Supplemental Material

Rogers *et al*.

Appendix

Table A1

Survey Items for Outcome Measures

Outcome Measure	Survey Questions	Response Categories
Mentoring Competency Assessment (MCA)	Please rate how skilled you feel you were BEFORE attending the research mentor training, and how skilled you feel you are NOW in each of the following areas: (Think about your skills generally, with all your mentees).	
	1a. Active listening BEFORE	1 = Not at all skilled
	1b. Active listening NOW	
	2a. Providing constructive feedback BEFORE	2
	2b. Providing constructive feedback NOW	3
	3a. Establishing a relationship based on trust BEFORE	4 = Moderately skilled
	3b. Establishing a relationship based on trust NOW	
	4a. Identifying and accommodating different communication styles BEFORE	5
	4b.Identifying and accommodating different communication styles NOW	6
	5a.Employing strategies to improve communication with mentees BEFORE	7 = Extremely skilled
	5b. Employing strategies to improve communication with mentees NOW	
	6a. Coordinating effectively with your mentees' other mentors BEFORE	
	6b.Coordinating effectively with your mentees' other mentors NOW	
	7a.Working with mentees to set clear expectations of the mentoring relationship BEFORE	
	7b.Working with mentees to set clear expectations of the mentoring relationship NOW	
	8a. Aligning your expectations with your mentees' BEFORE	
	8b. Aligning your expectations with your mentees' NOW	
	9a. Considering how personal and professional differences may impact expectations BEFORE	
	9b. Considering how personal and professional differences may impact expectations NOW	
	10a.Working with mentees to set research goals BEFORE	
	10b. Working with mentees to set research goals NOW	
	11a. Helping mentees develop strategies to meet goals BEFORE	
	11b. Helping mentees develop strategies to meet goals	

NOW

12a. Accurately estimating your mentees' level of scientific knowledge BEFORE

12b. Accurately estimating your mentees' level of scientific knowledge NOW

13a. Accurately estimating your mentees' ability to conduct research BEFORE

13b. Accurately estimating your mentees' ability to conduct research NOW

14a. Employing strategies to enhance your mentees' knowledge and abilities BEFORE

14b. Employing strategies to enhance your mentees' knowledge and abilities NOW

15a. Motivating your mentees BEFORE

15b. Motivating your mentees NOW

16a. Building mentees' confidence BEFORE

16b. Building mentees' confidence NOW

17a. Stimulating your mentees' creativity BEFORE

17b. Stimulating your mentees' creativity NOW

18a. Acknowledging your mentees' professional contributions BEFORE

18b. Acknowledging your mentees' professional contributions NOW

19a. Negotiating a path to professional independence with your mentees BEFORE

19b. Negotiating a path to professional independence with your mentees NOW

20a. Taking into account the biases and prejudices you bring to the mentor/mentee relationship BEFORE

20b. Taking into account the biases and prejudices you bring to the mentor/mentee relationship NOW

21a. Working effectively with mentees whose personal background is different from your own (age, race, gender, class, region, culture, religion, family composition etc.) BEFORE

21b. Working effectively with mentees whose personal background is different from your own (age, race, gender, class, region, culture, religion, family composition etc.) NOW

22a. Helping your mentees network effectively BEFORE

22b. Helping your mentees network effectively NOW

23a. Helping your mentees set career goals BEFORE

23b. Helping your mentees set career goals NOW

24a. Helping your mentees balance work with their personal life BEFORE

24b. Helping your mentees balance work with their personal life NOW

25a. Understanding your impact as a role model BEFORE

25b. Understanding your impact as a role model NOW

26a. Helping your mentees acquire resources (e.g. grants, etc.) BEFORE

26b. Helping your mentees acquire resources (e.g. grants, etc.) NOW

Overall Quality of the Mentoring	How would you rate the overall quality of the mentoring you are able to provide, thinking back to before the training and now, after the training?	
	- Before the training	1 = Very low 2 3
	- After the training	4 = Average 5 6 7 = Very high
Ability to Meet Mentees' Expectations	To what extent do you feel that you are meeting your mentees' expectations thinking back to before the training and now, after the training?	
	- Before the training	1 = Not at all 2 3
	- After the training	4 = Moderately 5 6 7 = Completely
Mentor's Intended Changes to Mentoring Practices	Have you made any, or do you plan to make any changes in your mentoring as a result of this training?	1 = Yes 2 = No

Table A2

Baseline Models using OLS Regression with All Covariates (including all Pre-treatment Covariates)

