Examining Preservice Teachers' Perceived Performance While Student Teaching: A Longitudinal Study

M. Reaves[1], B. M. Coleman[2], C. B. Jagger[3], J. C. Bunch[4], G. D. Israel[5]

Abstract

With this study, we sought to fill a gap regarding preservice teachers' self-evaluation during the student teaching experience. An instrument was created and validated for use as a weekly self-evaluation tool for preservice teachers during the student teaching internship. This instrument encourages preservice teachers to self-assess and use self-regulated learning strategies during their student teaching experience. The finalized instrument should be used in conjunction with other activities of the student teaching portfolio to meet the phases of self-regulated learning (forethought, performance, and self-reflection). The purpose of this study was to examine the change in preservice teachers' perceived performance over time during the 14-week student teaching internship. The objectives of this study were to describe preservice teachers' performance scores and examine the variance in preservice teachers' self-reported performance scores over the student teaching internship. Means and standard deviations for each of the five constructs during the 14-week period are reported. The self-evaluation scores of all five constructs of the validated instrument show an upward trend over the 14-week student teaching internship, with peaks and valleys scattered throughout. Research should continue with the goal of identifying the reasons for the peaks and valleys in weekly self-evaluation data.

1. Margaret Reaves, Graduate Student, University of Florida, 408 Rolfs Hall, PO Box 110540, Gainesville, FL 32611, mreaves@ufl.edu, https://orcid.org/0009-0004-3642-7812
2. Bradley M. Coleman, Assistant Professor, Oklahoma State University, 445 Agricultural Hall, Stillwater, OK 74078, b.coleman@okstate.edu, https://orcid.org/0000-0001-5981-5747
3. Carla B. Jagger, Assistant Professor, University of Florida, 307B Rolfs Hall, PO Box 110540, Gainesville, FL 32611, carlajagger@ufl.edu, https://orcid.org/0000-0001-9796-6271
4. J.C. Bunch, Associate Professor, University of Florida, 307A Rolfs Hall, PO Box 110540, Gainesville, FL 32611, bunchj@ufl.edu, https://orcid.org/0000-0001-8729-2349
5. Glenn D. Israel, Professor Emeritus, University of Florida, 305 Rolfs Hall, PO Box 110540, Gainesville, FL 32611, gdisrael@ufl.edu, https://orcid.org/0000-0002-1328-0262

Introduction and Problem Statement

A student teaching internship is the capstone experience for many teacher preparation programs at universities. Lasting between ten and sixteen weeks, student teaching internships provide opportunities for preservice teachers to develop skills in classroom instruction, student management, lesson preparation, personal and professional growth, and reflection as an educator (Miller & Wilson, 2010). These opportunities for immersive learning experiences occur in a true classroom environment, which cannot be simulated easily in other ways (Coleman et al., 2021).

The preservice teachers' school placement and cooperating teacher are assigned by their university-based faculty coordinator. School placements and cooperating teachers are often assigned based on the growth areas needed by the preservice teacher, along with other factors. Throughout the student teaching internship, preservice teachers are expected to complete various self-assessments and activities that allow them to evaluate their own skill development.

Repeated self-assessment is an important aspect of growth during the student teaching internship. Self-assessment occurs when students make judgements regarding their own learning and achievements, leading to self-regulated learning (Falchikov & Boud, 1989; Max et al., 2022; Panadero et al., 2016). Understanding how preservice teachers self-assess their ability in certain areas can help teacher educators better prepare preservice teachers for a student teaching internship and later career success. Through this study, we sought to validate a weekly self-evaluation instrument based on the Florida teaching standards in agricultural education and used this instrument to examine the change in preservice teachers' perceived performance over time during the student teaching internship.

Theoretical and Conceptual Framework

Preservice teachers are expected to be self-regulated learners, and the structure of the student teaching internship encourages this expectation. Establishing the expectations of self-regulated learning early in the teacher preparation program encourages preservice teachers to acknowledge, hear, and listen to their own voice (Belenky et al., 1986; Collier, 1999). When included throughout the teacher education program, self-regulated learning techniques can help preservice teachers both to reflect on their academic performance and learn strategies to become more self-regulated students (Ganda & Boruchovitch, 2018).

