The Development of an Evaluation Tool to Measure Nursing Core Curriculum Teaching Effectiveness: An Exploratory Factor Analysis

Shu-Fang Chang

RN, PhD, Associate Professor, Department of Nursing, College of Nursing, National Taipei University of Nursing and Health Sciences.

ABSTRACT

Background: There have been few evidence-based assessments of nursing education core curricula. To conduct such assessments effectively, researchers need an objective professional tool that addresses the principal competencies of the nursing profession.

Purpose: The aim of this study was to develop a preliminary assessment tool to improve teaching effectiveness in nursing core curricula.

Methods: This study was divided into four stages: (a) initial questionnaire content proposal, (b) expert validation, (c) random sampling, and (d) item and exploratory factor analysis.

Results: We used exploratory factor analysis to analyze three factors, namely (a) learning preparation, (b) advancement of competence, and (c) learning evaluation. These three factors explained, respectively, 43.1%, 12.9%, and 7.5% of total variance; the three together explained 63.5% of total variance. Overall questionnaire reliability was .904. All correlation coefficients displayed moderately positive relationships among subscales.

Conclusions: The assessment tool developed in this study showed reliability and validity in the evaluation of teaching outcomes for nursing core curricula.

Key Words: nursing core curricula, teaching evaluation, core competencies, item analysis, exploratory factor analysis.

Introduction

Globalization has had a far-reaching impact on society as a whole. Professionals today find themselves in a fiercely competitive atmosphere, having to deal with new technology and the rapid dissemination of new information. Such pressures have affected nursing education significantly. Nursing education is unique in that it focuses on training students in the care of patients. Teaching is a dynamic process of interaction between students and teachers (Kelly, Lyng, McGrath, & Cannon, 2009; Shih, 2009), and assessment comprises a range of scientific methods for evaluating learning. In analyzing such assessments, one must consider teaching objectives as well as student performance (Chin, 2010; Jeng & Hwang, 2009). It is crucial that learning outcomes be evaluated objectively to improve the quality and efficacy of teaching methods.

Effective teaching assessment methods must be implemented in conjunction with objective teaching methods; assessment is a key aspect of the transition process during the course of teaching and should not be viewed as an endpoint in itself (Chien, Chung, Lin, & Tsay, 2006; Yeh, Tung, Yang, Chen, & Shiau, 2005). This means that the teaching evaluation process should involve the systematic and objective accumulation of information regarding the teaching process, collection of results, and analysis of data (Croxon & Maginnis, 2009; Jeng & Hwang, 2009; Shih, 2009; Watson & Deary, 1997).

Nowadays, teachers in nursing are required to transform students into nursing experts possessing basic professional knowledge and skills as well as impart dedication to service and leadership. Students must also develop autonomy and initiative for further learning and the independent thinking and judgment required to cope with the rapid changes resulting from global trends (Chen, 2010a; Gibbons, Dempster, & Moutray, 2008; Yan, 2009).

A review of the literature (Chen, 2010b; National League for Nursing, 2012; Taiwan Nursing Accreditation Council, 2006, 2010) found core competencies for graduates of baccalaureate nursing students to include critical thinking, clinical skills, basic biomedical sciences, communication, caring, ethics, accountability, and lifelong learning. An appropriate assessment tool is needed to enable teachers to teach more...
effectively and assess whether nursing students have achieved the competencies.

**Aim**

The aim of this study was to develop a preliminary tool to assess teaching efficacy with regard to nursing core curricula.

**Methods**

**Research Design**

In this study, “core curricula” refers to the core competencies related to basic nursing, medical–surgical nursing, obstetrical nursing, pediatric nursing, psychiatric nursing, and community nursing. Data were collected in May 2011; the process was divided into four stages, as outlined below.

The first stage included drafting preliminary questionnaire content. Relevant research on teaching assessments was also used to develop an assessment scale for core curricula. Five nursing teachers were then randomly selected to provide content guidance; their suggestions were incorporated into a preliminary questionnaire.

In the second stage, six outside experts with backgrounds in education, teaching, and nursing assessed preliminary questionnaire validity.

A pilot test was conducted during the third stage. Subjects were picked by random sampling from six undergraduate classes that included both 2-year and 4-year undergraduate students. All had completed the nursing core curricula, including basic nursing, medical–surgical nursing, obstetrical nursing, pediatric nursing, psychiatric nursing, and community nursing. Participants completed the questionnaire individually and could refer queries to a research assistant in attendance.

