Establishing reliability and validity of nursing education evaluation tools is essential to advance the field and science of nursing education. However, limited research exists on the translation of these types of data across cultures, particularly in low and middle-income countries where new teaching techniques such as nursing simulation are on the rise (Garner, Killingsworth, & Raj, 2017). For nursing faculty to be successful in integrating new teaching techniques, such as simulation, they need to be confident in their ability to implement the new strategies. Self-efficacy as defined by Bandura (1994) is a person’s perception of his or her capacity to perform at various levels. Teacher self-efficacy in nursing education is founded in part on the confidence of the faculty member in being able to “select, use, and modify appropriate teaching strategies” (Nugent, Bradshaw & Kito, 1999, p. 231). Nugent, Bradshaw, and Kito (1999) modified the Self-Efficacy Towards Teaching Inventory (SETTI) to specifically assess self-efficacy of four central aspects of teaching in new nurse educators in the US. While this instrument has been used in the US to determine self-efficacy in nurse educators, it has not been validated for use with international audiences.

Purpose:

The purpose of this three phase instrument revision and validation study was to (1) modify the SETTI to fit current teaching practices, including nursing simulation, for international use, (2) determine content validity of the revised instrument, and (3) compare the revised instrument’s internal consistency reliability and factor analysis with the original instrument when used internationally.

Methods:

Permission was obtained from the original SETTI authors to modify, rename, and republish this 48 item, 4 point Likert-type tool. Reliability of the original scale was reported at .95 alpha coefficient with subscales ranging from .88-.91 (Nugent, Bradshaw, & Kito, 1999). The revised tool was subsequently renamed the Self-Efficacy Towards Teaching Inventory for Nurse Educators (SETTI-NE).

This study received exempt status from an Institutional Review Board [IRB] in the US ref#819430 and was approved by a hospital IRB in India.

In the instrument revision phase, researchers revised the existing demographic section and clinical practice subscale in addition to a general update in terminology throughout the instrument.

In the content validation phase, the revised SETTI-NE (written in English) was reviewed by 9 international expert nurse educators from the US (n=4), India (n=2), Iraq (n=1), Malaysia (n=1) and Sweden (n=1). The experts rated the content of the revised SETTI-NE on a 4-point Likert-type scale (1= not relevant, 2= somewhat relevant, 3= quite relevant, 4= highly relevant) and had the option to provide written feedback (Waltz, Strickland & Lenz, 2010). Both the item content validity index [CVI] and the scale CVI were calculated. An item CVI of .78 or higher and a scale CVI of .80 or higher was considered acceptable (Lynn, 1986). The demographic section and SETTI-NE were scored separately.
In the reliability and factor analysis phase, 87 nursing faculty attending an 8-hour development workshop on simulation in Bengaluru, India completed the SETTI-NE (written in English). A Cronbach’s Coefficient Alpha and factor analysis using Principal Component Analysis were conducted.

**Results:**

**Instrument revision phase:** In the demographic section, revisions were made related to faculty rank, highest degree held, and professional development in nursing education to reflect contemporary educational practices and an international audience. In the clinical practice subscale of the SETTI, which had no specific items on simulation, items related to simulation based upon the INACSL Standards of Best Practice: Simulation℠ were developed for the SETTI-NE (INACSL, 2016a-2016f).

Content validation phase: For the nine items in the demographic section, one item (item CVI .75) was below the .78 benchmark for item CVI and the scale CVI was .89 exceeding the .80 benchmark. For the 54-items of the SETTI-NE, two items (item CVIs of .77 and .66) were below the .78 benchmark for item CVI and the scale CVI was .96 exceeding the .80 benchmark. Following data analysis, revisions were made by the researchers to items on the demographic section and SETTI-NE based upon the written feedback from the expert nurse educators and the three items that did not meet the item CVI benchmark of .78.

