

【Materials】

## 看護大学教員能力自己評価尺度の内容妥当性の検討

### Assessing the Content Validity of the Nursing Faculty Competencies Self-Assessment Scale

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#### 抄録

〔目的〕本研究では、看護大学教員能力自己評価尺度の内容妥当性を検討することである。〔方法〕看護大学教員を対象に行ったインタビューの結果から作成した151項目とそれを構成する4概念（学習支援力；108項目, 研究実践力；17項目, 社会貢献力；10項目, 組織運営力；16項目）との関連を内容妥当性指数（I-CVI）にて検討した。2014年3月～4月に、看護大学教員の経験がある看護教育学の研究者10名を対象に郵送法による自己記入式質問紙調査を実施した。尺度項目と各概念との関連について「関連がない（1点）」「わずかに関連がある（2点）」「関連がある（3点）」「かなり関連がある（4点）」までの4段階に設定した。〔結果〕151項目におけるI-CVIは0.50から1.00の範囲を示した。学習支援力ではI-CVIが0.78未満を示す17項目を削除し91項目となった。研究実践力, 社会貢献力, 組織運営力を構成する項目では0.78以上を示した。〔結論〕I-CVIによる精選の結果, 尺度全体では134項目となり、看護大学教員能力自己評価尺度項目の内容妥当性が確保された。

#### Abstract

**Objective:** The purpose of this study was to assess the content validity of a Nursing Faculty Competencies Self-Assessment Scale, using the item-level content validity index (I-CVI). **Methods:** Ten nursing education researchers who all had experience as faculty in a university's nursing program served as the experts in this study. We conducted a survey using an anonymous questionnaire that was mailed to the participants. The survey consisted of 151 items representing the 4 constructs (learning support competencies, research performance competencies, social contributions competencies, and organizational operation competencies). The experts rated the relevance of each item based on the constructs' definitions on a four-point scale (1= entirely not relevant, 2= somewhat relevant, 3= quite relevant, 4= highly relevant). Data collection was conducted

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between March and April 2014. We assessed the validity of the items using the I-CVI. **Results:** The experts assessed all items as being relevant to their corresponding constructs. The I-CVI values ranged from 0.50 to 1.00 for all items, and 134 items had I-CVI values above 0.78. I-CVI values were higher than 0.78 for the 91 learning support competencies items, while values did not reach 0.78 for 17 of the learning support competencies items. There were 17 items for the research performance competencies, 10 items for the social contributions competencies, and 16 items for the organizational operation competencies with values above 0.78. There were no items in these constructs with I-CVI values below 0.78. **Conclusion:** Except for the 17 items with low I-CVI values, the content validity of the Nursing Faculty Competencies Self-Assessment Scale was confirmed.

## I . Introduction

Recently, along with the promotion of faculty development (FD) in order to build and enhance the competencies of university faculty related to their teaching activities, clarifying what competencies are considered necessary for university faculty has become an important issue (Ministry of Education, Culture, Sports, Science and Technology, 2008). However, while there are examples of proposals regarding codes of ethics for faculty (The Japan Association of Private Universities and Colleges, 2003), there are few instances of specific studies being conducted regarding those competencies. Internationally, attempts have already been made to clarify nursing faculty competencies in order to promote FD (Johnsen et al., 2002; Davis et al., 2005; Guy et al., 2010). Looking at those competencies, we thought that a separate study on the competencies of Japanese nursing faculty was necessary since differences in nursing education systems and the social roles of faculty make it difficult to apply competency items for nursing faculty examined in other countries to Japanese nursing faculty. As there are no Japanese scales currently available for assessing nursing faculty competencies, we undertook the development of the Nursing Faculty Competencies Self-Assessment Scale (NFCSAS). By developing such a scale we hoped that the nursing faculty could use this instrument to self-assess their competencies and would thus result in more self-reflection. The

aim was that this tool could resolve faculty issues and clarify the competencies needed by nursing faculty, which are potentially an important resource for effectively promoting nursing FD.