In the fourth stage, data were collected and analyzed using item analysis and exploratory factor analysis.

**Ethical Considerations**

The institutional review board (CN-IRB-2010-003) of the National Taipei University of Nursing and Health Sciences approved this study before implementation. Guide and consent forms were included with the questionnaire. Data were analyzed at the macro level only to ensure the confidentiality of personal information.

**Sample Size Calculations**

According to previous reports (Gorsuch, 1983; Kaiser, 1974; Sapnas & Zeller, 2002), the minimum sample size for factor analysis should be at least 5–10 times the number of variables studied. As 23 variables were used in the preliminary questionnaire, at least 115 valid questionnaire responses were thus required.

**The Assessment Tool**

The preliminary assessment scale for the classroom curriculum included “student self-assessment questions,” “teaching content,” and “teaching evaluation.” “Student self-assessment questions” comprised two questions. One question addressed the issue of attendance; options for response consisted of perfect attendance, absent one time, absent two times, absent three times, and absent four times, scored, respectively, with 1, 2, 3, 4, and 5 points. The other question addressed course learning intent, with possible scores ranging from 0 to 10 points; higher scores correlated with stronger learning intent.

The “teaching content” section included 15 questions addressing the following topics: online digital teaching materials to facilitate learning, teacher-selected teaching methods (such as grouping, visiting, and instructional media use), learning guidance provided by the teacher during nonschool hours, creative thinking stimulated by teaching content, teaching method effectiveness in promoting healthcare skills, effectiveness in enhancing student critical thinking abilities, effectiveness in promoting concern for social issues, effectiveness in promoting teamwork skills, effectiveness in developing communication skills, effectiveness in fostering autonomous learning abilities, effectiveness in fostering thinking on ethical issues, effectiveness in enhancing ability to use basic biomedical sciences, teacher interest in students’ learning situation, degree to which students benefited from the course, and teacher punctuality. A Likert scale was adopted with strongly agree, agree, acceptable, disagree, and strongly disagree awarded 5, 4, 3, 2, and 1 points, respectively.

The “teaching evaluation” section included five questions on how well assigned homework met curriculum goals, degree of objectivity in teacher assessment methods, degree to which teaching content made course content more interesting, and degree to which the teacher helped students achieve curriculum goals. The same Likert scale was adopted.

**Data Analysis**

This study used SPSS (SPSS, Inc., Chicago, IL, USA) statistical software (version 15.0) for item analysis, exploratory factor analysis, as well as to calculate mean values, standard deviation, and maximum/minimum values for descriptive statistics (Tabachnik & Fidell, 2007).

**Results**

**Item and Descriptive Analyses**

Average participant age was 21.5 years (SD = 1.5), of which 48.3% (n = 90) were 2-year students and 51.6% (n = 96) were 4-year technical students. All had finished the core curricula including basic nursing, medical–surgical nursing, obstetrical nursing, pediatric nursing, psychiatric nursing, and community nursing.

As presented in Table 1, all of the corrected item-total correlations were higher than .40 for the 21 items on the questionnaire. Correlation coefficients ranged from .434 to .652 and achieved statistical significance (p < .001) indicating good homogeneity among items. In addition, t tests for
extreme groups revealed that all 21 items had $t$ values that reached level of significance ($p < .001$), suggesting all items yielded good discriminating power. As a result, all questionnaire items were retained for subsequent factor analysis. Table 2 shows the items with high levels of agreement (agree and strongly agree); these accounted for more than half of the 21 questionnaire items. More than 70% of participants agreed on Items 2, 4, 9, 12, 16, 17, 18, and 19. A level of agreement below 60% was obtained on Items 5 (54.8%) and 20 (59.7%).

### Exploratory Factor Analysis

The questionnaire was further evaluated using exploratory factor analysis and reliability analysis. Factors were extracted by principal components analysis using an eigenvalue greater than 1 as the extraction criteria for constructing subscale validity. The varimax of orthogonal rotation was used for factor analysis. In addition, based on the number of samples in this study, a factor loading greater than .45 was used as the cut-off level for the relationship between factors and items (Hair, Black, Babin, Anderson, & Tatham, 2006).

