



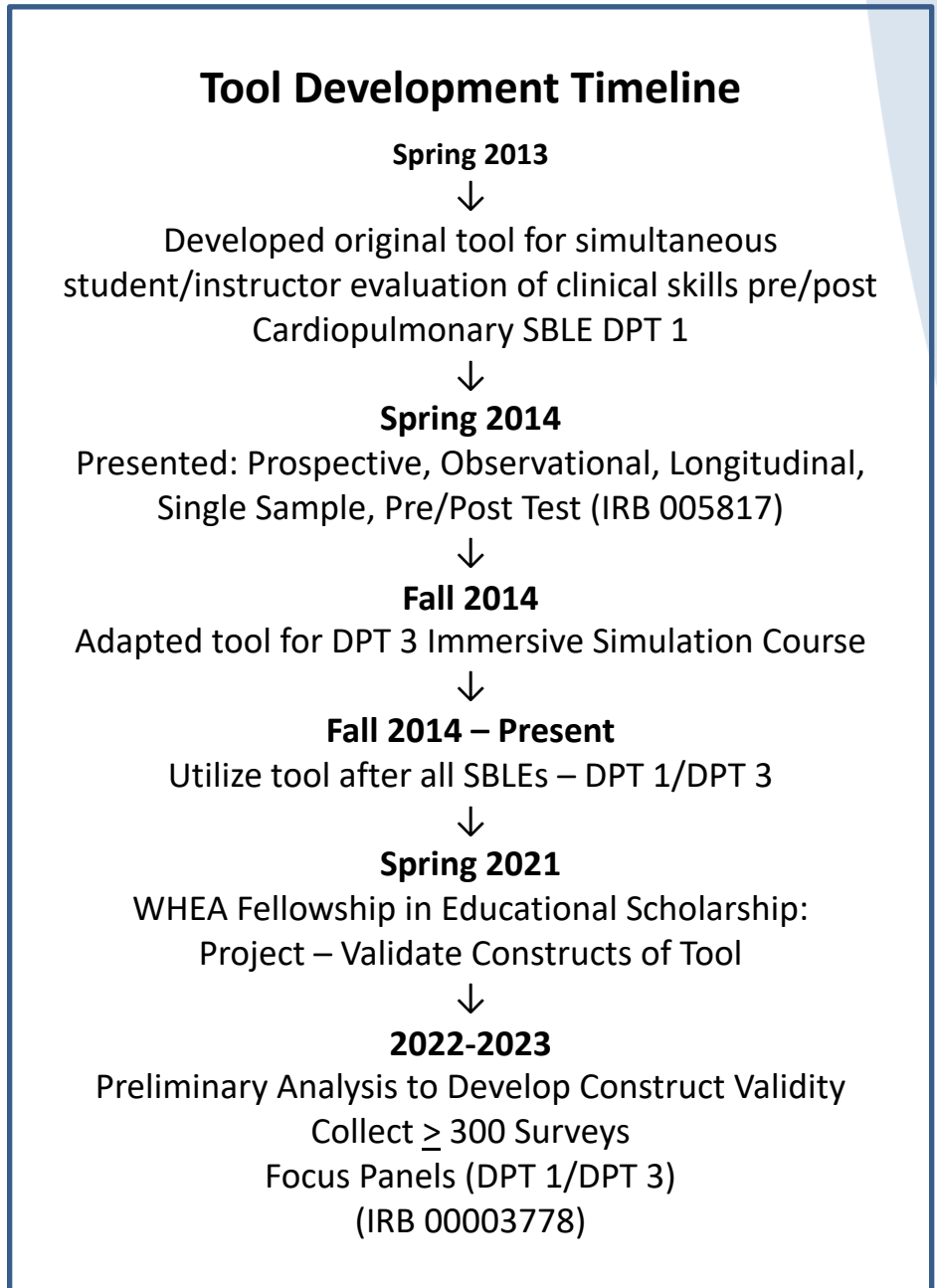
# Validation of a Self-Assessment Tool

Kathy Lee Bishop PT, DPT, FNAP, Vincent M. Carter PhD., MBA

School of Medicine, Department of Rehabilitation Medicine, Division of Physical Therapy

## Background & Purpose

Simulation based learning experiences (SBLEs) offer well established methodology for instruction for healthcare students.<sup>1-2</sup> SBLEs provide a safe environment to develop proficiency in specific skills, situational learning like the intensive care unit (ICU), and to incorporate reflection to enhance learning.<sup>1,2</sup> There are currently limited tools to assess physical therapy students' perception of preparation for readiness for integration of simulated-based learning experiences (SBLEs) into practice and only moderate level of evidence to support the validity of these tools.<sup>3</sup> The current tool was created and modeled from the competency based structure of the Division of Physical Therapy at Emory University as well as adapting from scales used for medical, physician assistants, and nursing students. The primary purpose of this mixed-method study is to validate the responses of a tool which was developed for student self-assessment of clinical skills following a SBLE prior to entrance into an integrated or terminal clinical education experience. Combining qualitative and quantitative data will provide a deeper understanding of student self-reflection versus only survey results.<sup>4-6</sup>



