning environment" showed respective relationships with other concepts for the U.S. and Japanese students. For the U.S. students, the "clinical learning environment" concept was linked with 14 concepts: "nurse," "staff," "instructor," "patient," "hospital," "unit," "nursing," "nursing care," "nursing skills," "good," "helpful," "excellent," "better," and "knowledgeable." The strongest degree of relatedness was between the "clinical learning environment" and "excellent" concepts (Figure 2). For the Japanese students, the "clinical learning environment" concept was linked with

Table 2. Comparison of educational infrastructure

Variables	U.S. students (n=110) Median (IQR)	U.S. students (n=110) Mean rank	Japanese students (n=123) Median (IQR)	Japanese students (n=123) Mean rank	*p* value
Availability of books and documents	5 (1)	117.49	5 (1)	116.57	0.903
Individual guidance	5 (1)	135.70	4 (0)	100.28	<0.001
Staff allocation in the clinical setting	4 (1)	125.70	3 (1)	109.22	0.052
Collaboration between the Institution and the university	4 (1)	124.05	3 (1)	110.70	0.115

Mann-Whitney U test

Table 3. Demographics of collaboration with other healthcare professionals

Variables	U.S. students (n=110) n (%)	Japanese students (n=123) n (%)	*p* value
Having the opportunity to collaborate with other healthcare professionals			<0.001
No	9 (8.2)	43 (35.0)	
Yes	101 (91.8)	80 (65.0)	
Relevant healthcare professions (multiple responses)			
Doctor	76 (69.1)	57 (46.3)	
Dietitian	46 (41.8)	6 (4.9)	
Physiotherapist	41 (37.3)	26 (21.1)	
Occupational therapist	45 (40.9)	1 (0.8)	
Radiologic technologist	21 (19.1)	27 (22.0)	
Laboratory technician	32 (29.1)	13 (10.6)	
Pharmacist	37 (33.6)	4 (3.3)	
Certified care worker	38 (34.5)	1 (0.8)	
Social worker	73 (66.4)	3 (2.4)	
Other	31 (28.2)	4 (3.3)	

χ^2 test

11 concepts: “nurse,” “student,” “preceptor,” “patient,” “unit,” “practicum,” “teaching,” “together,” “being in charge,” “be,” and “be able to.” The strongest degree of relatedness was between the “clinical learning environment” and “being in charge” concepts and between “clinical learning environment” and “teaching” (Figure 3). These results show the similarities and differences in the respective relationships among the concepts based on the selected concept of “clinical learning environment” in the U.S. and Japanese students. The similarities between the two groups are related to the concepts of “nurse,” “patient,” and “unit.”

The category web graph based on the selected category, “student,” showed that the documents of text data overlapped with the other categories, “preceptor,” “nurse,” “staff,” “instructor,” and “patient,” for the two groups (Figure 4). For the U.S. students, the “student” category was more likely to have the largest numbers of documents in common with the categories of “nurse,” “staff,” and “patient.” For the Japanese students, the largest number of shared documents was between the categories of “student” and “preceptor.”

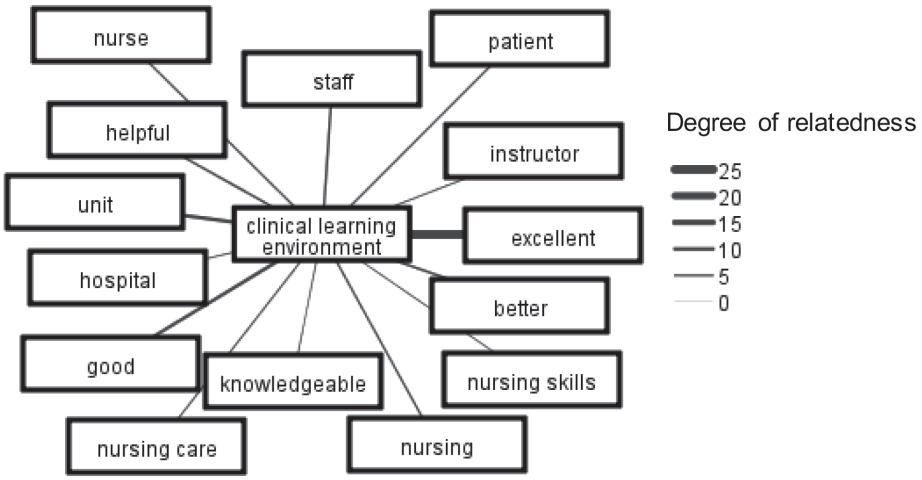

Figure 2. A concept map showing the linkage of the clinical learning environment for the U.S. students

