Short Report

Examining the Criterion-related Validity of the Self-Directed Learning Ability Scale for Clinical Nurses

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Abstract

The aim of this study was to clarify the criterion-related validity of the Self-Directed Learning Ability Scale used in Japan and examine its concurrent validity with the Self-Directed Learning Readiness Scale. A total of 1665 self-administered questionnaires were distributed to nurses, and 727 nurses responded to the survey from 6 hospitals in Japan. The correlation coefficient between the total scores of the Self-Directed Learning Ability Scale and the Self-Directed Learning Readiness Scale was r_s=0.240 (p<0.001). It is necessary to concisely clarify the concepts and factors related to self-directed learning ability and self-directed learning readiness that are principal concepts in adult learning and lifelong learning.

1. Introduction

Nurses provide nursing care and solve complex problems daily. Therefore, it is important for nurses to acquire new knowledge and skills to provide elaborate and high quality nursing service to patients and continue to work as nurses. This problem-solving ability allows nurses to solve various problems and provide superior nursing care. Self-directed learning ability has the strongest influence on the problem-solving activities of nurses[1, 2]. The Japanese Ministry of Education, Culture, Sports, Science and Technology clarified that one of the goals for university nursing programs was to acquire this self-directed learning ability[3].

There have been several studies in Japan related to self-directed learning ability in nursing[4-6]. For example, self-directed learning ability and its related factors[7, 8], the relationship between the achievement motivation and self-directed learning ability among nursing students[9, 10] and a concept and the related concepts of self-directed learning ability[11] were reported. These quantitative studies used mostly Kajita's scales for self-directed learning ability[12] and Kajita's scales modified by Nishimura[13]. However, it has been pointed out that the concept of self-directed learning ability is diverse and indistinct; therefore, further

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examination of the scale is required.

2. Background

The term self-directed learning ability was first used in the Japanese Council's progress report by subcommittees, such as educational contents of the Central Education Council, in November 1983 and defined as "self-directed intent, attitude and ability"[14]. It was one of the pillars of the education guidelines for schools. In addition, it was the code of ethics for nursing by the Japanese Nursing Association[15]. Furthermore, the designated role of public health nurses, midwives and nursing schools[16] was to clarify the importance of lifelong learning in nursing.

Self-directed learning ability is the ability to acquire knowledge, skills and sustain growth to learn by oneself[12]. It is emphasized as the basic ability and development of lifelong learning. It is necessary for nurses to be responsible for improving and developing their skills as professionals and have self-directed learning ability[2].