A preliminary draft of items for the NFCSAS was created from the combined results of analyses of data gathered from semi-structured interviews regarding the competencies needed by nursing faculty via the convenience sampling of 16 nursing faculty who had 3 or more years of university faculty experience (study period: March-May 2012) (Doi et al., 2013) and 13 junior faculty (assistant professors with under three years nursing faculty experience and who were eligible for Grants-in-Aid for Scientific Research Young Scientists A or B and were 39 years old or less) (study period: March-April 2013) (Doi et al., 2014). The preliminary draft consisted of 144 items that made up the four constructs: learning support competencies, research performance competencies, social contributions competencies, and organizational operation competencies. Subsequently, we conducted a focus group interview using convenience sampling of four nursing education researchers with experience as nursing faculty (December 2013) to look at the face validity and content validity of the 144 scale items. According to the results of an examination by the experts, 14 scale items, of which abstract degree of the contents of the question was higher, were classified into two (or three) scale items in order to make them un-

derstandable. As a result, additional 15 scale items were created. Then, eight scale items, of which contents of the question were applied to only some faculty, were deleted. As a result, the number of the scale items became 155 in total: 108 items related to learning support competencies, 17 items related to research performance competencies, 10 items related to social contributions competencies, and 16 items related to organizational operation competencies.

Content validity is a concept which relates to how well the scale items express the group of situations which one is trying to draw a conclusion about. It is concerned with assessing whether the question items are congruent with the purpose of the measure (Murakami, 2012). In the assessment of content validity, multiple experts quantitatively assess the relevance between the scale items and the construct being measured, and the item-level content validity index (I-CVI) is calculated to find the rate of agreement among the experts (Polit et al., 2016). Polit et al. (2006) explain that quantitative assessment of content validity using the I-CVI can provide proof of content validity and studies have reported that assessment using I-CVI is effective in the development of scales (Schilling et al., 2007; Pölkki et al., 2014; Yamauchi et al., 2016).

## II. Objective

As quantitative assessment of content validity using the I-CVI can provide proof of a scale item's content validity, the purpose of this study was to investigate the content validity of the NFCSAS using the I-CVI.

## III. Operation Definitions of Terms

The concepts in this study were defined as follows.

1. **Nursing faculty** are individuals who have a nursing license and work mainly in education and

research at a nursing university as professors, associate professors, lecturers, or assistant professors.

2. **Learning support competencies** are competencies needed by nursing faculty to support the learning of nursing students.

3. **Research performance competencies** are competencies needed by nursing faculty to independently undertake research activities and return these research findings to society.

4. **Social contributions competencies** are competencies needed by nursing faculty (academics and researchers) to respond to the requests of the community (the needs of society).

5. **Organizational operation competencies** are competencies needed by nursing faculty to take responsibility for performing their assigned functions in order to achieve the educational goals of the school (or department) to which they belong.

## IV. Methods

### 1. Participants

As 5-10 experts are required for the calculation of a dependable content validity index (Lynn, 1986), this study used convenience sampling to select 10 participants who were researchers in nursing education and who had nursing faculty experience. The reason for using researchers who specialize in nursing education studies as participants was because many scale items related to educational events were extracted, and we believed that it was appropriate to question the content validity of nursing university faculty capabilities. We asked 10 researchers involved in nursing education to participate in this study and obtained the responses from 10 participants.

### 2. Data collection

An anonymous self-administered questionnaire was mailed to the participants in order to study the content validity of the preliminary scale items for the NFCSAS using the I-CVI. The study period was

March through April 2014.

### 3. Survey content

Each of the scale items was to be answered using a 4-point scale (Polit et al., 2006): “entirely not relevant” (1 point), “somewhat relevant” (2 points), “quite relevant” (3 points), or “highly relevant” (4 points). The survey began with the following instructions: “Please select a response from ‘1. Entirely not relevant’ to ‘4. Highly relevant’ to indicate to what extent each scale item is congruent with the scale category as a competency needed by nursing faculty. Circle the appropriate number of the response.”

### 4. Data analysis

For each item, the I-CVI is computed as the number of experts giving a rating of either three or four (thus dichotomizing the ordinal scale into relevant and not relevant), divided by the total number of experts (Polit et al., 2006). Following the recommendation of Polit et al. (2007) that I-CVIs need to be at least 0.78, items with an I-CVI of 0.78 or above were selected for the NFCSAS.

### 5. Ethical considerations

This study was performed with the approval of the Osaka Prefecture University School of Nursing Research Ethics Committee (application number 25-64). The request to participate in the study that was sent to the participants included the purpose of the study, a summary of the survey, a statement that participation was entirely voluntary and explanations regarding how the study’s results would be published and how the confidentiality of personally identifiable information would be maintained.

