

**TABLE 1**

Number of items matched to each intended dimension (role) described by the percentage of reviewers.

Percentage match of items by reviewers (%)	Number of Items		
	Researcher	Teacher	Mentor
100	5	14	6
80	1	1	2
60	0	0	2
40	8	0	1
20	3	0	1
0	1	0	1

**TABLE 2**

Dimensionality for role identity scales.

Scale	Variance explained by measures (%)	Variance explained by persons (%)	Variance explained by items (%)	Unexplained variance in first contrast (%)	Eigenvalue
Teacher	41.4	18.3	23.1	10.2	2.4
Researcher	54.9	25.4	29.5	15.3	4.8
Mentor	46.1	21.1	25.0	9.5	2.5

Note. Eigenvalue is for the unexplained variance in first contrast. Teacher = Teacher Role Identity Scale; Researcher = Research Role Identity Scale; Mentor = Mentor Role Identity Scale.

**TABLE 3**

Teacher Role Identity Multidimensionality Scale.

Teacher Role Identity Subscale 1	Teacher Role Identity Subscale 2
TEACH1. I view myself as a teacher.	TEACH2. I feel that my fellow TAs see me as a teacher.
TEACH4. My responsibility this semester is to teach.	TEACH3. I feel that my students see me as a teacher.
TEACH6. I follow higher education pedagogical recommendations in my teaching practice.	TEACH5. I design student assessments (quizzes, assignments, etc.) on the learning outcomes for the course.
TEACH7. I reflect on the diversity of students in my classroom.	TEACH11. I have incorporated the educational standards for biology into my teaching practice.
TEACH8. I use multiple teaching methods to ensure all my students have the opportunity to learn.	TEACH12. I use evidence-based teaching practices.
TEACH9. I assess my own teaching.	TEACH13. I set and communicate expectations with my students.
TEACH10. I make modifications of my teaching based on personal reflections.	TEACH14. I bring disciplinary knowledge into the classroom.

Note. Teach = Teacher

**TABLE 4****Researcher Role Identity Multidimensionality Scale.**

<b>Researcher Role Identity Subscale 1</b>	<b>Researcher Role Identity Subscale 2</b>	<b>Researcher Role Identity Subscale 3</b>
RES1. I view myself as a researcher.	RES5. I help my students deal with unexpected outcomes of scientific experiments.	RES6. I help my students conduct authentic research.
RES2. I feel that my fellow TAs see me as a researcher.	RES7. I use evidence-based reasoning to draw conclusions about my students' experiments.	RES8. The group work in the classroom mimics scientists working together to tackle problems.
RES3. I feel that my students see me as a researcher.	RES9. The outcome of the laboratory investigation is unknown to both my students and myself.	RES10. My students and I discuss appropriate methods for the experiments they conduct.
RES4. My responsibility this semester is to conduct research.	RES13. I help my students troubleshoot problems with their experiments.	RES11. In the classroom, I engage in the use of scientific practice with my students.
	RES14. My students repeat their experiments, illustrating to them part of the scientific process.	RES12. My students accumulate evidence for their research questions through diverse methods.

Note. RES = Researcher

**TABLE 5****Mentor Role Identity Multidimensionality Scale.**

<b>Mentor Role Identity Subscale 1</b>	<b>Mentor Role Identity Subscale 2</b>
MENT1. I view myself as a mentor.	MENT3. I feel that my students see me as their mentor.
MENT2. I feel that my fellow TAs see me as a mentor.	MENT7. I provide direct career and professional development to my students.
MENT4. My responsibility this semester is to mentor my undergraduate students.	MENT8. Fostering student growth requires my direct involvement.
MENT5. I have enduring personal relationships with the students in my class.	MENT9. I provide direct emotional and psychological support to my students.
MENT6. My research background enriches my students' experience in the lab.	MENT10. I saw positive personal outcomes in my students as a result of our interactions.
MENT11. I provide my students with an environment for self-exploration and personal growth.	MENT14. I am a role model for my students.
MENT12. I believe I make a difference in my students' lives.	
MENT13. At the end of the semester, my students were transformed in their own identities as researchers, as a result of our interactions.	