### Table 1.

**Questionnaire for Assessing Nursing Core Curricula Teaching Outcomes, Item Analysis (N = 186)**

<table>
<thead>
<tr>
<th>Pretest Item</th>
<th>$M$</th>
<th>$SD$</th>
<th>Item-Total Correlation</th>
<th>Coefficient After Items Deleted</th>
<th>$t$ Test for Extreme Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The teacher's online teaching plans helped me understand the course.</td>
<td>3.79</td>
<td>0.708</td>
<td>.652***</td>
<td>0.896</td>
<td>9.059***</td>
</tr>
<tr>
<td>2. The teacher clearly stated the course objectives.</td>
<td>3.90</td>
<td>0.754</td>
<td>.644***</td>
<td>0.896</td>
<td>9.214***</td>
</tr>
<tr>
<td>3. The online digital teaching materials were helpful to learn the subject.</td>
<td>3.81</td>
<td>0.714</td>
<td>.517***</td>
<td>0.900</td>
<td>8.019***</td>
</tr>
<tr>
<td>4. The teaching methods (such as grouping, visiting, the use of instructional media) selected by the teacher helped achieve the learning goals.</td>
<td>3.81</td>
<td>0.667</td>
<td>.550***</td>
<td>0.899</td>
<td>7.748***</td>
</tr>
<tr>
<td>5. The teacher provided learning guidance during nonschool hours.</td>
<td>3.58</td>
<td>0.710</td>
<td>.463***</td>
<td>0.901</td>
<td>7.603***</td>
</tr>
<tr>
<td>6. The teaching content stimulated creative thinking.</td>
<td>3.67</td>
<td>0.638</td>
<td>.434***</td>
<td>0.901</td>
<td>6.557***</td>
</tr>
<tr>
<td>7. My healthcare skills were improved by the teacher’s teaching methods.</td>
<td>3.76</td>
<td>0.704</td>
<td>.612***</td>
<td>0.897</td>
<td>8.432***</td>
</tr>
<tr>
<td>8. My critical thinking was enhanced by the teaching content.</td>
<td>3.78</td>
<td>0.630</td>
<td>.650***</td>
<td>0.897</td>
<td>9.298***</td>
</tr>
<tr>
<td>9. The teaching content promoted concern for social issues.</td>
<td>3.85</td>
<td>0.670</td>
<td>.583***</td>
<td>0.898</td>
<td>6.817***</td>
</tr>
<tr>
<td>10. The teaching content promoted teamwork skills.</td>
<td>3.76</td>
<td>0.698</td>
<td>.566***</td>
<td>0.898</td>
<td>9.937***</td>
</tr>
<tr>
<td>11. The teaching content improved my communication skills.</td>
<td>3.69</td>
<td>0.703</td>
<td>.595***</td>
<td>0.898</td>
<td>8.847***</td>
</tr>
<tr>
<td>12. The teaching content improved my autonomous and initiative learning ability.</td>
<td>3.86</td>
<td>0.634</td>
<td>.615***</td>
<td>0.898</td>
<td>9.274***</td>
</tr>
<tr>
<td>13. The teaching content encouraged me to think about ethical issues.</td>
<td>3.72</td>
<td>0.678</td>
<td>.597***</td>
<td>0.898</td>
<td>10.564***</td>
</tr>
<tr>
<td>14. The teaching content enhanced my ability to use basic biomedical sciences.</td>
<td>3.65</td>
<td>0.681</td>
<td>.490***</td>
<td>0.900</td>
<td>7.381***</td>
</tr>
<tr>
<td>15. The teacher cared about the students' learning situations.</td>
<td>3.67</td>
<td>0.732</td>
<td>.569***</td>
<td>0.898</td>
<td>9.009***</td>
</tr>
<tr>
<td>16. I benefited from this course.</td>
<td>3.78</td>
<td>0.612</td>
<td>.640***</td>
<td>0.897</td>
<td>9.774***</td>
</tr>
<tr>
<td>17. The homework assignments were consistent with curriculum objectives.</td>
<td>3.81</td>
<td>0.707</td>
<td>.503***</td>
<td>0.900</td>
<td>6.575***</td>
</tr>
<tr>
<td>18. The examination content met the course objectives.</td>
<td>3.84</td>
<td>0.659</td>
<td>.466***</td>
<td>0.901</td>
<td>6.681***</td>
</tr>
<tr>
<td>19. The teacher's assessment methods were objective.</td>
<td>3.82</td>
<td>0.637</td>
<td>.552***</td>
<td>0.899</td>
<td>7.141***</td>
</tr>
<tr>
<td>20. The teaching content made me interested in this course.</td>
<td>3.62</td>
<td>0.712</td>
<td>.613***</td>
<td>0.897</td>
<td>9.325***</td>
</tr>
<tr>
<td>21. The teacher helped me achieve the course objectives.</td>
<td>3.67</td>
<td>0.626</td>
<td>.584***</td>
<td>0.898</td>
<td>8.672***</td>
</tr>
</tbody>
</table>

