

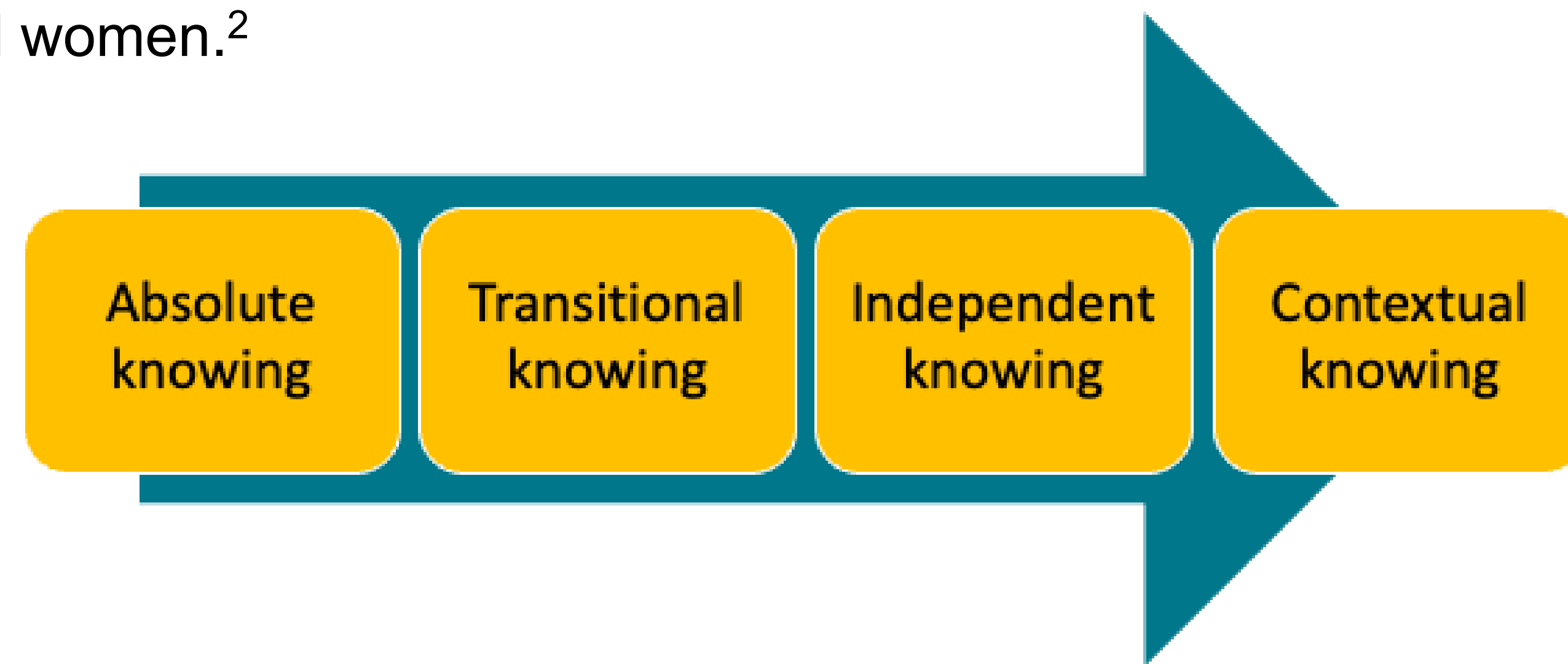
# Validation of an Instrument to Assess Student Pharmacist Self-Authorship

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## Introduction

- Self-authorship (SA) is the creation of one's own perspective by contextually evaluating evidence, constructing independent beliefs, and maintaining capacity to consider outside perspectives without being consumed by them.<sup>1</sup>
- Baxter Magolda's self-authorship theory (BMSAT) describes four stages of cognitive development. Transitioning between stages is common during the formative years of higher education. According to this theory, although the stages remain consistent, SA develops differently in men and women.<sup>2</sup>



- Tools to measure self-authoring are lacking; a validated instrument to measure SAT will assist pharmacy educators in understanding how students learn to self-author and what curricular and co-curricular interventions foster this progression.

## Objective

- To refine and validate previously published SAT instruments to meet the needs of self-authorship measurement among diverse student pharmacists at two schools of pharmacy.

## Methods

### Survey Instrument Design and Administration

- The survey instrument was adapted for pharmacy students from an existing instrument in medical education.<sup>3</sup>
- Three factors (Career Development, Data Interpretation & Decision Making, and Ethics & Values) were established *a priori*, by the researchers, to determine the fit of each item within each factor.
- The voluntary, anonymous survey was administered to all student pharmacists at two public, 4-year PharmD programs electronically via Qualtrics during the 2022-2023 Academic Year.