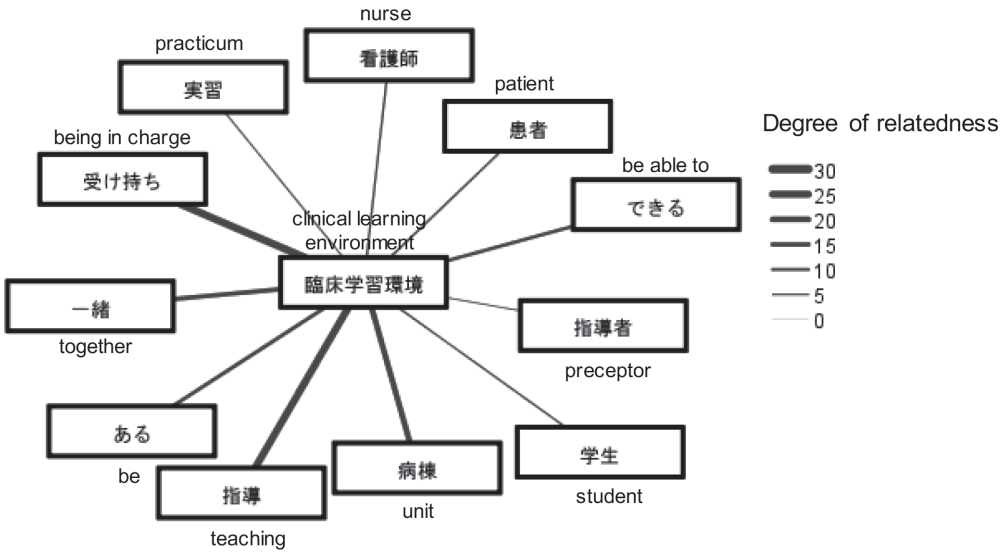

Figure 3. A concept map showing the linkage of the clinical learning environment for the Japanese students

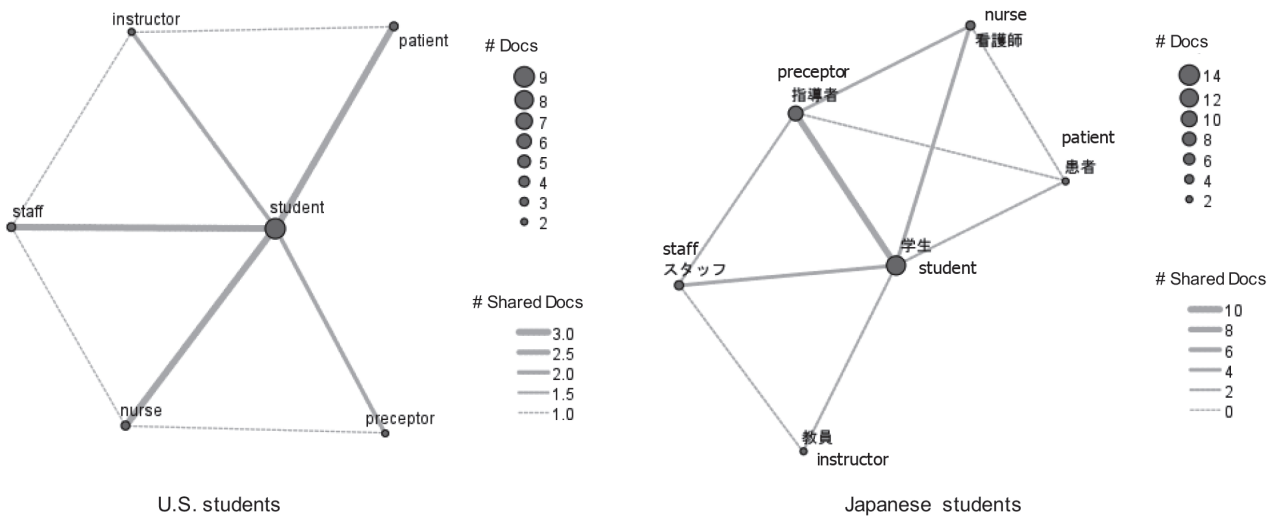

Figure 4. A category web showing the relationship of the concepts in personnel for the U.S. and Japanese students