The cyclical process of self-regulated learning typically includes three phases: (a) forethought, (b) performance, and (c) self-reflection (Zimmerman, 2002). Moving through all three phases is important to engage in a quality educational experience. (Bembenutty, 2011; Ganda & Boruchovitch, 2018). In this study, it is assumed that preservice teachers considered each week of their student teaching internship to be a "performance" and completed the cyclical process as such. To fulfill the forethought phase of self-regulated learning, student teachers set goals each week and determined their strategies for achieving the goals. As they moved through the week of teaching (the performance phase) and interacting with students, preservice teachers

informally monitored their performance and self-assessed their progress towards achieving the goals they set for the week. At the end of the week, the preservice teacher completed the self-evaluation instrument and reflected on their performance and used the results to guide their goal setting for the next week, participating in the self-reflection phase of the self-regulated learning cycle. Part of this self-reflection phase should have included the preservice teacher making self-judgements about their satisfaction and success (Ganda & Boruchovitch, 2018).

Self-regulated learners are metacognitively, motivationally, and behaviorally active in learning environments (Zimmerman, 1989). As self-regulated learners, preservice teachers are often intrinsically motivated and take control of their own learning (Oates, 2019). A self-regulated learner may identify strategies to improve their understanding and monitor their learning, especially doing so without the encouragement of teachers, parents, and other instructional leaders (Zimmerman, 1989). Some self-regulated learning strategies that preservice teachers should pursue in a student teaching internship include (a) self-evaluating, (b) organizing and transforming, (c) goal setting and planning, (d) seeking information, (e) keeping records and monitoring, (f) rehearsing and memorizing, (g) seeking social assistance, and (h) reviewing records. (Ganda & Boruchovitch, 2018; Zimmerman, 1989).

Self-regulated learning is not only an ideal approach for the student teaching internship but also for a future career in the educational field or otherwise (Ganda & Boruchovitch, 2018). Self-regulation should happen continually in the classroom and educational environment (Bembenutty, 2008; Dembo, 2001; Ganda & Boruchovitch, 2018). Preservice teachers can also practice teaching their own students this self-regulated learning process and strategies, helping to promote lifelong learning skills for all (Luftnegger et al., 2012; Oates, 2019).

Purpose

The purpose of this study was to validate an instrument (weekly self-evaluation form) based on the Florida teaching standards in agricultural education and use this instrument to examine the change in preservice teachers' perceived performance over time during the student teaching internship. Three research objectives guided this study:

1. Determine if constructs describing factors of performance are internally consistent.
2. Determine if instrument items cluster into latent constructs that can be used to describe factors of performance.
3. Describe preservice teachers' performance scores over the 14-week student teaching experience.

Methods

This study was part of a larger research project (Coleman et al., 2021). The participants were chosen through single-stage, nonprobability convenience sampling. Each cohort of preservice teachers who were completing a student teaching internship through the University of Florida Department of Agricultural Education and Communication in the spring semesters of 2015–

2019 were included in the study, yielding 81 participants. After removing 22 participants whose student teaching portfolios were missing or inaccessible, 59 participants remained. This study was completed longitudinally over the 14 weeks of each student teaching internship.

All data were collected through a student teaching portfolio, which each participant completed as part of their internship requirements. The completed student teaching portfolio includes 12 components: (a) pre-placement experiences, (b) teaching calendar, (c) placement experiences, (d) clock hour worksheet, (e) weekly reflection journal, (f) SAE visits, (g) case study, (h) mock interview, (i) weekly lesson plans, (j) weekly self-evaluation forms, (k) weekly cooperating teacher evaluation forms, and (l) university supervisor evaluation forms.