Note. Deleted item: The teacher arrived late and left early during class time ($p > .05$).

***$p < .001$. 

The Journal of Nursing Research

Shu-Fang Chang

230
and to determine the degree of internal consistency among the items, Cronbach’s alpha coefficients for all dimension scores were calculated along with questionnaire subscales after factor analysis. Results are shown in Table 3.

Table 3 shows the questionnaire used to evaluate the teaching outcomes of nursing core curricula, comprising three factors. The explained variance for Factor 1 was 43.1%, with the corresponding factor loading ranging from .586 to .782. Factor one, labeled “learning preparation,” comprised nine questions. The explained variance for Factor 2 was 12.9%, with the corresponding factor loading ranging from .463 to .875. Factor 2, labeled “advancement of


**TABLE 3.**

*Matrix Summary of Exploratory Factor Analysis (After Rotation) and Subdimension Reliability (N = 186)*

<table>
<thead>
<tr>
<th>Category</th>
<th>Item</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Reliability of Subdimension</th>
<th>Explained Variance (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning preparation</td>
<td>1. The teacher’s online teaching plans helped understand the course.</td>
<td>.782</td>
<td></td>
<td></td>
<td>.892</td>
<td>43.1</td>
</tr>
<tr>
<td></td>
<td>2. The teacher clearly stated the course objectives.</td>
<td>.727</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. The online digital teaching materials helped learn the subject.</td>
<td>.724</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. The teaching methods (such as grouping, visiting, and the use of instructional media) helped achieve the learning goals.</td>
<td>.701</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. The teacher provided learning guidance during nonschool hours.</td>
<td>.686</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. My healthcare skills were improved by the teacher’s teaching methods.</td>
<td>.668</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. My critical thinking skills were enhanced by the teaching content.</td>
<td>.648</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. The teaching content stimulated creative thinking.</td>
<td>.613</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9. The teaching content promoted concern for social issues.</td>
<td>.586</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advancement of competency</td>
<td>11. The teaching content helped develop my communication skills.</td>
<td>.875</td>
<td></td>
<td></td>
<td>.840</td>
<td>12.9</td>
</tr>
<tr>
<td></td>
<td>10. The teaching content promoted teamwork skills.</td>
<td>.776</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12. The teaching content improved my autonomous and initiative with regard to learning ability.</td>
<td>.681</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16. I have benefited from this course.</td>
<td>.473</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13. The teaching content led me to think about ethical issues.</td>
<td>.463</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching evaluation</td>
<td>19. The examination content met the course objectives.</td>
<td></td>
<td>.959</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>18. The homework assignments were consistent with the curriculum objectives.</td>
<td></td>
<td>.824</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20. The teacher’s assessment methods were objective.</td>
<td></td>
<td>.552</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>21. The teaching content made me more interested in this course.</td>
<td></td>
<td>.489</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14. The teaching content enhanced my ability to use the basic biomedical sciences.</td>
<td></td>
<td>.458</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Cronbach’s alpha</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.904</td>
<td></td>
</tr>
<tr>
<td>Total explained variance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>63.5</td>
<td></td>
</tr>
</tbody>
</table>
competence,” comprised five questions. The explained variance for Factor 3 was 7.5%, with the corresponding factor loading ranging from .458 to .959. Factor 3, labeled “learning evaluation,” comprised five questions. Subscale score reliability ranged from .458 to .959, which fell within the best confidence interval (DeVellis, 2003). The reliability of the overall questionnaire was .904, indicating this questionnaire had acceptable construct validity, internal consistency, and reliability. The three factors explained 63.5% of total variance.

