The Evaluation of Nursing Students to Nursing Skill Practices Using the Blended Learning in Japan

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Abstract—**This study was conducted using the nursing skill class (exercise style) to clarify evaluation of blended learning from the perspective of nursing students. [Method] Open-ended questions were used for collecting data about the education program. We analyzed responses using "Trend search" text mining software (Fujitsu Co. Ltd.) to map relational words and to analyze relational line size and distance to ascertain relation strength. [Result] Mapping yielded three wedges. Results suggest that, for nursing skill practice in Japan, the range of the computer-mediated learning from face-to-face learning methods can be distinguished in nursing student evaluations.**

*Index Terms*—**Blended Learning, nursing skill, nursing education**

I. INTRODUCTION

Recently, Blended Learning methodology, which combines face-to-face instruction with computer-mediated instruction, has been chosen in schools worldwide. Introduction of e-learning is demanded in nursing education in Japan also. Nevertheless, few reports in the literature describe outcomes of blended learning.

A. Outline of basic Nursing Education in Japan

1) Basic nursing education

Japan has several courses of basic nursing education. In the main courses, basic nursing education is provided at 4-year colleges/universities, 3-year junior colleges, or 3-year training schools after graduation from high school to prepare students for a national examination that must be passed to obtain the national license. Educational institutions offering these three courses are under different regulating authorities: colleges/universities and junior colleges are under the jurisdiction of the Ministry of Education, Culture, Sports, Science and Technology (MEXT), but most training schools are regulated by the Ministry of Health, Labour and Welfare (MHLW) [1], [2] Fig. 1 presents main basic nursing education. [1].
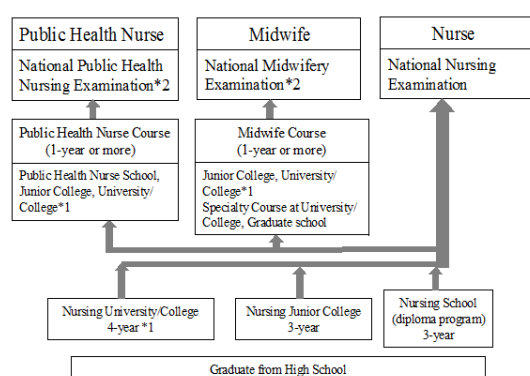
*1: Nursing University/ College provide Public Health Nursing Course and/ or Midwifery Course in 4-year education. Those graduates can get qualification to sit for the national examination for Public Health Nurse and /or Midwife in addition to Nurse.

*2: To obtain a Public Health Nursing /Midwifery License, it is necessary to hold a Nursing License.

*Assistant nurse courses are omitted

Figure 1.   Main basic nursing education courses

2) Curriculum of education

Education contents required for eligibility to take the national examination are prescribed jointly by MHLW and MEXT. Although several courses of basic nursing education in Japan are as described above, the standards of education are appropriated equally irrespective of the type of educational institution, or whether it is a 4-year college/university, a 3-year junior college, or a 3-year training school. Different standards exist for educational institutions other than those offering the main courses [1] [2]. Table I presents Education curriculum of nursing schools [1].

B. Outline of Practice (Experience)

This college provides "nursing technique theory" and "nursing technique practice" mainly in the first semester of the first school year as courses to master basic nursing skills. Students can gain knowledge necessary for aid in the nursing technique theory and experience to help simulated patients (played by students or faculty) in the nursing technique practice. Subjects of this study have taken the course of "nursing technique practice." Fig. 2 presents an outline of the practice. [3], [4].

1) Preliminary learning

Students discuss and produce plans of nursing skills assigned for their own group on Moodle. When drawing up the plan, they can refer to teachers' advice or to a demonstration video.