Instrumentation

The weekly self-evaluation form created to assess the preservice teachers' perceived performance was adapted from the Florida Educator Accomplished Practices which are standards developed by the Florida Department of Education (Florida Department of Education, n.d.). University of Florida teacher education faculty from the Department of Agricultural Education and Communication adapted the Florida teaching standards into an instrument for a preservice teacher weekly performance self-evaluation. Since this was a newly developed instrument there was a need to determine if latent constructs existed within the modified preservice teacher self-evaluation form. Individual items were selected to develop an index to measure said constructs (Kumar Chaudhary & Israel, 2022). The modified instrument had 26 items. One item, *develops learning experiences that require students to demonstrate skills and competencies*, was removed because more than half (52.9%) of the data were missing. The 25 remaining items were confirmed to measure five latent constructs when the instrument was used by the cooperating teacher to evaluate their student teacher. Those constructs were (a) instructional design (five items), (b) instructional practice (six items), (c) student-centered teaching (four items), (d) teacher professionalism (five items), and (e) reflective and autonomous practitioner (five items) (Coleman et al., 2021). However, the purpose of this study is to confirm the constructs within the population of student teachers who used the instrument for self-evaluation.

Data Analysis

All data were analyzed using SPSS version 27. Descriptive statistics were used to summarize demographic data. The data were analyzed for the distribution of missingness (Schafer & Graham, 2002), and 37.4% (n = 19,482) of the values were missing at random. The proportion of missing data was considered to be relatively large (Schafer, 1999). Therefore, multiple imputation was conducted to address the missing values (Schafer & Graham, 2002; van Ginkel et al., 2020). Using the pooled results from the analysis of ten multiple imputed data sets, descriptive statistics (mean, standard deviation, frequency, and percentage) were used to meet the objectives of this study. Additionally, reliability analysis was conducted using Cronbach's alpha to check the internal consistency of each construct's items. Because the instrument was modified significantly, exploratory factor analysis (EFA) using principal axis factoring was used to analyze the relationship between variables (Floyd & Widaman, 1995).

Findings

Objective 1: Determine if constructs describing factors of performance are internally consistent

All five constructs exceeded the recommended alpha coefficient of .7 (DeVellis, 2012); therefore, the items were deemed reliable (Table 1). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was utilized to assess the suitability of the data for factor analysis. Results were inspected for a value of .6 or above (Kaiser, 1970, 1974). Further, Bartlett's test of sphericity was assessed for significance (p ≤ .05; Bartlett, 1954). The KMO measure of sampling adequacy and Bartlett's test of sphericity are reported in Table 1. The Cronbach's alpha coefficients for each construct were: (a) instructional design = .89, (b) instructional practice = .90, (c) student-centered teaching = .86, (d) teacher professionalism = .84, and (e) reflective and autonomous practitioner = .86.

Table 1

Cronbach's Alpha, KMO Measure of Sampling Adequacy, and Bartlett's Test of Sphericity for Factors of the Weekly Self Evaluation

Factor	Cronbach's Alpha	KMO Measure of Sampling Adequacy	Bartlett's Test of Sphericity		
			Approx. Chi-Square	df	p-value
1	.89	.85	2378.96	10	.00
2	.90	.90	2678.35	15	.00
3	.86	.79	1524.90	6	.00
4	.84	.82	1928.87	10	.00
5	.86	.84	1918.16	10	.00

Note. 1 = instructional design; 2 = instructional practice; 3 = student-centered teaching; 4 = teacher professionalism; 5 = reflective and autonomous practitioner.

Objective 2: Determine if items cluster into latent constructs

Based on Kaiser's (1970) criteria, factor loadings with eigenvalues of one or more should be retained. All factors produced eigenvalues greater than one, and the total common variance explained, are listed in Table 2. The communalities of a factor are measures of the proportion of common variance (Field, 2018). The factor loadings were strong, and the mean values of the factors' commonalities are as follows: (a) instructional design (*M* = .62), (b) instructional practice (*M* = .60), (c) student-centered teaching (*M* = .61), (d) teacher professionalism (*M* = .56), (e) reflective and autonomous practitioner (*M* = .56).

