

Materials

Learning and Effectiveness from Simulated Experience for Nursing Students in Japan — analysis of published literature —

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Introduction

For three years, we have used a simulated experience to lecture on intractable neuropathy in a course on adult (chronic stage) nursing. With reference to research on the effectiveness of a “simulated experience”, we presented students with the simulated experience of a physically immobile patient and had them present their impressions once the simulated experience was concluded. When considering the meaning of simulated experience, however, results of actually questioning students about the world as experienced by the patient—done via a questionnaire—indicated in concert with analysis of reports[1] that learning was direct.

Gaining a long-term perspective from a simulated experience with a time limit of 30 minutes. is difficult[2]. We did not sufficiently examine whether the experience was linked to “reflective experience” for students or whether learning was from firsthand “experience”. We must further examine the continued use of a simulated experience in lectures. Thus, in the current research we examined related literature with the goal of arranging “learning by simulated experience” in nursing education (lectures).

Purpose

1. To clarify commonalities in student learning based on literature with “simulated experience” in Japan.
2. To clarify the effectiveness of learning by “simulated experience” as found by instructors who examined literature in terms of “simulated experience”.
3. To examine future developments based on the effectiveness of “simulated experience” as clarified.

The Concept of “Learning from Simulated Experience”

“Taiken” and “Keiken” in Japanese both mean “experience” in English so there is no difference between the two in English (useful experience is considered “education”).

According to the Oxford English Dictionary, “to experience” is to make trial or experiment of; to have experience of; to meet with, undergo; to train; to be informed or taught by experience, etc[3].

The Daijisen Japanese dictionary[4] lists the following definitions:

Keiken:

1. To actually see, hear, or do by one’s self. And knowledge and experience required as a result of this.

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2. In philosophy, that which is directly provided by sensation or perception.

Taiken:

1. To actually experience something by one's self; experience with real value, E.g. "Valuable personal experience".
2. In philosophy, the process and content of vividly perceiving what is discovered directly or viscerally from one's personal point of view. This is a core concept particularly in the philosophy of life.

Keiken and taiken are used in common with regard to routine events, e.g. learn from experience, one's first experience. Keiken, or general experience, is used more widely and appears in phrases such as "building on one's experience" and "life experience". Taiken, or firsthand/personal experience, is limited to one's actions or what one sees or hears; it is often used regarding impactful events such as "going through trial school admission" and "experiencing war firsthand".

In the Kadokawa Japanese language dictionary[5], keiken is "actually experiencing something one's self and that experience. Keiken is direct experience that is not differentiated into subjective and objective experience" while taiken is "What one actually sees, hears, and attempts. And knowledge and proficiency obtained as a result".

Thus, "learning" is "knowing by experiencing", "taiken" is "the process and content of vividly perceiving what is discovered directly or viscerally from one's point of view", and "keiken" is "knowledge and proficiency acquired by "taiken" (firsthand experience).

Selection of the literature

1. A search of the CD-ROM version of the Japana Centra Revuo Medicina for 1983 to 2006 using the keyword "simulated experience" yielded 34 hits.
Next, we searched with the keywords "student", "learning", and "reports". This yielded 118 sources.
2. We excluded proceedings from these 118 sources and compared sources with content related to "learning experience" with reference to the title and abstract. We identified 45 sources.

Methods of analysis

1. We arranged these 45 sources by type of learning experience, type of data for what was being learned, and method of data analysis and then searched for trends.
2. The contents of these 45 sources were read carefully by researchers.
3. Rereading these sources presupposing their use in the current adult nursing education, applicable sources such as papers on "type of learning experience and content of firsthand experience" and "tools to measure changes in learning by student subjects" yielded 8 sources (Table 1).
4. We selected passages meaning "student learning", "interpretation of student learning by simulated experience", or "interpretation of suggestions for nursing" from the 8 sources we selected.
5. Passages selected in the previous step were placed into one of three categories based on meaning.
6. We examined categorized passages with regard to future usage of simulated experience based on the concepts of taiken (firsthand experience) and keiken (experience in general) and we examined learning in nursing and suggestions for the future.

Table 1 Title of literature

Title	Author	Publication
Research on the Effect of Experience Study -Contents Analysis of Elderly Person Simulation Experience-	M.Takeuchi et al.	2000 Bulletin of Kagawa Prefectural College of Health Sciences
Effect on Understanding of Nursing Student about the Elderly through a Simulation Experience using Braces -Analysis of Free Description after Their Experience-	Y.Uehara et al.	2000 Journal of FUKUI Medical Universty
The Results of on-the-job Training Living with Disabled	M.Kikuchi	2003 Journal of Seibo Jounior College
Kango Gakusei ni Okeru Ninpugijitaiken Gakushu no Kouka (Dai3Hou)(in Japanese)	Y.Ohtsuki	2004 35th Kango Kyuiku
Evaluation of a Student's Learning through Simulation Experience Study in Gerontological Nursing Education -Understanding of an Elderly Person and the Role of a Caregiver	K.Muroya et al.	2004 Journal of UOEH
Learning Effect of Elderly Simulation Experience -Qualitative Analysis of Small-Group Discussion Record-	A.Kawasaki et al.	2004 Journal of the Japanese Red Cross Musashino Junior College of Nursing
What Students have Learned through the Experience of Applying Ostomy Bag	K.Kanematsu et al.	2005 Journal of Gifu College of Nursing
Byouin de Kanjataiken wo Surukotono Manabi to Juyousei (in Japanese)	T.Fujima et al.	2005 36th Kango Kyouiku
The Education of Nurses using Virtual Methods for Geriatric Care -a Report-	Y.Kizu et al.	2005 Annual Research Report of SDF Sapporo Hospital