2.1 Self-directed learning ability

Kajita[12] reviewed many studies, and conceptually developed the Self-Directed Learning Ability Scale. Self-directed learning is the skills and attitudes of acquiring knowledge independently and autonomously. Self-directed learning ability was explained in four domains: ⟨I intention to grow and develop⟩, ⟨II self-objectivity and control⟩, ⟨III skill and basis for studying⟩, and ⟨IV self-confidence, pride and stability⟩[12] as shown in Fig. 1. Kajita[12] originally developed the Self-Directed Learning Ability Scale with 30 items that were constructed of three domains each with 10 items; these were ⟨I intention to grow and develop⟩, ⟨II self-objectivity and control⟩ and ⟨III skill and basis for studying⟩. It was developed for use by students, not for adults, which meant it was limited to nursing students[11]. In addition, Nishimura, et al.[13] developed 10 items for the undeveloped fourth domain, self-confidence, pride, and stability and partially modified the
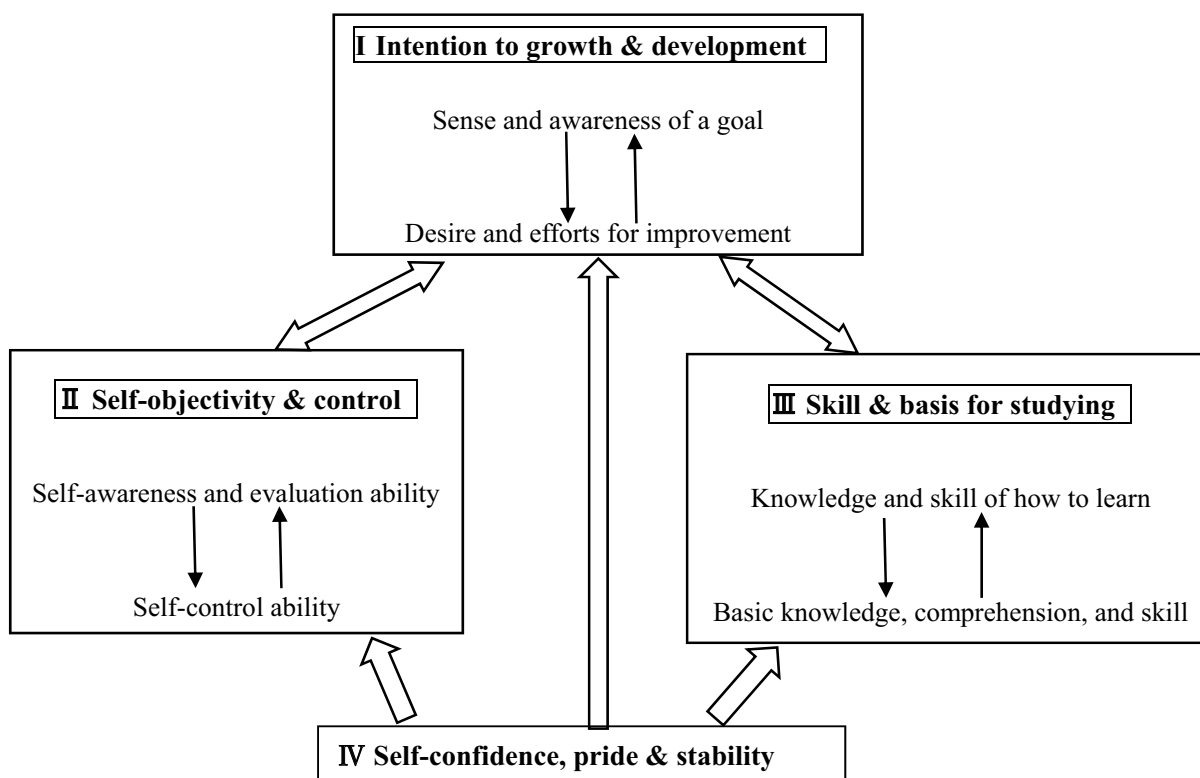

Fig. 1   The aspects of self-directed learning ability
Source: Kajita E[12] : *Education for self-directed learning*. p.37, Meijitosho, Tokyo, Japan, 1985.

other domains. The modified version was tested for reliability and validity, and its adaptability for nurses was examined[13]. The reliability of the scale was evaluated by the internal consistency and the reliability coefficient was 0.77 by the split-half estimation method[13]. The correlation values among all items of self-directed learning ability were positively correlated from 0.04 to 0.60. However, the three correlation value items from II self-objectivity and control, showed low correlation values of less than 0.20[13]. Each domain was reciprocally and positively correlated, and the correlation coefficients between each domain and the total score were calculated from moderate to high correlation values. The correlation between each domain and the total score of nurse identity was positive. The result of the factor analysis found the validity of each domain. However, Nishimura et al. pointed out the need for consideration of the validity because of a slightly low correlation between each domain of self-directed learning ability and the nurse identity, and a slightly low contribution rate by the factor analysis[13].

2.2 Self-directed learning readiness

In the West, self-directed learning is an adult's ability to learn and acquire skills independently. Knowles[17] defines self-directed learning as

a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies and evaluating learning outcomes (p. 18).