Table 2

Eigenvalues, Percent of Variance, Factor Loadings, and Communalities for Factors of the Weekly Self Evaluation

	Factor Loading	Communalities
Factor 1: Instructional Design (Eigenvalue: 3.11; % Variance: 62.22)		
Designs instruction for students to achieve mastery	.80	.64
Selects appropriate formative assessments to monitor learning	.82	.67
Uses diagnostic student data to plan lessons	.65	.42
Sequences lessons and concepts to ensure coherence and required prior knowledge	.88	.77
Aligns instruction with state-adopted standards at the appropriate level of rigor	.79	.62
Factor 2: Instructional Practice (Eigenvalue: 3.58; % Variance: 59.59)		
Organizes, allocates, and manages the resources of time, space, and attention	.82	.68
Establishes and maintains rapport with students	.76	.58
Communicates challenging learning expectations to each student	.76	.58
Establishes and maintains consistent standards of classroom behavior	.75	.56
Makes the physical environment as safe and conducive as possible	.72	.52
Uses instructional time effectively	.81	.66
Factor 3: Student-Centered Teaching (Eigenvalue:2.44; % Variance: 60.92)		
Makes learning goals and instructional procedures clear to students	.80	.64
Makes content comprehensible to students	.73	.53
Encourages students to extend their thinking	.78	.61
Monitors students' understanding through a variety of means, providing feedback to students to assist learning, and adjusting learning activities as the situation demands	.81	.66
Factor 4: Teacher Professionalism (Eigenvalue: 2.77; % Variance: 55.38)		
Builds professional relationships with colleagues to share teaching insights to coordinate learning activities for students	.71	.51
Communicates with parents or guardians about student learning	.54	.30
Is punctual, uses mature judgement, provides accurate reports and records (professional responsibility)	.87	.76
Presents a professional appearance in dress, grooming, attitude, and demeanor	.80	.64
Professional behavior is consistent with the Code of Ethics & Principles of Professional Conduct of the Education Professionals in Florida	.76	.57
Factor 5: Reflective and Autonomous Practitioner (Eigenvalue:2.83; % Variance: 56.50)		
Reflects on the extent to which learning goals were met	.65	.42
Demonstrates a sense of efficacy	.76	.58
Demonstrates enthusiasm for teaching	.71	.51
Demonstrates responsiveness to supervision (ability to accept constructive criticism and incorporate suggestions into teaching performance)	.82	.67
Demonstrates initiative and self-reliance	.80	.64

Objective 3: Describe preservice teachers' performance scores over the 14-week student teaching experience

To describe preservice teachers' performance scores over the 14-week student teaching experience, means and standard deviations for each construct are reported in Table 3. For *instructional design*, the three weeks with the highest mean scores were week 14, week 13, and week 12. The weeks with the two lowest mean scores were week two and week three. Regarding *instructional practice*, the two weeks with the highest means were week 14, and week 13. The two weeks with the lowest mean scores were week two and week three.

Table 3

*Construct Means and Standard Deviations over the 14-Week Student Teaching Experience*

Week	ID		IP		SC		TP		RA	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
One	2.57	.52	2.57	.52	2.44	.54	2.79	.52	2.73	.51
Two	2.43	.52	2.47	.50	2.49	.56	2.71	.53	2.73	.53
Three	2.46	.53	2.56	.51	2.52	.60	2.81	.54	2.77	.57
Four	2.54	.47	2.62	.50	2.60	.47	2.93	.51	2.96	.50
Five	2.49	.47	2.76	.53	2.66	.51	2.95	.51	3.00	.50
Six	2.70	.52	2.75	.46	2.75	.51	3.00	.48	2.97	.50
Seven	2.69	.57	2.86	.53	2.75	.58	3.02	.53	3.10	.48
Eight	2.82	.51	2.96	.49	2.85	.53	3.13	.49	3.15	.44
Nine	2.81	.45	2.95	.46	2.93	.43	3.22	.47	3.21	.45
Ten	2.85	.51	3.01	.50	3.00	.50	3.19	.53	3.19	.50
Eleven	2.94	.49	3.05	.51	3.01	.55	3.21	.50	3.19	.47
Twelve	3.03	.51	3.09	.53	3.08	.51	3.23	.50	3.32	.44
Thirteen	3.03	.55	3.19	.49	3.10	.53	3.37	.47	3.35	.44
Fourteen	3.07	.56	3.22	.53	3.14	.59	3.33	.49	3.35	.48

Note. ID = instructional design; IP = instructional practice; SC = student-centered teaching; TP = teacher professionalism; RA = reflective and autonomous practitioner.