## Methods

Students enrolled in the Advanced Acute Care Elective (AACE – DPT 961) and the General Medical Conditions (GMC – DPT 755) course who gave consent to utilize completed surveys after each SBLE will be included in this study. The student survey results were uploaded to CANVAS learning platform as part of their required coursework. The surveys were then downloaded to One Drive, deidentified, and aggregated by first year and third year students. Factor analysis was used to evaluate patterns of correlations to assess construct validity of the responses. Cronbach's Alpha was used to assess internal consistency of the instrument. Quantitative data were analyzed with SPSS v28. In addition to quantitative analysis of the survey, students were asked to volunteer for a recorded focus panel via Zoom to better understand their perception of the benefit of the survey tool and if the tool was a useful aid in self-reflection of their preparedness for clinical practice. The focus panel was held after completion of the courses so there was no perception of bias in grading for the course.

**Focus Panel Question Categories:**

1. Description of Likert scale
2. Comprehensive content
3. Tool as an aid

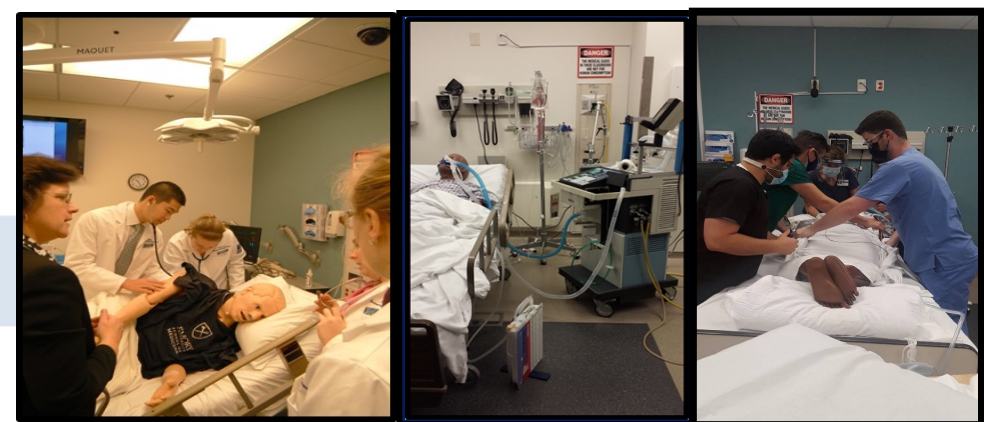
**Likert Scale:**

Rating	Students Self-Assessment of Preparation
5	I am able to complete task without any assistance and felt well prepared
4	I am able to complete task but hesitated and felt I needed to ask only one (1) question for clarification from instructor
3	I am able to complete task but hesitated and felt I needed to ask 2-3 questions for clarification from instructor or preceptor gave minimal assistance for student to continue patient/simulator interaction
2	I am able to complete task, but had to ask instructor > 2 or more questions
1	I am unable to complete task without demonstration or assistance from instructor and did not feel prepared for patient/simulator interaction and needed more laboratory practice/skill time

**Tool Constructs/Categories:**

1. Preparation Before Entering Patient Room
2. Look/Listen/Feel
3. Hemodynamics – Vital Signs – Cardiovascular
4. Hemodynamics – Vital Signs – Pulmonary/Oxygen Delivery System
5. Hemodynamics – Central Monitoring
6. Auscultation – Heart
7. Auscultation – Lung
8. Gross Evaluation: Review of Systems and Validated Functional Tool
9. Function: Bed Mobility to Edge of Bed
10. Function: Edge of Bed to Transfer
11. Function: Transfer to Chair
12. Function: Gait
13. Wrapping Up Session

## Results



In the preliminary sample there were 173 surveys with 152 deemed usable for the analysis from the DPT 1 cohort. The survey consisted of the 77 items and 13 hypothesized constructs. Table 1 shows two of the constructs that were highly supported by Factor Analysis and 2 that were more weakly supported. (High: Preparation Before Entering a Room & Gait; Low: Look/Listen/Feel; Heart Auscultation). Table 2 displays the results of Cronbach's Alpha analysis showing the interrelatedness of the items within each construct.