TABLE I.   EDUCATION CURRICULUM OF NURSING SCHOOLS

Content		Credits
Foundation studies	Fundamentals of scientific thinking	13
	Understanding of humans, living and society	
Specialized Basic studies	Human body structure and function	15
	Disease mechanisms and recovery promotion	
	Health support and social security system	6
Specialization I	Basic nursing	10
	Clinical training	3
	Basic nursing	3
Specialization II	Adult health nursing	6
	Gerontological nursing	4
	Child health nursing	4
	Mental nursing	4
	Mental health and psychiatric nursing	4
	Clinical training	16
	Adult health nursing	6
	Gerontological nursing	4
	Child health nursing	2
	Mental nursing	2
	Mental health and psychiatric nursing	2
Integration	Home care nursing	4
	Nursing integration and practice	4
	Clinical training	4
	Home care nursing theory	2
	Nursing integration and practice	2
Total		97

(Appendix 3 of Designated rule for Public Health Nursing, Midwifery and Nursing School, and Training school)
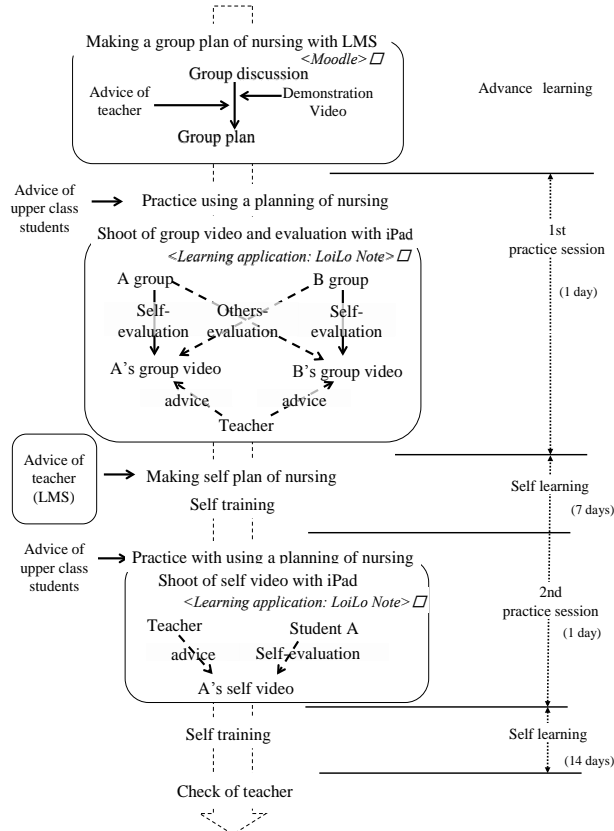

Figure 2.   Outline of practice

2) First time of practice

Students practice according to the group plan. They are advised by teachers or senior students in the practice. Furthermore, they produce group videos for 40 min before the end. They evaluate each other among groups. They are given additional advice by teachers. Group video making and evaluation were conducted with the learning support application "Loilo note." An iPad is used.

3) Self-learning

Referring to mutual evaluation or advice of teachers and senior students, students modify their group plan and make individual plans on Moodle. Using the completed plan, they conduct self-practice.

4) Second time of practice

After practicing according to individual plan, students produce individual videos. Then and there, they watch the video, evaluate themselves, and submit the evaluation to the teacher. Video production and evaluation were conducted with an iPad.

5) Self-learning

Self-learning was used.

6) Skill achievement check

The achievement situation of assigned nursing skills is verified by teachers.

II. METHODS

After practicing according to the individual plan, students individually produce a video. Then and there, they watch the video, evaluate themselves, and submit the evaluation to the teacher. Video production and evaluation were conducted with iPad.

A. Purpose

This study was conducted to clarify the evaluation from the viewpoint of the nursing student about blended learning using the nursing skill class (exercise style).