Discussion

This study, involved a comparison of the clinical practicum experiences of undergraduate nursing students in the U.S. and Japan, focusing on their perceptions of nursing skills undertaken, educational infrastructure, collaboration with other health professionals, and clinical learning environments. First, there was a difference in the male to female ratios of participants in the U.S. and Japan, with men accounting for 2 of every 10 students in the U.S. In addition, compared to Japanese students, whose mean age presumably is that of students continuing their education soon after graduating from high school, the mean age of U.S. students was around 30 years. The percentages of students' ages at 4 - and 2 -year colleges in the U.S. in 2015 were 6.2% for those aged below 18 years, 25.5% for those aged 18-19 years, 23.7% for those aged 20-21 years, 15.7% for those aged 22-24 years, 10.8% for those aged 25-29 years, and 18.0% for those aged 30 years and older or of unknown age (National Center for Education Statistics, 2016). This suggests that in nursing departments as well, a certain percentage of matriculates are not fresh high school graduates. The units in which students had their last clinical practicum varied in both countries, but in the U.S., the largest number of students, about 3 in every 10, had practicum at mixed units, while about half of Japanese students were at medical units. Furthermore, despite the mean duration of practicum for the U.S. students being about 5 days longer than that of Japanese students, based on the standard deviation value, it seems that there was variation in the practicum duration. These differences in practicum periods and units may have affected the students' experience regarding clinical practicum in both countries.

The results indicated that the percentage of the U.S. students who performed 15 nursing skills during their last clinical practicum was higher than that of the Japanese students and that many had opportunities to perform the nursing skills involved in examination and treatment. For Japanese students, on the other hand, the scope of skills and opportunities for providing them at practicum is limited. This may reflect the reason why it is difficult to learn invasive skills from basic nursing education (Japanese Nursing Association, 2003). Nevertheless, all the Japanese student participants took "Vital signs," and this was the skill with the second-highest rate of performance among the U.S. students as well, after "Physical assessment." Benner (2001), referring to nursing students whose proficiency in nursing practice is at the "novice" level,

states that when placed in a clinical setting, they use objective, measurable indicators of patient condition to understand the situation. In other words, both U.S. and Japanese students have the opportunity to experience nursing skills characteristic of the novice level.

With regards to the educational infrastructure, "availability of books and documents" had the highest mean value for students in both countries, showing that these media are recognized as a useful artifact by students. Artifact is a concept that suggests a "thing," but it includes not just things with a physical existence like tools, but also things like systems or language systems that do not have a physical existence (Harada, 1997). This shows that for students, books and documents are tools useful in clinical learning. Moreover, a significant difference that was seen between the U.S. and Japanese students was in "Individual guidance." In U.S. practicums, there is a clinical instructor attached to the student group who works exclusively in clinical instruction and is responsible for enabling students to have valuable experiences in an actual nursing setting (Hosoda, 2013). In Japanese practicums, according to the *Basic Survey on Nursing Education 2006* (Japanese Nursing Association, 2007), 3 in every 10 schools answered that the number of full-time instructors who worked exclusively in clinical instruction was "0" in all fields, indicating a situation in which instructors are supervising practicum in addition to engaging in other educational activities. These kinds of educational system differences, enabling U.S. students to have instruction at the practicum site that corresponds to their individual learning needs, may be connected to why they perceived themselves as having more individual guidance than Japanese students did. In addition, the results indicated that the U.S. students have more opportunities than the Japanese students for collaboration with other health professionals. In recent years, interprofessional education has been addressed at several universities in Japan as well, although instructional content, learning format, and evaluation methods are still undergoing development (Abe et al., 2015). It is considered that this fact is reflected in the results of this study. Regarding "Availability of books and documents," "Staff allocation in the clinical setting," and "Collaboration between the institution and the university," there was no significant differences between the students in both countries. This may indicate that these similarities are common as the university educational infrastructure.