Results

A breakdown of the 45 sources indicated that the most frequent was “experiencing aging” (Table 2).

Next was simulated experience involving the wearing of a pregnancy vest and ostomy collection bag.

The most frequent type of learning data was “tasks”, which were used in 27 sources. Unstructured essays appeared in 16 sources but in most cases the essay was originally written as a task; no essays were written in an unstructured form for research purposes. A questionnaire was used along with reports. The most frequent method of analyzing data in the 45 sources was categorization, which was used in 30 sources.

Table 2 Type of learning experience

Contents	Experience Contents (number)
Elderly simulated experience	the aged similarion (9), Senior Citizens' Clubs(1)
A stoma experience	appling Ostomy Bag(2)
The lap operation period	simulative nursing practice curriculum (1),method of breathing(1)
The end period	video assisted education(1)
A pregnant woman experience	simulated jacket Maternity Simulation jacket (2),video assisted education(1)
Basic technology practice	role play(1),skills laboratory (restraint(1),stomach tube (1),desposition(2), bed-bath(1),hand-wash(1),help with eating(2) simulated patient(physical assessment)(1)
Personal relationships	role play(3)
Local nursing	lecture(1),role play(1)
Others	literature review(1) simulation of child-care(1) lecture(2) disaster training(1) situation setting(4),experience of paralysisi and aprophoria(1) hear about someone's actual experiences(1) case study(1)

n=45

Additionally, the KJ method and the technique of content analysis were used (Tables 3 and 4).

Analysis of the 8 sources can be described as follows.

Table 3 Type of learning

Type of Learning in Literature	Number
Task includes practice and lecture	27
Free description after practice and lecture	16
Questionnaire paper	5
The evaluation list by student evaluation form	2
Others	1

* multiple count

Table 4 Analysis method

Methods (number)
KJ-method (6), contents analysis(3), Categorization used framework(4)
Others(statistical processing etc) (5)

* multiple count

Learned experience for nursing students

Nursing students' learned experience was classified into "negative impressions", "expectations", "positive experiences", "the subject and society", "learning", and "assistance" (Table 5).

"Negative impressions" were negative impressions because of emotional aspects such as "difficulty", "loneliness", and "apprehension" as felt by the students as a result of the simulated experience and physical aspects such as "physiological changes" and a "decline in sociability". These "negative impressions" were found in all 8 sources.

"Expectations" were demands resulting from what the student experienced in the simulation such as requirements for one's surroundings. This was found in only 1 source.

"Positive experiences" were simply those without "negative experience" and with regard to the simulated experience were clarification of one's own task, identification of the ideals, and positive thought. These experiences were noted in half of the sources.

"Learning" was what was gained by acquiring learning, i.e. new discoveries, and deepening one's level of understanding as a result of the simulated experience. The "subject and society" was the social climate surrounding the subject and society's view of the subject.

"Assistance" was the specific content of assistance and attitudinal aspects demanded by the nursing profession.

Interpretation of student learning by simulated experience

Student learning as interpreted in the sources was divided into 18 categories (Table 6). These were the need in care for awareness of phenomena specific to the subject such as "physical aspects" and "psychological aspects", "positive" and "negative" reactions, and governing of perceptions of simulated experience,

Table 5 Learned experience for nursing students

Category	Learning of Students	Category	Learning of Students
Impression	patience impression		
Negative impression	difficulty	Positive experience	positive experience
	weariness		patience
	arduousness		clarification of learning task
	loneliness		feeling of safety
	anxiety		idealized vision
	distastefulness		actual feeling
	awful feeling	Learning	willingness to learn
	burden		meaning
	annoying		behavior
	consideration for others		new discovery
lower self-esteem		promote understanding	
fingerprint	Care of method	necessity of support	
physiological alteration		concrete care	
decline in social skills		support of sense of accomplishment	
weakness		support to independence	
communication		mental care	
		think about a viewpoint of objects	
Expectation	environment		daily life support
Object and society	prejudice		basics of support
	circumstance		

Table 6 Construction about learning and nursing by simulated experience in students