### Validity and Reliability Testing

- Initial analysis was conducted to determine the validity and reliability of the SA instrument among student pharmacists. The researchers utilized structural equation modeling and Cronbach's alpha was used to examine the validity and reliability of the instrument.

## Results

- Demographics of respondents are described in **Table 1**.
- Results of Confirmatory Factor Analysis are presented in **Table 2**.

Table 1. Study Demographics (n=157)	
Variable	n (%)
<b>Age</b>	
18-25	93 (59.24)
26-35	48 (30.57)
36-45	8 (5.10)
46-55	3 (1.91)
Did not respond	5 (3.18)
<b>Gender</b>	
Female	113 (71.97)
Male	34 (21.66)
Gender Fluid	4 (2.55)
Non-binary	1 (0.64)
Prefer not to say	5 (3.18)
<b>Ethnicity</b>	
African	1 (0.64)
American or Alaskan Native	3 (1.91)
Asian	31 (19.75)
Asian Indian	11 (7)
Black, African American	29 (18.47)
White	67 (42.68)
Other	2 (1.27)
Prefer not to say	13 (8.28)

Table 2. Confirmatory Factor Analysis of the Self-Authorship Instrument					
Factor	Item	Std. Coefficient	Cronbach's Alpha	RMSEA	SRMR
Career Development			0.49	0.08	0.08
	1	0.20			
	2	0.01			
	4	0.24			
	8	0.42			
	9	0.47			
	18	0.22			
	19	0.50			
	22	0.27			
	23	0.68			
Data Interpretation & Decision Making			0.52	0.09	0.09
	3	0.21			
	5	0.27			
	6	0.04			
	7	0.5			
	10	0.12			
	11	0.1			
	12	0.72			
	13	0.26			
	15	0.47			
	24	0.14	0.72	0.29	0.11
Ethics and Values					
	16	0.69			
	17	-0.36			
	20	0.74			
	21	-0.52			
	25	-0.53			

### Confirmatory Factor Analysis

- The Career Development factor met the threshold on the Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Squared Residual (SRMR) for an acceptable model fit.
- The Data Interpretation & Decision Making factor fell just beyond the threshold on the RMSEA and was an acceptable fit under the SRMR.
- The Ethics and Values factor did not yield a model fit with either the RMSEA or the SRMR values.

### Internal Consistency of Factors

- In examining how closely related items were in each of the three factors, the authors found an acceptable level of internal consistency within the factors for the current stage of development.

## Discussion

- This SA survey tool adapted from the medical education literature had acceptable levels of validity and reliability among the pharmacy student cohorts studied.
- Measuring SA among pharmacy students is important as students transition from didactic learners to independent practitioners throughout their education.
- SAT has important implications for several COEPA sub-domains<sup>4</sup> (e.g., problem-solver, self-awareness) and professional identity formation.
- Strengths of this study include adaptation of a previously validated instrument, multi-site administration, and representation of all four professional years of pharmacy students.
- Limitations include the small sample size, the use of the tool over only one cohort (e.g., not longitudinal), and the relatively low response rate.

## Conclusions

- This SA survey tool, adapted from medical education, has resulted in an instrument that is valid and reliable for the current stage of research.
- Continued use will examine items and potential ambiguity in order to increase reliability.
- There are far reaching implications for a valid and reliable survey to measure SA in student pharmacists, including tracking SA over time within pharmacy training.
- Future steps include using this validated instrument to determine if particular educational interventions impact self-authoring and determining the role demographic factors may play in self-authoring.

## References

- Patton LD, Renn KA, Guido FM, Quaye SJ. 2016. Student development in college: Theory, research, and practice (3<sup>rd</sup> ed.). Jossey-Bass.
- Baxter Magolda, MB. Developing self-authorship in graduate school. 1998. New Directions for Higher Education, no 101, pp. 41-54.
- Fallar R, Hanss B, Sefcik R, Goodson L, Kase N, Katz C. Investigating a Quantitative Measure of Student Self-authorship for Undergraduate Medical Education. *J Med Educ Curric Dev*. 2019 Dec 24;6:2382120519896789.
- Medina M., Farland M., Malcom D., et al. *AACP Curriculum Outcomes and Entrustable Professional Activities (COEPA) 2022 Report of the 2022-2023 Academic Affairs Standing Committee: Revising the Center for the Advancement of Pharmacy Education (CAPE) Educational Outcomes and Entrustable Professional Activities*. <https://www.aacp.org/sites/default/files/2022-11/coepa-document-final.pdf>

## Disclosure

Authors of this poster have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.