As for *student-centered teaching*, the three weeks with the highest means were week 14, week 13, and week 12. Week one, week two, and week three had the lowest mean scores. Concerning *teacher professionalism*, week 13 and week 14 were the two highest means. The weeks with the lowest two means were week two and week one. For the construct of *reflective and autonomous practitioner*, the three weeks with the highest means were week 14, week 13, and week 12. The two lowest mean scores were in week one and week two. There was an upward trend with the mean scores over the 14-week placement across each construct. The week one scores ranged from 2.44 to 2.79, and the week 14 scores ranged from 3.07 to 3.35. Two constructs, teacher professionalism and student-centered teaching, had consistently higher scores across the 14 weeks than the other constructs. This data was also formatted into a line graph, as seen in Figure 1.

Figure 1

Preservice Teacher Mean Evaluation Scores by Construct over the 14-Week Student Teaching Experience
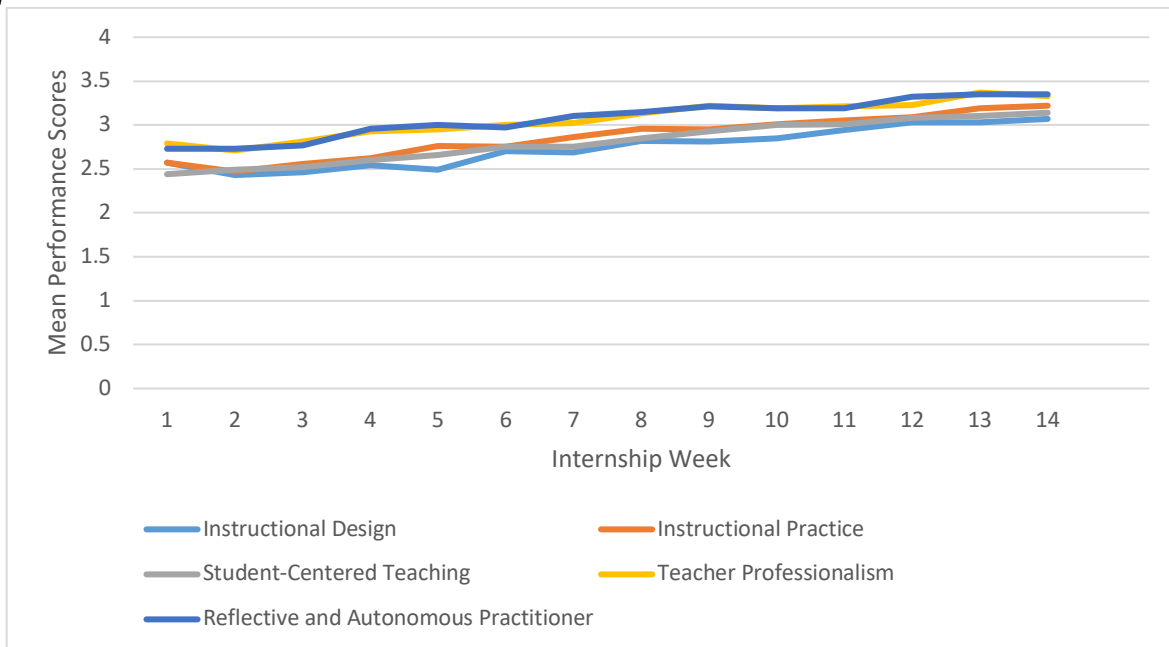
The self-evaluation scores of all five constructs show an upward trend over the 14-week student teaching internship, with peaks and valleys scattered throughout. The constructs of *reflective and autonomous practitioner* and *teacher professionalism* produced higher scores than the other three constructs for each week of the student teaching experience. *Student-centered teaching* is the only construct which had consistent growth over the 14 weeks, with no decline in the mean between any two weeks.