	MCA Skill Gains	Overall Quality Gains	Meeting Expectation Gains	Changes
(Intercept)	0.945***	1.072***	1.028**	1.002***
	(0.290)	(0.356)	(0.411)	(0.108)
Platform - Online	0.011	-0.045	-0.004	0.055
	(0.087)	(0.110)	(0.130))	(0.033)
Dosage	0.011	0.015	-0.024	0.001
	(0.032)	(0.039)	(0.045	(0.012)
Facilitator Effectiveness (compared to "Very Effective")				
Effective	-0.178***	-0.243***	-0.212**	0.067***
	(0.056)	(0.073)	(0.084)	(0.022)
Neither	-0.659***	-1.096***	-0.749***	0.296***
	(0.145)	(0.228)	(0.262)	(0.061)
Ineffective	-0.400	-1.247***	-1.012**	0.340**
	(0.254)	(0.430)	(0.495)	(0.133)
Very Ineffective	-0.363	-0.075	0.071	-0.037
	(0.358)	(0.736)	(0.846)	(0.228)
Missing (NA)	-0.525***	-0.917	-0.687	0.963***
	(0.100)	(0.738)	(0.847)	(0.228)
Race/Ethnicity (compared to "Well Represented")				
Historically Excluded	-0.019	0.092	0.006	-0.029
	(0.062)	(0.087)	(0.108)	(0.027)
Prefer not to answer	0.080	0.057	0.051	0.188***
	(0.199)	(0.218)	(0.276)	(0.065)
Sex (compared to "Female")				
Male	-0.018	-0.043	-0.013	-0.004
	(0.051)	(0.070)	(0.084)	(0.021)
Other	-0.102	0.266	0.230	-0.026
	(0.313)	(0.379)	(0.435)	(0.117)

Prefer not to answer	-0.297	0.026	-0.006	-0.021
	(0.251)	(0.283)	(0.348)	(0.086)
Previous Mentor Experience (compared to "Yes")				
No	0.227***	0.299***	0.352***	0.003
	(0.071)	(0.087)	(0.101)	(0.026)
Missing (NA)	-0.249	0.760	--	-0.950***
	(0.183)	(0.752)		(0.232)
Mentor's years of Experience	-0.009**	-0.020***	-0.019***	0.000
	(0.004)	(0.005)	(0.006)	(0.002)
Mentor's years of Experience (NA)	-0.129	-0.171	-0.099	0.060
	(0.141)	(0.147)	(0.200)	(0.045)
Title (compared to "Faculty")				
Graduate	0.296***	0.246**	0.223*	0.019
	(0.081)	(0.111)	(0.132)	(0.034)
Postdoc	0.092	0.219*	0.186	-0.012
	(0.092)	(0.123)	(0.151))	(0.038)
ReaSci	0.091	0.271**	0.192	-0.033
	(0.094)	(0.126)	(0.150)	(0.039)
Other	0.043	-0.063	-0.039	0.001
	(0.099)	(0.122)	(0.143)	(0.038)
NA	0.140	0.069	0.121	-0.044
	(0.282)	(0.339)	(0.391)	(0.105)
Mentees' Career Stage (Faculty)	0.056	0.136	0.120	0.010
	(0.065)	(0.100)	(0.115)	(0.030)
Mentees' Career Stage (Graduate)	-0.140**	-0.120	0.022	0.011
	(0.068)	(0.084)	(0.097)	(0.026)
Mentees' Career Stage (Undergraduate)	-0.082	-0.138	-0.107	-0.025
	(0.073)	(0.090)	(0.104)	(0.028)
Mentees' Career Stage (None)	0.148	0.227	0.097	0.070
	(0.137)	(0.169)	(0.199)	(0.053)

Notes. Robust standard errors are in parentheses.

* p < .1   ** p < .05   *** p < .01.

Table A3

Compare Models using OLS Regression with Selected Covariates with Models using Propensity Score Matching

	MCA Skill Gains		Overall Quality Gains		Meeting Expectation Gains		Changes	
	OLS Model	PSM Model	OLS Model	PSM Model	OLS Model	PSM Model	OLS Model	PSM Model
(Intercept)	0.556**	0.344	0.607*	-0.087	0.759**	0.794**	1.024***	1.040***
	(0.275)	(0.274)	(0.339)	(0.337)	(0.380)	(0.391)	(0.097)	(0.086)
Platform - Online	0.027	0.114	-0.075	0.128	-0.056	0.098	0.030	0.031
	(0.082)	(0.090)	(0.106)	(0.110)	(0.121)	(0.128)	(0.030)	(0.028)
Dosage	0.039	0.064*	0.043	0.113***	-0.007	-0.008	-0.000	-0.001
	(0.032)	(0.033)	(0.040)	(0.040)	(0.044)	(0.047)	(0.011)	(0.010)
Facilitator Effectiveness (compared to "Very Effective")								
Effective	-0.162***	-0.134**	-0.203***	-0.131	-0.173**	-0.152	0.067***	0.085***
	(0.057)	(0.062)	(0.076)	(0.081)	(0.085)	(0.094)	(0.022)	(0.021)
Neither	-0.669***	-0.630***	-1.069***	-1.073***	-0.741***	-0.811**	0.304***	0.292***
	(0.150)	(0.175)	(0.236)	(0.281)	(0.264)	(0.324)	(0.060)	(0.066)
Ineffective	-0.376	-0.398	-1.164***	-1.125**	-0.947*	-1.007*	0.325**	0.426***
	(0.262)	(0.285)	(0.448)	(0.469)	(0.500)	(0.542)	(0.132)	(0.121)
Very Ineffective	-0.481	-0.484	-0.259	-0.265	-0.069	-0.049	-0.016	0.003
	(0.368)	(0.414)	(0.768)	(0.872)	(0.857)	(1.007)	(0.226)	(0.225)
Missing (NA)	-0.565***	-0.540***	-0.948	-0.816	-0.700	-0.726	0.977***	0.969***
	(0.103)	(0.113)	(0.771)	(0.874)	(0.860)	(1.008)	(0.227)	(0.226)
Race/Ethnicity (compared to "Well Represented")								
Historically Excluded	0.015	0.102*	0.138	0.234***	0.038	0.275***	-0.025	-0.014
	(0.063)	(0.055)	(0.090)	(0.074)	(0.107)	(0.089)	(0.026)	(0.019)
Prefer not to answer	0.044	-0.012	-0.005	-0.011	-0.013	0.029	0.198***	0.192***
	(0.204)	(0.228)	(0.227)	(0.254)	(0.278)	(0.321)	(0.064)	(0.063)
Sex (compared to "Female")								
Male	-0.028	-0.067	-0.068	-0.038	-0.043	-0.058	-0.004	-0.013
	(0.052)	(0.054)	(0.071)	(0.074)	(0.083)	(0.089)	(0.021)	(0.019)
Other	-0.202	-0.382	0.099	-0.109	0.154431	-0.075	-0.022	-0.010
	(0.320)	(0.364)	(0.390)	(0.443)	0.4347	(0.511)	(0.115)	(0.114)

