Latent Structure of a Translanguaging Survey Instrument: Perceptions of Bi/Multilingual

Graduate Students

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Abstract

 The purpose of this study is to examine the latent structure underlying a translanguaging survey instrument, and to investigate whether the survey instrument has the same acceptability for bi/multilingual native English speakers and bi/multilingual non-native English speakers. Data included 181 surveys completed by graduate students. Data were analyzed by testing measurement invariance. Results validate a measurement model with 23 items underlying 4 latent factors for the survey instrument. Measurement invariance further indicates that both groups accept translanguaging as a medium of second language teaching and learning.

Statement of the Problem

'Translanguaging', and also 'translingualism', indicates the flexible use of multiple languages as a resource that transcends "traditional understandings of separate languages" (Anderson, 2017, p. 27). Current research suggests that translingual instructors "understand, interpret, scaffold, and challenge their learners' choice of linguistic resources appropriately" (Anderson, 2017, p. 34) and translanguaging helps bi- and multilinguals access different linguistic features and reach their maximum "communicative potential" (García, 2009, p. 140).

Despite being a standard practice beneficial for linguistic development, many educators and institutes of higher education still subscribe to monolingual ideologies, leading them to approach the native language through a subtractive lens (Doiz & Lasagabaster, 2016; García, Flores, & Chu, 2011). Several studies have been conducted on student perceptions of translanguaging within international universities (Adamson & Coulson, 2015; Carstens, 2016; Rivera & Mazak, 2017), however none have been set in the United States (U.S.) or examined graduate students from multiple linguistic backgrounds.

In this study, we seek to explore the latent structure of the translanguaging survey instrument to confirm link between our theoretical concepts and observed variables (survey on students' perception). This study also investigates whether translanguaging has the same acceptability as a medium for second language teaching and learning for bi/multilingual English native speakers versus bi/multilingual English as a second language speakers. We propose two research questions which are as follows: (a) What is the measurement model underlying the translanguaging survey instrument? (b) Does the translanguaging survey mean the same for bi/multilingual English native speakers versus bi/multilingual English as a second language speakers by testing the measurement invariance?

Theoretical Framework

This study follows García's theory of translanguaging, which suggests that languages manifest as individual systems because of the rules assigned by society (García, 2017). Garcia argues that

bilingualism is dynamic, and that speakers use their entire linguistic repertoire to produce and interpret their social worlds. This study is also guided by Canagarajah's (2018) conceptualization of translingualism, which is used to interpret the perceptions of participants in our study. Translingualism posits that the interaction of verbal resources within writing naturally creates new grammars and meanings from the separate linguistic structures.

Methods and Procedures

The present study uses online survey data collected from 181 graduate students who were enrolled in a large land-grant university in the southwestern United States. The survey was adapted from Rivera and Mazak (2017) to determine how participants' perceive the general practice of translanguaging for second language learning, social purposes, and within higher education. An original measurement model with 25 items underlying four latent factors (i.e., Translanguaging as practice, Translanguaging for second language learning, Translanguaging for social practices, and Translanguaging in Higher education) was tested in Mplus 8.2.

Results

The correlation matrix for the 25 items are reported in Table 1.

Table 1 Correlation matrix

	q1	q2	q3	q4	q5	q6	q7	q8	q9	q10	q11	q12
q1	1											
q2	0.345	1										
q3	0.145	-0.009	1									

q4	0.196	0.336	-0.022	1								
q5	0.248	0.273	-0.020	0.353	1							
q6	0.086	0.052	0.301	0.106	0.080	1						
q7	0.238	0.389	-0.005	0.497	0.214	0.138	1					
q8	0.472	0.326	0.143	0.197	0.392	-0.066	0.196	1				
q9	0.285	0.480	0.050	0.405	0.207	0.068	0.480	0.286	1			
q10	0.220	0.356	0.053	0.302	0.141	0.036	0.326	0.169	0.517	1		
q11	0.135	0.255	0.014	0.191	0.126	0.021	0.246	0.140	0.476	0.736	1	
q12	0.697	0.359	0.103	0.191	0.402	0.096	0.204	0.545	0.307	0.239	0.187	1
q13	0.252	0.463	0.029	0.419	0.146	0.100	0.476	0.206	0.683	0.567	0.523	0.244
q14	0.272	0.372	-0.040	0.383	0.189	0.064	0.518	0.245	0.393	0.296	0.221	0.260
q15	0.290	0.265	0.092	0.566	0.318	0.147	0.410	0.256	0.253	0.267	0.138	0.365