**Correlation Analysis**

As shown in Table 4, the mean subscale scores for the questionnaire were 3.77 for learning preparation, 3.76 for advancement of competency, and 3.72 for teaching evaluation. All levels of agreement tended to be positive. Correlation coefficients achieved statistical significance (p < .001) between each pair of dimensions, ranging from .466 to .658. All comparisons showed moderate positive correlations.

**Discussion**

As pointed out in prior research (Chen, 2010a; Morrison, 2003), the main purpose of teaching evaluation is to analyze the efficacy of teaching and diagnose difficulties in learning. Evaluation results can be used as the basis for conducting remedial teaching and individual student counseling.

Table 1 shows the results of item analysis. The item, “the teacher arrived late and left early during class” showed no statistically significant difference (p > .05) in each item analysis and was deleted. This finding indicates that the nursing teachers treated class time as important and were punctual. This supports the findings of a previous report that emphasized the importance of developing basic rules for attendance and punctuality in nursing education (Chitty & Black, 2007; Mooney, Timmins, Byrne, & Corroon, 2011). Item-total correlation results ranged from .434 to .652, showing a statistically significant difference (p < .001), demonstrating moderate to high correlation among questionnaire items. The t tests for extreme groups showed differences in mean scores among the t values of all 21 items, reaching statistical significance (p < .001). The critical ratios for the extreme groups ranged from 6.575 to 10.564, showing a statistically significant difference based on t-test results (p < .001). Discriminant analysis is a method of testing extreme groups applicable to an examination or test item. If a test is given to a group of people, the discriminating power of an item can be measured by comparing the number of people with high test scores who answered that item correctly with the number of people with low scores (Wu & Tue, 2010). For all practical purposes, these extreme groups can represent between 25% and 35% of examinees, with any breakdown within this range yielding similar discriminating measures (Cureton, 1957; Wu & Tue, 2010). Therefore, the discriminatory power of this study was obtained by taking the highest and lowest 27% test score items from the total scores. Results show that all items yielded good discriminating power, suggesting that each could be used to measure a difference in teaching outcomes. Cronbach’s alpha coefficients for consistency analysis fell within the range of .897 and .901. As reported by Lo and Lin (1998), Cronbach’s alpha must be at least .70 to be acceptable; therefore, we can conclude questionnaire items demonstrate good internal consistency and reliability.

According to Hair et al. (2006), acceptable participant numbers range between 150 and 200 and the acceptable range for factor loading is at least .45. Questionnaire items were divided into three categories and labeled according to the items with the highest factor loading (Watson & Deary, 1994). Table 3 shows nine items in the first category associated with teaching preparation and methods, including online teaching plans, course statement, and guidance on teaching methods. This category was labeled “learning preparation.” Shih (2009) reported that adequate preparation before class should include teaching materials such as online access, a detailed statement of teaching objectives, and the use of flexible teaching strategies to help achieve learning outcomes. The second category was labeled “teaching promotion,” with five items associated with improving student learning ability, including communication skills training, teamwork, and autonomous ability. Results were consistent with findings reported by Klein (2006), Lindblom-Ylane, Trigwell, Nevgi, and Ashwin (2006), and Kocaman, Dicle, and Ugur (2009), suggesting that teaching outcomes should focus on enhancing learning ability. Rubaish et al. (2010)

**TABLE 4.**

*Subscales of the Questionnaire for Assessing Nursing Core Curricula Teaching Outcomes, Correlation Analysis (N = 186)*

<table>
<thead>
<tr>
<th>Category</th>
<th>M</th>
<th>SD</th>
<th>Learning Preparation</th>
<th>Competency Advancement</th>
<th>Teaching Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning preparation</td>
<td>3.77</td>
<td>0.49</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Advancement of competency</td>
<td>3.76</td>
<td>0.52</td>
<td>.652*</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Teaching evaluation</td>
<td>3.72</td>
<td>0.49</td>
<td>.466*</td>
<td>.658*</td>
<td>—</td>
</tr>
</tbody>
</table>

*p < .001.*
and Klein (2006) indicated that teaching evaluation should include homework assignments and examination content to assess effectiveness in meeting course objectives, using objective assessment methods, and stimulating students’ interest in learning. This corresponds to our “teaching evaluation” category. Table 3 shows reliability for each category. Results for reliability subdimensions in the full scale were .892, .840, .819, and .904, respectively. These results indicated good internal consistency and reliability for all categories and for the total scale (Streiner & Norman, 2008).