Conclusions, Discussion, and Recommendations

Student teaching helps with the development of interns in ways that cannot be simulated in a university educational environment. Time in real classroom setting allows preservice teachers to gain experience interacting with students, parents, fellow teachers, and administration (Miller & Wilson, 2010). The required work during a student teach internship encourages preservice teachers to follow the cyclical process between the forethought, performance, and self-reflection phases of the self-regulated learning process (Zimmerman, 2002). Encouraging preservice teachers to practice being self-regulated learners provides the best possible simulation of the educational field where teachers must prepare for classes and plan teaching strategies, teach content, and reflect on their own teaching performance.

All five constructs were internally consistent, exceeding the ideal alpha coefficient. The instrument was found to be reliable because all five proposed factors met the criteria to be

classified as constructs including eigenvalues, total common variance, and factor loading. The self-evaluation scores of all five constructs in this study show an upward trend over the 14-week student teaching internship. The constructs of *reflective and autonomous practitioner* and *teacher professionalism* produced scores that were consistently higher than the other three constructs over the 14-week internship, aligning with the results of previous research (Coleman et al., 2021). Researchers should continue to explore this phenomenon to better determine how university teacher education programs can emphasize the three lower-scoring constructs. Specifically, understanding why the *teacher professionalism* and *reflective and autonomous practitioner* constructs are higher than other constructs can help emphasize the importance of consistent growth in all construct areas.

The goal of this continued research is to determine why there are peaks and valleys in the weekly data based on the information pulled from the journal reflections. The study, thus far, has focused on the "performance" phase of self-regulated learning. The researchers hope to further analyze the preservice teachers' participation in the self-regulated learning cycle by evaluating their weekly reflections alongside the weekly self-evaluation instrument. It is recommended that future research should compare preservice teachers' mean self-evaluation scores to cooperating teachers' or university supervisors' evaluation scores as well, to evaluate the perceived growth of the student teacher across all parties. The study could be expanded by including participants from more recent student teaching cohorts, and other universities or states. Additionally, to help reduce any limitations from our sample size, we also recommend other institutions utilize this instrument and share their data. While this instrument was found to be reliable, we understand that increasing the sample size will only help strengthen the results.

The upward trend of self-evaluation scores leads researchers to see potential for another study regarding preservice teachers' use of the self-regulated learning process throughout the teacher preparation program. Researchers can explore how preservice teachers move through the three phases of self-regulated learning throughout their college classes, student teaching internship, and early years of their career. Better understanding how preservice teachers use the self-regulated learning process to help prepare themselves for a career in education could help university faculty continue to improve teacher preparation programs.

University teacher education programs should continue to use the self-evaluation instrument as a way for preservice teachers to engage in self-regulated learning. This self-evaluation instrument provides an essential form of nonformal feedback, which should be provided to preservice teachers in addition to formal evaluations (Miller & Wilson, 2010). Self-evaluation should be used in conjunction with cooperating teacher and university supervisor performance evaluations throughout the student teaching experience. Other teacher preparation programs should seek to use the instrument to help assess preservice teachers' perceived abilities and growth before and during the student teaching internship.

Acknowledgements

References

Bartlett, M. S. (1954). A note on the multiplying factors for various chi square approximations. *Journal of the Royal Statistical Society, 16*(2), 296–298. https://www.jstor.org/stable/2984057

Belenky, M. F., Clinchy, B. M., Goldberger, N. R., & Tarule, J. M. (1986). *Women's ways of knowing: The development of self, voice, and mind*. Basic Books.

Bembenutty, H. (2008). The first word: A letter from the guest editor on self- regulation of learning. *Journal of Advanced Academics, 20*(1), 5–16. https://doi.org/10.4219/jaa-2008-884

Bembenutty, H. (2011). New directions for self-regulation of learning in post-secondary education. *New Directions for Teaching and Learning, 2011*(126), 117–124. https://doi.org/10.1002/tl.450

Coleman, B. M., Ferand, N. K., Bunch, J. C., & Israel, G. (2021). Examining preservice teachers' performance during a 14-week student teaching experience: A longitudinal study. *Journal of Agricultural Education, 62*(3), 258-274. https://doi.org/10.5032/jae.2021.03258

Collier, S. T. (1999). Characteristics of reflective thought during the student teaching experience. *Journal of Teacher Education, 50*(3), 173–181. https://doi.org/10.1177/002248719905000303

Dembo, M. H. (2001). Learning to teach is not enough – Future teachers also need to learn to learn. *Teacher Education Quarterly, 28*(4), 23–35. http://www.jstor.org/stable/23478314

DeVellis, R. F. (2012). *Scale development: Theory and applications* (3rd ed.). Sage Publications.