Note. MENT = Mentor

**TABLE 6****Dimensionality and item and person measures for role identity subscales.**

Parameters	TRIS1	TRIS2	RRIS1	RRIS2	RRIS3	MRIS1	MRIS2
Items	7	7	4	5	5	8	6
Person separation	1.82	1.51	1.50	2.74	2.66	1.99	2.30
Person reliability	.77	.70	.69	.88	.88	.80	.84
Item separation	1.26	2.51	1.93	4.40	2.61	2.10	2.14
Item reliability	.61	.86	.79	.95	.87	.82	.82
Variance explained	.51	.49	.47	.76	.70	.49	.61
Eigenvalue	1.88	1.73	1.62	1.76	1.53	1.83	1.85

*Note.* *Variance explained* means variance explained by measures (person and item). *Eigenvalue* refers to the unexplained variance in first contrast. MRIS1 = Mentor Role Identity Subscale 1; MRIS2 = Mentor Role Identity Subscale 2; RRIS1 = Researcher Role Identity Subscale 1; RRIS2 = Researcher Role Identity Subscale 2; RRIS3 = Researcher Role Identity Subscale 3; TRIS1 = Teacher Role Identity Subscale 1; TRIS2 = Teacher Role Identity Subscale 2.

**TABLE 7****Items, item measures, and item fit statistics for potentially misfitting items in the Teacher, Researcher, and Mentor Role Identity Subscales.**

Subscale	Item	n	Item difficulty	Total score	Infit MNSQ	Outfit MNSQ
TRIS1	TEACH4	31	.72	86	1.42	1.39
TRIS2	TEACH5	31	.87	78	1.53	1.43
TRIS2	TEACH13	31	-.93	105	.56	.55
RRIS2	RES14	31	1.79	47	1.51	1.34
RRIS3	RES8	31	.11	61	1.61	1.50
MRIS1	MENT12	31	-.25	69	.59	.59

*Note.* MRIS1 = Mentor Role Identity Subscale 1; MNSQ = mean square; RRIS2 = Researcher Role Identity Subscale 2; RRIS3 = Researcher Role Identity Subscale 3; TRIS1 = Teacher Role Identity Subscale 1; TRIS2 = Teacher Role Identity Subscale 2.

**TABLE 8****Rating scale category functioning for role identity subscales.**

Subscale	Category	Count	Measure	Infit MNSQ	Outfit MNSQ	Threshold
TRIS1	1	10	-.81	1.51	1.52	NONE
	2	47	-.11	1.00	1.00	-2.20
	3	85	1.22	.92	.98	.04
	4	75	2.66	.81	.85	2.16
TRIS2	1	18	-.84	1.01	.97	NONE
	2	49	-.19	.77	.71	-1.44
	3	73	1.11	.86	.97	.04
	4	75	1.92	1.18	1.16	1.40
RRIS1	0	10	-1.35	.98	.96	NONE
	1	21	-.25	1.12	1.08	-2.05
	2	35	.28	1.11	1.10	-.53
	3	37	.92	.96	.86	.61
	4	21	2.00	.91	.93	1.98
RRIS2	0	27	-2.83	1.35	1.29	NONE
	1	22	-1.78	.75	.95	-2.50
	2	34	.08	.93	.88	-1.09
	3	33	1.80	.85	.82	.91
	4	39	3.47	.99	1.00	2.68
RRIS3	0	34	-2.87	1.27	1.20	NONE
	1	22	-1.61	.56	.44	-2.12
	2	36	-.28	1.07	1.15	-1.35
	3	35	1.29	.94	1.02	.45
	4	27	2.77	1.13	1.13	3.02
MRIS1	0	22	-1.72	1.26	1.24	NONE
	1	45	-.90	.84	.86	-2.05
	2	97	.19	.99	.93	-1.03
	3	60	.87	.96	.94	1.01
	4	24	1.48	.98	.98	2.07
MRIS2	0	15	-2.49	1.01	.99	NONE
	1	33	-1.45	.86	.92	-2.78
	2	74	.18	1.05	1.11	-1.39
	3	45	1.38	.99	.95	1.28
	4	19	2.72	1.00	1.01	2.89

Note. MNSQ = mean square; MRIS1 = Mentor Role Identity Subscale 1; MRIS2 = Mentor Role Identity Subscale 2; RRIS1 = Researcher Role Identity Subscale 1; RRIS2 = Researcher Role Identity Subscale 2; RRIS3 = Researcher Role Identity Subscale 3; TRIS1 = Teacher Role Identity Subscale 1; TRIS2 = Teacher Role Identity Subscale 2. 0 = never, 1 = rarely, 1 = never/rarely (for collapsed categories), 2 = sometimes, 3 = very often, 4 = always.