Prefer not to answer	-0.394	-0.569**	-0.122	0.125	-0.163	0.142	-0.037	-0.124*
	(0.256)	(0.257)	(0.293)	(0.293)	(0.347)	(0.362)	(0.084)	(0.074)
Previous Mentor Experience (compared to "Yes")								
No	0.281***	0.319***	0.379***	0.487***	0.412***	0.380***	-0.003	-0.022
	(0.072)	(0.070)	(0.090)	(0.087)	(0.100)	(0.100)	(0.026)	(0.022)
Missing (NA)	-0.035	-0.097	1.233	1.296	--	--	-0.959***	-0.959***
	(0.114)	(0.122)	(0.779)	(0.883)			(0.229)	(0.228)

Notes. Robust standard errors are in parentheses.

* $p < .1$ ** $p < .05$ *** $p < .01$.

Table A4

Data Missingness and Strategies to Impute Missing Data of Covariates

Variable	Variable Type	Percent of Missing Values	Imputation Methods
Treatment Indicator			
Platform	Binary	0	Not Applicable
Pre-treatment Covariates			
Mentees' career stage: Faculty	Binary	0	Not Applicable
Mentees' career stage: Graduate	Binary	0	Not Applicable
Mentees' career stage: Undergraduate	Binary	0	Not Applicable
Mentees' career stage: none	Binary	0	Not Applicable
Race/Ethnicity of mentor	Nominal	0	Not Applicable
Sex of mentor	Nominal	8%	A new category was generated to indicate missing values (NA)
The title of mentor	Nominal	2%	A new category was generated to indicate missing values (NA)
Previous mentoring experience	Binary	34%	A new category was generated to indicate missing values (NA)
Mentor's years of Experience	Continuous	32%	Two new variables of years of experience were generated: 1) a new variable same as years of experience except replacing all missing values as 0, and 2) a binary variable binary variable with 1 indicating the missingness of years of experience and 0 representing that years of experience is not missing
Other Covariates			
Dosage	Continuous	0	Not Applicable
Facilitator Effectiveness	Ordinal	25%	A new category was generated to indicate missing values (NA)

Notes. The total analytical sample is 807. See more details of the analytical sample size in Figure 1.

Table A5

Number of Treated and Control Subjects in Each Stratum Using Optimal Full Matching

Stratum	Treatment (Online)	Control Group (Face-to-face)		Stratum	Treatment (Online)	Control Group (Face-to-face)
m.1	5	1		m.29	1	5
m.10	2	1		m.3	1	12
m.100	2	1		m.30	1	11
m.101	1	1		m.31	1	2
m.104	1	52		m.36	1	2
m.106	2	1		m.37	1	2
m.107	1	3		m.39	1	1
m.109	1	1		m.43	1	12
m.11	1	14		m.46	4	1
m.110	1	12		m.5	1	9
m.111	6	1		m.51	1	1
m.112	1	1		m.57	12	1
m.115	2	1		m.62	6	1
m.116	1	45		m.64	5	1
m.118	5	1		m.65	1	4
m.120	3	1		m.66	4	1
m.122	1	17		m.67	1	48
m.125	1	25		m.69	1	20
m.13	3	1		m.71	5	1
m.130	6	1		m.73	1	1
m.132	1	271		m.74	1	1
m.138	2	1		m.76	5	1
m.142	1	1		m.77	1	1
m.149	1	1		m.79	1	1
m.15	1	8		m.8	2	1
m.151	1	5		m.82	1	2
m.152	1	9		m.86	4	1
m.16	1	1		m.87	6	1
m.17	2	1		m.91	7	1
m.2	1	1		m.96	1	1
m.20	1	25		m.98	3	1
m.24	8	1		m.99	3	1

Notes. The total number of subjects is 152 for treatment group and 655 for control group.