Falchikov, N., & Boud, D. (1989). Student self-assessment in higher education: A meta-analysis. *Review of Educational Research, 59*(4), 395–430. https://doi.org/10.3102/00346543059004395

Field, A. P. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). Sage Publications.

Florida Department of Education. (n.d.). *The Florida educator accomplished practices (FEAPs).* http://www.fldoe.org/teaching/professional-dev/the-fl-educator-accomplished-practices.stml

Floyd, F. J., & Widaman, K. F. (1995). Factor analysis in the development and refinement of clinical assessment instruments. *Psychological Assessment, 7*(3), 286–299. https://doi.org/10.1037/1040-3590.7.3.286

Ganda, D. R., & Boruchovitch, E. (2018). Promoting self-regulated learning of Brazilian preservice student teachers: Results of an intervention program. *Frontiers in Education 3*(5). https://doi.org/10.3389/feduc.2018.00005

Kaiser, H. F. (1970). A second generation little jiffy. *Psychometrika, 35*, 401–415. https://doi.org/10.1007/BF02291817

Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika, 39*, 31–36. https://doi.org/10.1007/BF02291575

Kumar Chaudhary, A., & Israel, G. D. (2022). *The savvy survey #6d: Constructing indices for a questionnaire* [AEC399]. University of Florida Institute of Food and Agricultural Sciences. https://edis.ifas.ufl.edu/pd069

Luftnegger, M., Schober, B., van de Schoot, R., Wagner, P., Finsterwald, M., & Spiel, C. (2012). Lifelong learning as a goal - do autonomy and self-regulation in school result in well prepared pupils? *Learning and Instruction, 22*(1), 27–36. https://doi.org/10.1016/j.learninstruc.2011.06.001

Max, A. L., Lukas, S., & Weitzel, H. (2022). The relationship between self-assessment and performance in learning TPACK: Are self-assessments a good way to support preservice teachers' learning? *Journal of Computer Assisted Learning, 38*(4), 1160–1172. https://doi.org/10.1111/jcal.12674

Miller, G., & Wilson, E. B. (2010). Designing field-based and experiential education for preservice teachers in agriculture. In R. M. Torres, T. Kitchell, & A. L. Ball (Eds.) *Preparing and advancing teachers in agricultural education* (pp.131-141). Curriculum Material Service, The Ohio State University.

Oates, S. (2019). The importance of autonomous, self-regulated learning in primary initial teacher training. *Frontiers in Education, 4*(102). https://doi.org/10.3389/feduc.2019.00102

Panadero, E., Jönsson, A., & Strijbos, J. W. (2016). Scaffolding self-regulated learning through self-assessment and peer assessment: Guidelines for classroom implementation. In D. Laveault & L. Allal (Eds.), *Assessment for learning: Meeting the challenge of implementation* (pp. 311–326). https://doi.org/10.1007/978-3-319-39211-0_18

Schafer, J. L. (1999). Multiple imputation: A primer. *Statistical Methods in Medical Research, 8*(1), 3–15. https://doi.org/10.1177/096228029900800102

Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods, 7*(2), 147–177. https://doi.org/10.1037//1082-989X.7.2.147

van Ginkel, J. R., Linting, M., Rippe, R. C. A., & van der Voort, A. (2020). Rebutting existing misconceptions about multiple imputation as a method for handling missing data. *Journal of Personality Assessment, 102*(3), 297–308. https://doi.org/10.1080/00223891.2018.1530680

Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology, 81*(3), 329–339. https://doi.org/10.1037/0022-0663.81.3.329

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory Into Practice*, *41*(2), 64–70. https://doi.org/10.1207/s15430421tip4102_2