B. Methods

The open-ended questions of this education program were used to collect data from 98 students participating in a course on nursing skill techniques classroom during the first year of a 4-year undergraduate nursing degree. The mean age of students on the course was 20. The youngest student was 19; the oldest was 25. All students (98) volunteered to participate in this study. They agreed to participation after being informed of the purpose of this study. Anonymity was assured and maintained. No burden or risk was imposed on students; no coercion or pressure was applied. The curriculum was introduced to the students. A hard copy of the syllabus was provided during the first week. Standard lectures, role play, slide presentations, small-group work, question and answer sessions, classroom individual study (on video), and homework (on-line learning) were used for the course. Instructors play a fundamental role in the improvement and achievement of basic nursing skill training. The training techniques used for this study were designed to provide opportunities for students to engage in activity demonstrating and experiencing skills and to receive constructive feedback and coaching. This education program was taught during the first semester of the first year for 3 hr per week for 14 weeks. The course was prepared by the researcher. The collection data were analyzed using "Trend search" text mining software (Fujitsu Co. Ltd., Japan) to map relational words and to analyze relational line size and distance to ascertain the relation strength.

III. RESULTS

Mapping yielded three wedges as shown below (Fig. 3).
1. "Evaluation of support by a simulated patient and by upper-class students"
2. "Evaluation and expectation of teacher"
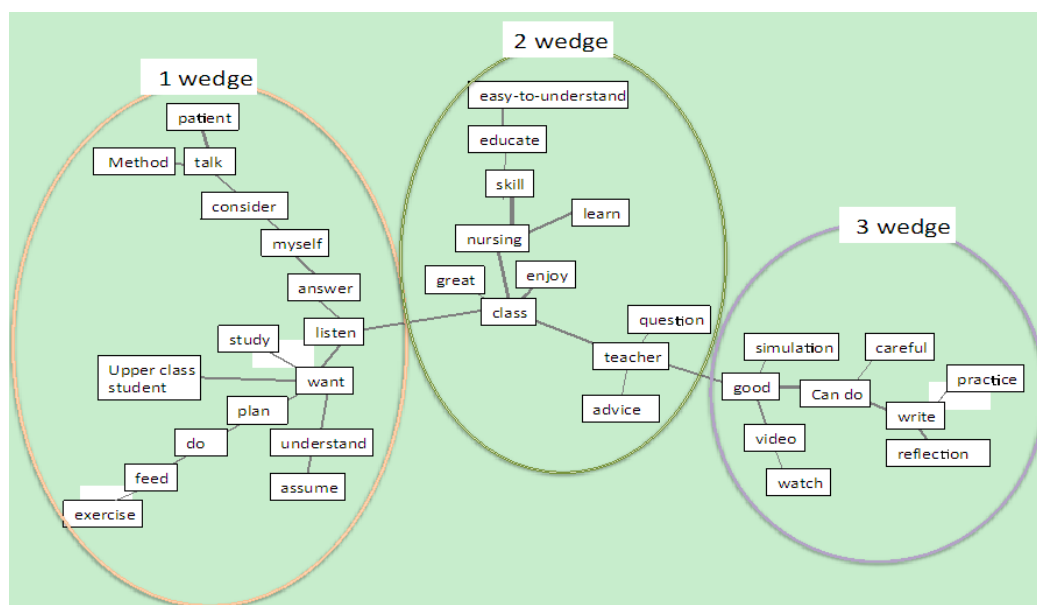3. "Evaluation of Computer Assisted Instruction (CAI) teaching materials"

Figure 3. Text data mining of nursing students about the blended learning using the class of the nursing skill.

IV. CONCLUSIONS

The first wedge, the second wedge, and "teacher" were related to conventional face-to-face learning. The third wedge was related with computer-mediated learning. Results suggest that the range of the computer-mediated learning from the face-to-face learning method in nursing skill practice in Japan is distinguishable by evaluations of nursing students.

The available evidence suggests that online learning for teaching clinical skills is no less effective than traditional means [5]. Karen McCutcheon et al. described the "lack of available evidence on the implementation of a blended learning approach to teaching clinical skills in undergraduate nurse education. [5]" It will be necessary to analyze the perspective of blended learning.

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