Learning of Students by a Learning Experience	Suggestion to Nursing
<ul style="list-style-type: none"> • understanding of the physical • understanding of the psychological • distastefulness, anxiety , negative feeling ,negative experience • positive reception, positive experience • nursing support that was found • family experience • economic problems • consideration for developmental stage • social view of reinforcement • necessity of assessment of the situation • necessity of individual care • considerations for adaptation to life • new discovery • up lift of morale ,appetite for learning • opportunity for insight • learning of nursing • actual feeling by experience • concrete image 	<p>A Perspective</p> <ul style="list-style-type: none"> • opportunity of awareness • development of learning and motivation • speak basis of someone's opinion • leads to dangerous prevention • health education <p>B Task</p> <ul style="list-style-type: none"> • necessity of the lecture to make the experience effective • reinforcement of impairment and patient advocacy group • necessity of lecture about care to plan symptom improvement <p>C Device of orientation</p> <ul style="list-style-type: none"> • setting of learning target • time and technical examination • consultation • orientation of the device for understanding anthropotomy • lecture exam for practice before and after • selection of a learning item • record method

i.e. emotions.

Interpretation of suggestions for nursing

Suggestions for nursing as interpreted in sources were classified into 3 categories of “prospects”, “topics for the future”, and “references to workarounds for pre-practicum orientation”. “Prospects” were ideals for the simulated experience as noted in light of reports of the simulated experience. Prospects for learning were placed into 5 categories such as “development of learning and motivation”, “opportunities for heightened awareness”, and “stating of grounds for one’s opinion”. “Topics for the future” were details such as how noted “prospects” would be capitalized upon and incorporated via simulated experience. These efforts were discussed as 3 methods of supplementation, i.e. methods of studying lecture and patient group details and specific methods of care.

“References to workarounds for pre-practicum orientation” consisted of 7 items for the improvement of a simulated experience such as establishment of learning objectives, time and technical studies, studies of tasks, and studies of records.

Discussion

Content of simulated experiences in the literature

We found most literature used a simulated experience of being elderly and most used a setup specifically simulating the experience of being elderly. Many researchers simulated experiences such as pregnancy and carrying an ostomy collection bag using setups specific to those experiences. It might be difficult in this context for a student with little experience firsthand to open his imagination to what he has not experienced. Things nursing students experience firsthand appeal to the emotions and remain in the memory. The goal can surely be achieved by wearing a simulator setup, and a more vivid experience is possible. Such methods can be used more effectively if the goal is to motivate or create an opportunity for the patient or subject to experience something they cannot do in real life. Moreover, students felt a lot of unpleasantness such as pain. They were able to experience the subject’s experience. Regardless of whether the experience is positive or negative, it remains as an emotion, and this is more likely to leave an impression.

Interpretation of student learning by simulated experience

Most of the analysis of learning concerned impressions and learning and assistance for the subject.

However, this was included in what was classified and arranged with an analytical framework by researchers. Using a framework with unstructured essays carries the risk of not being able to highlight included data such as dynamic learning. Learning by a learning experience as in the current work has been analyzed based on analysis of reports, but this is limited by work to verbalize phenomena. Analysis within the framework used in the current work and readily used in unstructured essays were established as tasks. Nishihira mentioned the risk of verbalization narrowing the descriptive terms used but no sources made reference to that risk[6].

For a student to clearly enjoy a worthwhile experience of his own, “the most important factor may be deliberately tracing a detailed process, i.e. specificity, practicality, technical nature, and conformity to events. That is, moving from “Taiken” to “Keiken” as the student enjoys the experience can be ac-

completed merely with the unstructured essay, but describing that process in as much detail as possible while retracing it is crucial. This allows recounting of the experience, and the surfacing of more vivid phenomenon, and enjoyment of the experience while verbalizing it. Another effect of verbalization is the possibility of differences in experience based on work to describe the experience in detail; if the goal is learning from “experience”, though, the task of putting experience into words fosters humility in experience. Experience is not abstract in a sense of understanding but is instead having more specific thoughts. One’s experience is actually predicated on a desire for understanding and, though difficulty of verbalization, the weariness of more accurately expressing one’s experience, and the joy of doing so, allow the student to feel closer to the subject. Nursing students must learn that, beyond being an empirical science, “nursing is the accumulation of experience”. Besides lectures alone, the study of nursing requires waiting for learning experiences to gather experience and the expression of those experiences in words.

Interpretation of suggestions for nursing

Instructors divided the target sources into those where the “Purpose” of the learning experience is clear and where it is unclear. A simulated experience is not a goal of study but one means. It is to motivate and provide opportunity. Experience via practice and lecture allows students to truly sense their future profession.

Our analysis of the literature showed most expressed some feelings as a result of student learning by simulated experience. Authors consciously face the fact that simulated experience and strategy is not the goal but a way-station. In a limited time, goals and objectives are necessary, but if experience is the goal rather than acquisition of skill then ensuring that there is no deviation from the goal is also crucial.

Based on Dewey’s ideas, Yasukata advocated “practical education through experience” [7] with regard to the study of adulthood for clinical practical education. The teacher’s role is to establish a learning environment providing direct experience to students, design a setting for learning where the process of reflective experience will be promoted, and assist students in their quest.

We suggested that motivation and new discoveries are crucial roles for simulated experience in nursing students.

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