Analysis of the concept of "clinical learning environment" using text mining, it was found that the concepts connected to this concept that were shared by both U.S. and Japanese students were "nurse," "patient," and "unit." From relationships among these concepts, it was surmised that regardless of the differences between countries, any place in the context of a unit where one cares for patients while interacting with nurses can be viewed as a clinical learning environment. In the partnership model of clinical education, students pair up with a proficient nurse at the bedside, suggesting the importance of offering even more individualized attention to students (Lovecchio et al., 2015). For the U.S. students, the concept most strongly connected to "clinical learning environment" was "excellent," and several other positive adjectives were also included in their responses. For the Japanese students, the connection between "clinical learning environment" and "being in charge" or "teaching" was shown to be strong. The way Japanese students show their combination of these concepts may indicate the traditional approach such as being charge of a limited number of patients and performing a total care of patients with guidance is taken in clinical settings (Nielsen, 2009). She pointed to concept-based learning activities as a learning strategy that has an influence on the development of students' clinical judgment. Together with the recent changes being made to clinical settings, incorporating this kind of new methodology into clinical practicums may promote students' awareness of the clinical learning environment.

Furthermore, regarding the U.S. students' interactions with other personnel, the categories

"patient," "staff," "nurse," "instructor," and "preceptor" are radially connected from the category "student." For the Japanese students, on the other hand, the category "student" is connected strongly to "preceptor," and this relationship forms the foundation of 3 separate triangular relationships with "patient," "staff," and "nurse." This suggests that for Japanese students, the preceptor is always the link that is central to their interpersonal interactions, whereas for U.S. students, they themselves are central in shaping their relationships with others. The relationships between the students and other personnel may be influenced by the difference in the respective clinical instructional system. The key to facilitating the design of optimum clinical learning environment may be obtained by visualizing the perspectives of students of different countries in increasingly global practice settings.

This study involved an examination of the differences between the clinical practicum experiences of U.S. and Japanese undergraduate nursing students, by looking at their perception of nursing skills undertaken, educational infrastructure, collaboration with other health professionals, and clinical learning environments. Clinical practicum experiences are rooted in students' interactions with their environment, and the differences between students' experiences as the basis of how the need for educational cooperation and the transfer of theories and approaches between both countries are addressed can be used.

Study Limitations

This study was based on a survey of only one U.S. and one Japanese university; considering that there is variation in the clinical education systems and social conditions within each country, the possibility that these differences may also affect clinical practicum experience is undeniable. Moreover, students' attitude toward their learning may have influenced their utilization of learning opportunities provided in their practicum, a factor not examined in this study. Therefore, caution must be exercised in generalizing these results. Furthermore, this study was a questionnaire survey of students' clinical practicum experiences and was not investigated on-site empirically. Students' perceptions do not always coincide with reality; some deviations are to be expected. Future studies may broaden the pool of subjects and seek to verify students' clinical practicum experiences more empirically.

Conclusion

This study involved a survey of senior nursing students at universities in the U.S. and Japan in order to elucidate the differences between the clinical practicum experiences. The results showed a significant difference in the nursing skills undertaken by U.S. and Japanese students. Furthermore, the U.S. students had a significantly higher score than the Japanese students for the "Individual guidance" aspect of educational infrastructure, and a significantly higher number had opportunities for collaborating with other healthcare professionals. When text analytics were used to analyze the students' responses towards open-ended questions, "nurse," "patient," and "unit" were common concepts with "clinical learning environment" among both U.S. and Japanese students. With regard to interactions between the students and other personnel, the U.S. students had many common documents with the categories "nurse," "staff," and "patient," whereas the Japanese students had many common documents with the category "preceptor."

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References

Abe, H., & Yada, H. (2015): Framework of

interprofessional education in medical universities. Status and challenges in Health Sciences University of Hokkaido. Journal of Health Science University of Hokkaido -Liberal Arts and Sciences-, 41, A1-A21 (in Japanese).

Abe, Y. (2016): Simulation-based education in healthcare. Journal of the Japanese Society of Intensive Care Medicine, 23(1), 13-20 (in Japanese).

Barker, P. (2002): Authoring systems. In H. H. Adelsberger, B. Collis, J.M. Pawlowski, (Eds.), Handbook on Information Technologies for Education and Training, 63-77, Springer, Berlin.

Benner, P. (2001): From Novice to Expert – Excellence and Power in Clinical Nursing Practice, Commemorative Edition. Prentice-Hall, New Jersey.

Bevis, E. O., & Watson, J. (2000): Toward a Caring Curriculum: A New Pedagogy for Nursing. Jones and Bartlett Publishers, Sudbury, MA.