In Table 3, Factor 1 (learning preparation) explained 43.1% of variance, Factor 2 (advancement of competence) explained 12.9% of variance, and Factor 3 (teaching evaluation) explained 7.5% of variance; the corresponding factor loading for each ranged from .458 to .959. Together, the three factors explained 63.5% of total variance. Arreola (2000), Xu (2012), and Berk (2005) state the importance of evaluating teaching effectiveness across multiple dimensions. The results of this study were consisted of those previous studies.

Degree of agreement among questionnaire subscales tended to be positive. The correlation coefficient between each pair of categories showed a statistically significant difference ($p < .001$) that ranged from .466 to .658. The correlation among all categories was moderately positive. The most significant observed relationship was that between “teaching promotion” and “teaching evaluation.” This suggests that teachers who prepare in advance can improve teaching outcomes, which improve student achievement outcomes. These findings are consistent with previous reports by Chang, McKeachie, and Lin (2009) and Thomas, Saroyan, and Dauphinee (2011).

This study developed and tested a global teaching evaluation scale. The scale focused on core competencies that baccalaureate nursing students should master before graduation (Chen, 2010b; National League for Nursing, 2012; Taiwan Nursing Accreditation Council, 2006, 2010). Trial testing of the scale showed rigorous validity and its potential for use as an indicator of teaching effectiveness in nursing education curricula.

**Conclusions**

Current changes in society associated with information technology and globalization have impacted nursing education significantly. In addition to mastering the skills of their chosen field, today’s nursing students are expected to develop the ability to function autonomously; think independently; and make correct, unaided judgments to cope successfully with quickly changing global trends. Developing an objective and professional nursing teaching outcome evaluation tool is thus critical to ensure nursing students are being properly equipped for the modern healthcare workplace. The teaching outcomes questionnaire developed in this study showed good reliability and validity. The authors recommend it to be further validated and used to assess teaching efficacy with regard to nursing core curricula. Results can guide nursing teachers to adjust and improve their teaching approach to help their students better achieve learning objectives or goals.

**Limitations and Recommendations**

Subjects in this study were undergraduates enrolled in specialized nursing courses only. Findings thus may not be generalizable to other specialty areas such as physiology, pharmacology, or pathology. Also, time constraints limited questionnaire content completeness in terms of item designations. Finally, most questionnaire responses were completed during class meetings. Thus, not all students were in attendance, which affected the response rate. We recommend future questionnaires be designed to incorporate multiple methods of capturing responses to increase participant response rate. As teaching evaluation outcomes provide data critical to improve teaching quality, we recommend conducting a large-scale analysis research to confirm major factors affecting nursing teaching effectiveness to provide a reference for teachers involved in designing or revising curricula and teaching strategies.

**Application in Nursing**

Results showed this comprehensive scale to provide good reliability and validity. It may be used by program administrators and teachers as an objective tool to evaluate and improve nursing curriculum teaching efficacy.

**References**


護理核心課程之教學效果評量工具的發展與評價

張淑芳

國立臺北護理健康大學護理學院護理學系副教授

背景
有鑑於過去相關實證（evidence-based）研究，較少針對以護理專業核心能力為內涵，發展護理專業核心課程評量工具。因此，研發具有客觀性與專業性的護理核心課程教學評量工具，有其需要與重要性。

目的
本研究目的主要是藉由題目分析及探索性因素分析，初步發展以護理專業核心能力為內涵之教學評量工具。

方法
本研究共分四階段，包括：問卷內容初擬、專家效度、隨機抽樣及進行探索性因素分析（exploratory factor analysis, EFA）。

結果
探索性因素分析共包括三個因素，分別為「教學準備與進行」、「教學促進」、「教學評量」，各分量表解釋變異量為43.1%、12.9%、7.5%，共可解釋63.5%。整體量表的信度為.904，各分量表相關係數皆為中度正相關。

結論
研究結果顯示，此量表具有良好信度與效度，將能做為評量教師在護理專業課程教學成效的客觀性指標。

關鍵詞：護理核心課程、教學評量、核心能力、題目分析、探索性因素分析。