## V. Results

Surveys were mailed to 10 nursing faculty who agreed to participate in the study and valid responses were received from all of them. Participant characteristics are shown in Table 1.

I-CVI scores were calculated to look at content

**Table 1** Characteristics of the nursing education researchers (n=10)

Characteristic	n
Gender	
Men	0
Women	10
Age	
30-39	2
40-49	6
50-59	2
Job title	
Professor	2
Associate Professor	2
Lecturer	3
Assistant Professor	3
Years of nursing faculty experience	
Mean $\pm$ SD	6.8 $\pm$ 5.5

validity. Constructs are indicated in bold and sub constructs are indicated in italics. I-CVIs for the 151 items of the NFCSAS ranged between 0.50 and 1.00. The numbers of items with I-CVIs shown to be 0.78 or above were: 91 for **learning support competencies**, 17 for **research performance competencies**, 10 for **social contributions competencies**, and 16 for **organizational operation competencies**. After eliminating the 17 items related to learning support competencies which had I-CVIs lower than 0.78, 134 items remained in the overall scale. The results are presented in Table 2.

The I-CVIs for the 108 items related to **learning support competencies** ranged from 0.50 to 1.00. Five items relating to *instructional design engagement* had I-CVIs lower than 0.78 and were eliminated. These were: 18. We are able to put my own views on education into practice, 0.60; 32. We are able to teach students by making good use of examples, 0.70; 35. We are able to make good use of my presentation skills in my classes, 0.70; 37. We are able to make good use of a variety of assessment methods, 0.70; and 38. We are able to question students in ways that draw out their observations and thinking, 0.70. Seven items were eliminated relating to *support in accordance with students’ learning-related issues*: 41. We are able to adapt my teaching to learning tasks that students are interested in, 0.70; 42. We are able to adapt my teaching to learning

**Table 2** Result of a measurement of Nursing Faculty Competencies Self-Assessment Scale items by I-CVI(n=10)

Constructs and <i>Subconstructs</i>	Premeasurement items	Postmeasurement items
<b>Learning support competencies</b>		
<i>Promotion of students' proactive learning</i>	16	<b>16</b>
<i>Instructional design engagement</i>	22	<b>17</b>
<i>Support in accordance with students' learning-related issues</i>	12	<b>5</b>
<i>Cooperation with clinical institution</i>	8	<b>8</b>
<i>Support for students' clinical practicum</i>	20	<b>18</b>
<i>Fostering of students' research skill</i>	4	<b>2</b>
<i>Fostering of human relations with students</i>	16	<b>16</b>
<i>Fostering of nursing students' attitude toward the nursing profession</i>	4	<b>3</b>
<i>Engagement to ensure quality in educational activities</i>	6	<b>6</b>
<b>Research performance competencies</b>		
<i>Collaborating with research fields</i>	2	<b>2</b>
<i>Implementing research processes</i>	12	<b>12</b>
<i>Self-directed engagement in research</i>	3	<b>3</b>
<b>Social contributions competencies</b>		
<i>Social activities making good use of resources</i>	4	<b>4</b>
<i>Support reflecting the learning needs of local residents</i>	6	<b>6</b>
<b>Organizational operation competencies</b>		
<i>Performance of your role within the organization</i>	8	<b>8</b>
<i>Building interpersonal relationships with other members of the organization</i>	3	<b>3</b>
<i>Understanding the distinguishing characteristics and objectives of your school (department)</i>	3	<b>3</b>
<i>Teaching activities are based on the objectives of your school (department)</i>	2	<b>2</b>
<b>Total</b>	151	<b>134</b>

tasks that students want to study, 0.60; 44. We are able to take students' progress into consideration while I teach, 0.70; 45. We are able to take students' varied learning backgrounds into consideration while I teach, 0.70; 46. We are able to support students with low academic ability, 0.60; 47. We are able to teach in a way that emphasizes engaging students in conversation, 0.60; and 50. We are able to teach by making good use of personal conversations with students, 0.70. Two items were eliminated relating to *support for students' clinical practicum*: 65. We are able to make instructional use of students' experiences, 0.70; and 68. We are able to appreciate students' learning needs, 0.70. Two items were eliminated relating to the *fostering of students' research skill*: 79. We are able to guide students' research by making use of my own research skill, 0.70; and 82. We are able to be a role model for students

as a nurse researcher, 0.70. Moreover, one item was eliminated relating to the *fostering of nursing students' attitude toward the nursing profession*: 99. We are able to respond appropriately to student requests for advice regarding their academic careers, 0.50. Thus, 17 items regarding the **learning support competencies** were eliminated, reducing the number of subscale items from 108 to 91.