**Table 1. Factor Analysis**

Construct	Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
High	PREPARATION BEFORE ENTERING PATIENT ROOM: Acute Care or ICU Room	0.820	0.784													
	ABLE to verbalize at least 2 components of each category	0.820	0.820													
	Student verbalizes to instructor 3 components when entering simulation/room	0.820	0.820													
	Must state at least 5 items, responsibilities of Physical Therapy in the intensive care unit setting	0.820	0.820													
Low	LOOK/LISTEN/FEEL	0.314	0.314													
	Student verbalizes using observation skills prior to interacting with patient to identify level of distress/regulation/behavior and the support device	0.314	0.314													
	Student verbalizes using auditory skills prior to interacting with patient to identify level of distress/regulation/behavior and the support device	0.314	0.314													
	Student verbalizes using tactile skills when interacting with patient to identify level of distress/regulation/behavior and the support device	0.314	0.314													

**Table 2. Internal Consistency**

Sections*:	Cronbach's Alpha:	N of Items
PREPARATION BEFORE ENTERING PATIENT ROOM: Acute Care or ICU Room	.809	5
Look/Listen/Feel	.784	8
Hemodynamics - Vital signs - cardiovascular	.731	6
Hemodynamics - Vital signs - pulmonary/oxygen delivery system	.804	5
Hemodynamics - Central Monitoring	.867	4
AUSCULTATION (Heart)	.686	6
AUSCULTATION (lung sounds)	.990	4
Gross Evaluation: Review of Systems and Validated Functional Tool	.957	2
FUNCTION: BED MOBILITY to EDGE OF BED	.896	6
FUNCTION: EDGE OF BED to TRANSFER	.963	7
FUNCTION: TRANSFER to CHAIR	.977	6
FUNCTION: GAIT	.986	5
WRAPPING up SESSION:	.915	10

## Conclusion

- Preliminary Survey Results
  - Demonstrated challenges to validating responses:
    - Incorrect markings by students on Likert Scale (x's, v's, #'s)
    - Misplaced items within constructs
    - Potentially unclear wording of items
    - Items with little added value to constructs
- Preliminary Factor Analysis and Cronbach's Alpha demonstrate positive results for at least 4 constructs
- Examples of 2 potential constructs supporting hypothesis and 2 not supporting
  - Preparation Before Entering Room and Gait (Support)
  - Look/Listen/Feel and Heart Auscultation (not Supporting)
  - Need to edit constructs, wording, placement, and reevaluate
- Sample Size
  - Too small and results should be taken with caution
  - Further analysis of each item and constructs with a larger sample will direct how survey continues to evolve
- Highly Correlated Constructs
  - Transfer Edge of Bed to Stand and Transfer to Chair
  - Suggesting possibility of NOT 2 independent constructs
- Tool is Lengthy
  - 'Item' fatigue vs actual self-reflection
  - Incomplete surveys
- Focus Panel:
  - DPT 3 students wanted continued guidance on how to use self-reflection for professional growth
  - Tool meant to be for self-reflection not faculty guided
  - DPT 1 students have not participated in focus panel

## References

<sup>1</sup>Holdsworth C, Skinner EH, Delany CM (2016). Using simulation pedagogy to teach clinical education skills: A randomized trial, *Physiotherapy Theory and Practice*, 32:4, 284-295, DOI: 10.3109/09593985.2016.1139645

<sup>2</sup>Yuan HB, Williams BA, Fang JB. (2012) The contribution of high-fidelity simulation to nursing students' confidence and competence: a systematic review. *International Nursing Review* 59, 26-33

<sup>3</sup>Roberts F, Cooper K. Effectiveness of high fidelity simulation versus low fidelity simulation on practical/clinical skill development in pre-registration physiotherapy students: a systematic review. *JBI Database System Re Implement Rep* 2019; 17(6):1229-1255.

<sup>4</sup>Almalk S. Integrating quantitative and qualitative data in mixed methods research – challenges and benefits. *Journal of Education and Learning*, 5:3, 288-296, 2016. <http://dx.doi.org/10.5539/jel.v5n3p288>

<sup>5</sup>Wisdom J and Creswell JW, Mixed methods: integrating quantitative and qualitative data collection and analysis while studying patient-centered medical home models. Rockville, Md: Agency for Healthcare Research and Quality. February 2013. AHRQ Publication No: 13-0028-EF. <https://pcmh.ahrq.gov/page/mixed-methods-integrating-quantitative-and-qualitative-data-collection-and-analysis-while#:~:text=Mixed%20methods%20are%20especially%20useful,Fosters%20scholarly%20interaction.>

<sup>6</sup>Zapko KA, Ferranto MLG, Blasiman R, Shelestak D. Evaluating best educational practices, student satisfaction, and self-confidence in simulation: a descriptive study. *Nurse Education Today* 60 (2018)28034