Guglielmino[18, 19] conducted a 3-round Delphi Survey of the most-respected experts in self-directed learning, including Malcolm S. Knowles, Cyril O. Houle and Allen Tough to obtain expert consensus on the characteristics of a highly self-directed learner. She then developed the Self-Directed Learning Readiness Scale (SDLRS) to assess those characteristics. The word "readiness" rather than "ability" is used to emphasize that SDLRS is a developable capacity. The SDLRS measures an individual's current level of readiness to learn at the specific point of time.

Guglielmino[18, 19] defined a learner as a student model with high self-directed learning ability and readiness was an individual's capability and eagerness directly necessary for learning. She developed the SDLRS. The scale showed reliability and validity[20], and has been used in many studies[21-23].

A highly self-directed learner was defined as an extremely motivated learner with the ability to learn and readiness for self-directed learning[14]. Matsuura et al.[24, 25] translated SDLRS into Japanese and tested the Cronbach's α coefficient (0.914).

There have been many studies related to self-directed learning ability in Japan[4-6], and they used Kajita's scale of measuring self-directed learning ability[12] or the modified version of Kajita's scale by Nishimura et al.[13]. However, most studies did not clarify the definition of self-directed learning ability. It was based on the premise that self-directed learning readiness was theoretically included in self-directed learning ability. The criterion-related validity of the Self-Directed Learning Ability Scale needed to be tested and the SDLRS was used for the analysis.

3. Aim

The aim of this study was to clarify the criterion-related validity of the Self-Directed Learning Ability Scale used for assessing clinical nurses in Japan and examine its concurrent validity with the SDLRS.

4. Methods

4.1 Sample

In this study, self-administered questionnaires were distributed to nurses working in hospitals in Japan: 1,255 questionnaires at three specific functional hospitals with over 500 beds and 410 questionnaires at three general hospitals with 200-500 beds.

4.2 Procedures

   The directors of the nursing department from each of the hospitals that consented to serve as data gathering sites were approached. A total of 1665 self-administered questionnaires were distributed to the nurses working in those hospitals. Each potential participant received a packet that included an introductory letter, questionnaires, and a self-addressed stamped envelope with no code number, or any other identifying mark.

4.3 Measures

4.3.1 Demographic data

   The following demographic data were included: gender, highest level of education and employment position.

4.3.2 Modified Self-Directed Learning Ability Scale

   Kajita[12] originally developed the Self-Directed Learning Ability Scale with 30 items, involving three domains with 10 items each. The items ranged from 40 to 80 points on a 2-point scale with the option of either "Yes" or "No." The higher scores meant the higher ability on self-directed learning.

4.3.3 Self-Directed Learning Readiness Scale

   Guglielmino[18] developed the SDLRS in order to examine the self-directed learning readiness for adults graduating from high school. The Guglielmino group[19] did not recommend avoidance of the use of subscales derived from the SDLRS factors, because the subscale structure derived from a factor analysis of one sample may not be an adequate representation and the overall score was the interpretable measure.

   The SDLRS was composed of 58 items including 17 reversed items. The scale ranged from 58 to 290 points in a 5-point Likert scale ranging from "never think" to "always think."

   The mean score for the Guglielmino group[19] was 214 (Standard Deviation 25.59), and the scores categorized the low group as having a score <176, the below average group 177-201, the average group 202-226, the above average group 227-251 and the high group 252-290. The higher scores meant that individuals who had higher readiness of self-directed learning prefer to decide their learning needs and learn autonomously.

4.4 Ethical considerations

   The study was approved by the Ethical Review Committee, Kawasaki University of Medical Welfare (#188). After the approval, an investigator asked and obtained permission for the study from the director of the nursing department of each hospital, and then the potential participants received the questionnaire package and were asked to participate in this study. The study protected the participants' free will and anonymity.

   The consent to the use of the SDLRS[18] and Self-Directed Learning Ability Scale[13] were given by the authors.