I-CVIs for the 17 items in total related to **research performance competencies** ranged from 0.80 to 1.00. None measured less than 0.78. They consisted of two items relating to *collaborating with research fields*, 12 items relating to *implementing research processes*, and three items relating to *self-directed engagement in research*.

I-CVIs for the 10 items related to **social contributions competencies** ranged from 0.80 to 0.90. None measured less than 0.78. The 10 items con-

sisted of four items relating to *social activities making good use of resources* and six items regarding the *support reflecting the learning needs of local residents*.

I-CVIs for the 16 items in total relating to **organizational operation competencies** ranged from 0.80 to 1.00. None measured less than 0.78. The 16 items consisted of eight items relating to the *performance of your role within the organization*; three items relating to *building interpersonal relationships with other members of the organization*; three items to *understanding the distinguishing characteristics and objectives of your school (department)*; and two items to *teaching activities are based on the objectives of your school (department)*.

## VI. Discussion

As the 10 nursing education experts asked to provide the item assessments for the calculation of I-CVIs were nursing education researchers with experience as nursing faculty, it is reasonable to assume that they were capable of making good decisions regarding the suitability of the scale items and whether the constructs were congruent with the actual activities of the faculty. Because this scale aims to develop a scale with versatility for nursing university faculty, the selection method considering job title, age, and years of experience of the participants appears to be appropriate. Additionally, from the viewpoint of development of competency scale, we believe that there were no sex differences since all the participants were women. Most of the items were found to be indicative of nursing faculty competencies with 134 of the 151 items having I-CVIs of 0.78 or higher in the preliminary scale.

Content validity of these items was ensured by having obtained the views of experts by holding a focus group interview with four nursing education researchers who had nursing faculty experience. The group thoroughly reviewed each construct and

scale item for consistency, ordinality, clarity of expression, and ease of response, and items were carefully selected and revised.

As a result of the review of the 17 eliminated items, it is conceivable that because the items relating to *instructional design engagement* (18 and 37), the items relating to *support for students' clinical practicum* (65 and 68), and the items relating to *support in accordance with students' learning-related issues* (41, 42, 44, and 45) were very abstract, the true intent of these items may not have been understood by participants. As for the items relating to *instructional design engagement* (32, 35, and 38), those relating to *support in accordance with students' learning-related issues* (46, 47, and 50), and the item relating to *fostering of nursing students' attitude toward the nursing profession* (99), these may not have been perceived as being faculty behaviors relating to the concepts. Further, the items relating to *fostering of students' research skill* (79 and 82), could be conjectured to have been understood as limited behaviors for faculty, because of how they were phrased, and therefore judged as having low relevance for the constructs as they were defined.

Quantification of the relevance of the scale items to the scale items for faculty to their corresponding constructs' definitions by calculating I-CVIs enabled the refinement of the selection of scale items and confirmed reports (Lynn, 1986; Polit et al., 2006; Miyoshi et al., 2012) that using the I-CVI can be a suitable method for assessing content validity. The study demonstrated that the 134 items selected for the scale were clear indicators of nursing faculty competencies and that most nursing faculty would be able to understand and answer them. Thus, a consistent level of content validity among the NFC-SAS items was ensured by having the scale items reviewed by a focus group of experts and, further, by using I-CVIs to quantitatively refine the selection of items for the scale.

## Limitations and Directions for Future Research

This study was conducted using the method of measuring I-CVI indicated by Polit et al. (2006). However, because the participants made evaluations using a 1-4 scale on the self-administered questionnaire, lack of objectivity is a limitation of this study.

The results of a content validity assessment of the NFCSAS, which is being developed, are reported in this study. In the future, we will assess the scale after examining its reliability, construct validity, and criterion-related validity.

## VII. Conclusions

As a result of selecting only items shown to have I-CVIs of 0.78 or higher for the NFCSAS, 134 items constituting **learning support competencies, research performance competencies, social contributions competencies, and organizational operation competencies** were identified and the scale's content validity was ensured.

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We have presented this study to the 19th East Asian Forum of Nursing Scholars.

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## Conflict of Interest

The authors declare that there were no conflicts of interest associated with this study.

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