q16	0.299	0.320	0.178	0.338	0.173	0.036	0.364	0.155	0.482	0.433	0.424	0.344
q17	0.279	0.389	-0.064	0.277	0.248	0.092	0.439	0.176	0.349	0.308	0.366	0.230
q18	0.145	0.168	-0.005	0.357	0.297	0.139	0.299	0.115	0.116	0.175	0.082	0.267
q19	0.350	0.507	0.016	0.426	0.224	0.116	0.555	0.302	0.685	0.556	0.479	0.315
q20	0.240	0.341	-0.001	0.437	0.377	0.112	0.497	0.208	0.441	0.268	0.258	0.220
q21	0.273	0.312	0.050	0.240	0.289	0.083	0.277	0.109	0.261	0.221	0.117	0.227
q22	0.431	0.290	0.244	0.221	0.294	0.147	0.310	0.341	0.296	0.311	0.248	0.452
q23	0.427	0.408	0.249	0.313	0.264	0.214	0.350	0.326	0.389	0.371	0.308	0.461
q24	0.209	0.401	-0.025	0.317	0.172	0.007	0.462	0.078	0.506	0.445	0.442	0.125
q25	0.246	0.321	-0.030	0.162	0.231	-0.007	0.291	0.273	0.311	0.461	0.379	0.256

	q13	q14	q15	q16	q17	q18	q19	q20	q21	q22	q23	q24	q25
q1													
q2													
q3													
q4													
q5													
q6													
q7													
q8													
q9													
q10													
q11													
q12													
q13	1												
q14	0.457	1											
q15	0.283	0.398	1										
q16	0.543	0.309	0.457	1									
q17	0.339	0.324	0.268	0.370	1								
q18	0.161	0.289	0.396	0.387	0.164	1							
q19	0.686	0.461	0.281	0.513	0.485	0.272	1						
q20	0.418	0.363	0.359	0.353	0.406	0.427	0.591	1					
q21	0.269	0.329	0.368	0.297	0.361	0.317	0.334	0.489	1				

q22	0.336	0.314	0.453	0.495	0.164	0.290	0.333	0.373	0.395	1			
q23	0.440	0.317	0.382	0.505	0.248	0.235	0.417	0.353	0.323	0.802	1		
q24	0.617	0.308	0.260	0.421	0.386	0.187	0.635	0.560	0.300	0.320	0.376	1	
q25	0.393	0.335	0.167	0.267	0.094	0.273	0.435	0.375	0.287	0.437	0.402	0.356	1

For research question one to confirm our original measurement model, 6 items were under the factor of translanguaging as practice, 5 items were under the factor of translanguaging for second language learning, 3 items were under the factor of translanguaging for social practices, and the rest of 11 items were under the factor of translanguaging in higher education. The chi-square and fit indices did not show an acceptable level and indicated room for improvement in this model [χ^2 (269)= 857.75, p<0.001, RMSEA= 0.11, CFI= 0.70, SRMR= 0.103]. Parameter estimates using marker variables in the original model are reported in Table 2. We revised our model in two steps. The first step was to delete 2 non-significant items with ambiguous statements which were Q3: Instructors at my university engage in translanguaging and Q6: I have never seen university instructors engage in translanguaging, The next step was to make correlations between some items underlying the same latent variable based on the modification indices.