4.5 Data analysis

   Data were calculated as descriptive statistics on all demographic variables and Spearman's rank order correlation coefficient between Self-Directed Learning Ability Scale and the SDLRS. This is because the scores would not be distributed normally and it alleviated the influence from outlier values. All calculations were performed using the statistical software package, SPSS for Windows Ver. 17.0.

5. Results

   A total of 727 nurses responded to the survey from 6 hospitals with a valid response rate of 43.7%. In Table 1, there were 28 males (3.9%) and 699 females (96.1%) with the average age of 35.0 ± 10.1 years, and

Table 1 Characteristics of respondents

	(n=727)
	Number (%)
Gender	
Male	28 (3.9)
Female	699 (96.1)
Educational background	(2 no answers)
Diploma	329 (45.3)
Associate	155 (21.3)
Bachelor	230 (31.6)
Master/ Doctorate	11 (1.5)
Employment position	(2 no answers)
Staff	585 (80.5)
Vice-head nurse	90 (12.4)
Head nurse	31 (4.3)

Table 2 Spearman's rank order correlation coefficient between self-directed learning readiness and self-directed learning ability

	SDLRS	I	II	III	IV
Self-directed learning ability					
I Intention to growth & development	0.264*				
II Self-objectivity & control	0.013	0.112*			
III Skill & basis for studying	0.058	0.099*	0.059		
IV Self-confidence, pride & stability	0.309*	0.111*	0.002	0.046	
Total Score	0.240*	0.621*	0.523*	0.542*	0.621*

* P<0.001

SDLRS = Self-Directed Learning Readiness Scale

the average duration of working as a nurse was 12.8 ± 9.8 years.

The average points of each domain in the modified Self-Directed Learning Ability Scale were 16.01 (SD 1.41) in 〈I intention to grow and develop〉, 16.40 (SD 1.31) in 〈II self-objectivity and control〉, 15.94 (SD 1.45) in 〈III skill〉 and basis for studying and 14.57 (SD 1.31) in 〈IV self-confidence, pride and stability〉 with a total average score of 62.91 ± 2.96 points. In regard to SDLRS, the total average score was 185.54 ± 24.62 points.

In Table 2, Spearman's rank order correlation coefficient between the total scores of Self-Directed Learning Ability Scale and SDLRS was r=0.240 (p<0.001). The SDLRS was statistically and positively correlated with 〈I intention to grow and develop〉, r=0.264 (p<0.001) and 〈IV self-confidence, pride and stability〉, r=0.309 (p<0.001).

6. Discussion

This study showed the criterion-related validity of the Self-Directed Learning Ability Scale and its concurrent validity with SDLRS showed a low-degree of positive correlation. Self-directed learning readiness was associated with 〈I intention to grow and develop〉 and 〈IV self-confidence, pride and stability〉. However, it was not associated with 〈II self-objectivity and control〉 and 〈III skill and basis for studying〉.

Guglielmino[18] defines a highly self-directed learner as

one who exhibits initiative, independence, and persistence in learning; one who accepts responsibility for his or her own learning and views problems as challenges, not obstacles; one who is capable of self-discipline and has a high degree of curiosity; one who has a strong desire to learn or change and is self-confident; one who is able to use basic study skills, organize his or her time and set an appropriate pace for learning, and develop a plan for completing work; one who enjoys learning and has a tendency to be goal-oriented (p. 73).

This study is based on the premise that the concept of self-directed learning readiness theoretically included the association with self-objectivity, control, the content of the skill and basis for studying. However, there are various and unclear concepts of self-directed learning ability and the self-directed learning readiness. Therefore, there is need for concise clarity of the concepts.

7. Conclusions

It is important for nurses to promote self-directed learning readiness and self-directed learning ability by having learning objectives in order to accomplish lifelong growth. The study showed that the Self-Directed Learning Ability Scale and SDLRS had a weak association. It is necessary to concisely clarify the concepts and factors related to self-directed learning ability and self-directed learning readiness that are principal concepts to lifelong learning in adults.

Acknowledgements

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