Reliability and Factor Analysis Phase: The overall raw Cronbach’s Coefficient Alpha (r=.98) was greater than the Nunnally (1978) standard of 0.70 and is comparable with the original instruments reported reliability of .95. Factor analysis using Principal Component Analysis (PCA) was conducted to replicate methods used in the original tool (Nugent et al. 1999). PCA of the SETTI-NE revealed eight factors extracted with Eigenvalues greater than one. Data were evaluated as un-rotated and orthogonally rotated. While survey variables did not arise on the four SETTI-NE subscales, results were consistent with Nugent et al.’s. (1999) primary analysis which also identified eight factors with Eigenvalues greater than one. Percent of standardized variance for each factor were Factor 1 (55%), Factor 2 (5%), Factors 3 and 4 (3% each), Factor 5,6,7 (2% each). Also consistent with Nugent et al’s (1999) results, the majority of the variance emerged in Factor 1 and 2. The majority of the variance for all six new simulation questions added to the modified scale (items 44-49) was captured in Factor 2.

**Conclusion:**

The results of the three phase instrument revision and validation study provide beginning evidence of the applicability of the SETTI-NE with an international audience. Future studies using the SETTI-NE with a variety of international audiences are needed to provide additional evidence of the use of this instrument to measure self-efficacy of nursing faculty.

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**Title:**
Revision and Validation of Self-Efficacy Toward Teaching Inventory for Nurse Educators (SETTI-NE) for International Audience

**Keywords:**
Instrument validation, International Nursing Educational Research and Self-Efficacy of Nurse Educators

**References:**

Abstract Summary:
The purpose of this presentation is to discuss an instrument revision and validation study conducted to modify the Self-Efficacy Towards Teaching Inventory for international use. Content validity was determined with international expert nurse educators, and an international sample was used for factor analysis and to calculate the internal consistency reliability.

Content Outline:
I. Introduction
   A. To successfully integrate new teaching strategies, nurse educators must be confidence in their ability to implement the new strategies.
      1. Self-efficacy as defined by Bandura (1994).
      2. Self-Efficacy Towards Teaching Inventory (Nugent, Bradshaw & Kito, 1999).
   B. Limited research on translating instrument across cultures, particularly low to middle-income countries.
   C. Purpose of the three-phase instrument revision and validation study.

II. Body
A. Instrument Revision Phase

1. Update in terminology and revisions to demographic section.

2. Inclusion of items on simulation using the INACSL Standards of Best Practice: Simulation (INACSL, 2016a-2016f).

B. Content Validation Phase

1. Review of the revised SETTI-NE with 9 international expert nurse educators.

2. Calculated item and scale Content Validity indices.

C. Reliability and Factor Analysis Phase

1. Revised SETTI-NE completed by 87 nursing faculty attending a development workshop on simulation in Bengaluru, India.

2. Calculated internal consistency reliability compared with original SETTI.

3. Replicated factor analysis compared with original SETTI.

III. Conclusion

A. Results provide initial evidence of the applicability of the SETTI-NE with an international audience.

B. Limitations of study.

C. Recommendations and plans for future research.

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Professional Experience: Dr. Bradshaw’s professional experience as a registered nurse was primarily in Labor and Delivery and Operating Room, both before and during her time in teaching. She has published five books, over a dozen professional articles, and has served as an expert witness in medical malpractice cases. Dr. Bradshaw taught nursing for over 30 years in Texas and in Georgia. Her most recent faculty positions were in the Louise Herrington School of Nursing, Baylor University. She served as Associate Dean for three years, teaching faculty for four years, one year as Interim Dean, and then as the Interim Associate Dean. Dr. Bradshaw now works as a consultant in professional writing and nursing education.
Author Summary: Dr. Bradshaw and colleagues first published on teacher self-efficacy in nurse educators in 1999. The instrument in the original research has been used by other nurse educators in subsequent research studies. It was modified for this study to include use of simulation and to study self-efficacy in nurse educators outside of the United States.