Table 2 Parameter estimates using marker variables in the original model

	Estimate	S.E.	Est./S.E.	P-Value
Practice By				
Q2	1.451	0.277	5.249	<0.001
Q3	0.15	0.225	0.666	0.505

Q5	1	0	NA	NA
Q17	1.74	0.343	5.075	<0.001
Q20	1.628	0.285	5.713	<0.001
Q21	1.376	0.272	5.064	<0.001
L2learn By				
Q1	1	0	NA	NA
Q7	0.6	0.148	4.057	<0.001
Q8	0.718	0.101	7.139	<0.001
Q12	1.075	0.105	10.24	<0.001
Q14	0.63	0.147	4.293	<0.001
Social By				
Q4	0.928	0.12	7.709	<0.001
Q15	1	0	NA	NA
Q18	0.692	0.118	5.854	<0.001
Education By				
Q6	0.3	0.201	1.493	0.135
Q9	1.697	0.246	6.894	<0.001
Q10	1.682	0.255	6.606	<0.001
Q11	1.51	0.245	6.176	<0.001
Q13	1.593	0.222	7.162	<0.001
Q16	1.723	0.267	6.443	<0.001
Q19	1.906	0.263	7.258	<0.001

	Estimate	S.E.	Est./S.E.	P-Value
Q22	1.068	0.19	5.615	<0.001
Q23	1.217	0.198	6.149	<0.001
Q24	1.527	0.232	6.593	<0.001
Q25	1	0	NA	NA

The chi-square and fit indices suggested a fair fit for the revised model [χ^2 (253)= 483.699, p<0.001, RMSEA= 0.082, CFI= 0.863, SRMR= 0.078]. Parameter estimates using marker variables in the revised model are reported in Table 3.

Table 3 Parameter estimates using marker variables in the revised model

	Estimate	S.E.	Est./S.E.	P-Value
Practice By				
Q2	1.573	0.312	5.044	<0.001
Q5	1	0	NA	NA
Q17	1.923	0.388	4.952	<0.001
Q20	1.743	0.319	5.466	<0.001
Q21	1.44	0.298	4.838	<0.001
L2Learn By				
Q1	1	0	NA	NA
Q7	1.553	0.293	5.303	<0.001
Q8	0.792	0.198	4	<0.001
Q12	1.075	0.157	6.827	<0.001

Q14	1.393	0.276	5.049	<0.001

Social By

Q4	0.94	0.117	8.023	<0.001
Q15	1	0	NA	NA
Q18	0.678	0.116	5.869	<0.001

Education By

Q9	1.805	0.27	6.696	<0.001
Q10	1.653	0.267	6.191	<0.001
Q11	1.458	0.254	5.735	<0.001
Q13	1.681	0.243	6.91	<0.001
Q16	1.734	0.284	6.114	<0.001
Q19	2.037	0.289	7.04	<0.001
Q22	0.993	0.195	5.094	<0.001
Q23	1.169	0.206	5.683	<0.001
Q24	1.608	0.251	6.408	<0.001
Q25	1	0	NA	NA

In the final model of the total 23 items, there were 5 items under the factor of translanguaging as practice, 5 items were under the factor of translanguaging for second language learning, 3 items were under the factor of translanguaging for social practices, and the rest of 11 items were under the factor of translanguaging in higher education.

For research question two to test the measurement invariance, we examined measurement

invariance for the translanguaging instrument by dividing our sample into two groups based on their native languages which were English and non-English. The Chi-square differences were shown in Table 4. There was scalar (strong) invariance for our revised model, indicating no measurement bias between bi/multilingual English native speakers and bi/multilingual English as a second language speakers,which suggests that the instrument has the same level of acceptability to both groups. Larger samples in English-speaking settings are needed to further validate and improve this measurement model (e.g., exploring other more interpretable latent variables, improving model fit). Validation in different language settings is also recommended.

Table 4 Chi-square differences for measurement invariance

	Chi-Square Difference	df	p-value
Metric (Weak)	24.952	19	0.1621
Scalar (Strong)	18.522	19	0.4879

Conclusion and Educational Significance

Our study validates a measurement model for the translanguaging self-perception survey instrument based on the data in the setting that English is used as both academic language and social language. We conclude that there is no measurement bias in translanguaging self-perception between English native speakers and English non-native speakers in an English-speaking setting. It further indicates that translanguaging is perceived as a medium for second language learning and teaching invariantly by both bi/multilingual native English speakers and non-native English speakers. Therefore, second language instructors should encourage the use of translanguaging within language learning classrooms in higher education settings. Moreover, policy-makers, administrators, and curriculum

designers in both K-12 and universities should cease to subscribe to ideologies of linguistic separation, and instead find strategic ways that translanguaging can be incorporated into instruction.

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