Chuan, O. L., & Barnett, T. (2012): Student, tutor and staff nurse perceptions of the clinical learning environment. Nurse Education in Practice, 12, 192-197.

Dewey, J. (1938): Experience and Education. Kappa Delta Pi, Indianapolis, IN.

Gubrud-Howe, P., & Schoessler, M. (2008): From random access opportunity to a clinical education curriculum. Journal of Nursing Education, 47(1), 3-4.

Harada, E. (1997): Hito no Shiten kara Mita Jinkōbutsu Kenkyu: Taiwa ni okeru "Tukaiyasusa" towa [Artifacts Research from a Human Perspective: What is "Ease of Use" in Dialogue?]. Kyoritsu Shuppan, Tokyo (in Japanese).

Hosoda, Y. (2007): Effects of the educational infrastructure on the metacognitive clinical learning environment of students in baccalaureate nursing programs. Journal of Japan Academy of Nursing Science, 27(4), 33-41 (in Japanese).

Hosoda, Y. (2013): A field study on the instructional design of nursing education in the United States of America. Journal of School of Nursing Osaka Prefecture University, 19(1), 111-119 (in Japanese).

Hosoda, Y. (2017): Rinshō handan moderu ni motozuku gakushū hōryaku to hyōka no dezain [Learning strategies and assessment designs based on the Clinical Judgment Model]. The Japanese Journal of Nursing Education, 58(5), 360-366 (in Japanese).

Japan Nursing Association (2003): 2002 nendo Shinsotsu Kangoshi no "Kango Kihon Gijutsu" ni kansuru Jittai Chōsa Hōkokusho [Survey Report on Actual Achievement of "Basic Nursing Skills" for Newly Graduated Nurses in 2002]. Japan Nursing Association, Tokyo (in Japanese).

Japanese Nursing Association (2007): Basic Survey on Nursing Education 2006, JNA Research Report No.77. retrieved on September 16, https://www.nurse.or.jp/home/publication/research/pdf/77.pdf, (in Japanese).

Lovecchio, C., DiMattio, M. J., & Hudacek, S. (2015): Predictors of undergraduate nursing student satisfaction with clinical learning environment: A secondary analysis. Nursing Education Perspectives, 36(4), 252-254.

Ministry of Education, Culture, Sports, Science and Technology (2011): Daigaku ni okeru Kango-kei Jinzai Yōsei no Arikata ni kansuru Kentōkai Saishū Hōkoku [Final Report of the Committee Investigating Training of Nursing Professionals in University/College], retrieved on September 16, http://www.mext.go.jp/b_menu/shingi/chousa/koutou/40/toushin/_icsFiles/afieldfile/2011/03/11/1302921_1_1.pdf, (in Japanese).

Ministry of Education, Culture, Sports, Science and Technology (2017): Kango-gaku Kyōiku Moderu / Koa / Karikyuramu—"Gakushi Katei ni oite Koa to naru Kango Jissen Nōryoku" no Shūtoku o Mezashita Gakushū Mokuhyō—no Sakutei ni tsuite [On the Formulation of the Model Core Curriculum for Nursing Education: Learning Goals for Acquisition of "Core Competency of Nursing Practice in Baccalaureate Programs"], retrieved on September 16, http://www.mext.go.jp/b_menu/shingi/chousa/koutou/078/gaiyou/1397885.htm, (in Japanese).

National Center for Education Statistics. (2016). Digest of Education Statistics: Table 303.50. Total Fall Enrollment in Degree-granting Postsecondary Institutions, by Level of Enrollment, Control and Level of Institution, Attendance Status, and Age of Student: 2015, retrieved on September 16, 2018 from https://nces.ed.gov/programs/digest/d16/tables/dt16_303.50.asp

Nielsen, A. (2009): Concept-based learning activities using the Clinical Judgment Model as a foundation for clinical learning. Journal of Nursing Education, 48(6), 350-354.

Oliver, R., & Endersby, C. (1994): Teaching and Assessing Nurses: A Handbook for Preceptors. Baillière Tindall, London.

Suzuki, A., & Hosoda, Y. (2014): Experiences that affect nursing skill acquisition of novice nurses working in the emergency field: Focusing on the interaction within communities of practice. Journal of Japan Society of Nursing Research, 37(2), 1-11, (in Japanese).