

A Comparison of Global Knowledge and Abilities between Pre-Service Teachers and in-Service Teachers in Taiwan

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Abstract

The purpose of this study is to compare global knowledge and abilities between pre-service teachers and in-service teachers in Taiwan. To collect data, a questionnaire, containing 40 items within four categories, was developed and distributed to 537 samples. The results indicated that pre-service teachers had more global knowledge than did in-service teachers, in global correlation systems and global issues. Moreover, major and teaching fields had significant differences in global knowledge and abilities. The results of this study can be applied to improve teacher education programs for global education and to increase global concerns for teachers in different fields.

Index terms— global education; global knowledge and abilities; pre-service teachers; in-service teachers; majors; teaching fields.

Introduction he 21st Century is the age of globalization which is an ongoing process of intensifying economic, social, and cultural exchanges across the planet. Globalization is challenging schools everywhere and in multiple ways (Suárez-Orozco & Sattin, 2007). Students' daily contacts include individuals from diverse ethnic, gender, linguistic, racial, and socioeconomic backgrounds.

Moreover, these students are experiencing some of history's most serious health problems, inequities between less-developed and moredeveloped nations, environmental deterioration, overpopulation, transnational migrations, ethnic nationalism, and the decline of the nation-state (Kirkwood, 2001). Therefore, regardless of their race and culture, students need to develop the attitudes, knowledge, and skills necessary to become competent, responsible, and humane citizens of their community. According to Hicks (2003), most adolescents also feel that it is important to learn about global issues at school in order to make better choices about how they might lead their lives.

Many previous studies, administrated in different countries, focused on examining youths' global knowledge, attitudes, interests, or perceptions ??Asia Society, 2001; ??iffin et al., 2002;Osunde, 1996;Pike et al., 1979; RoperASW for National Geographic Education Foundation, 2000; Zhao et al., 2006;Zhao et al., 2005).

These studies reveal similar findings that students' global knowledge and attitudes are insufficient. Hence, many scholars advocated schooling should create youths' abilities to interact effectively with people different and to take action in transforming structures of local and global oppression and inequity into ones that can bring about social and economic justice ??Banks & Banks, 1995;Cushner, McClelland & Safford, 1992;Rennebohm-Franz, 1996;Sleeter, 1996; ??ilson,1993;Zeichner, Grant, Gay, Gillette, Valli & Villegas, 1998). They also suggest that schools should adopt a global or international perspective in their curricula and that the school mission statement should include the goal that students gain a global perspective as an integral part of their education for citizenship in the 21st century (Grant, 1994;Lim, 2008; Solís-Gadea, 2010; Wilson, 1993).

Teachers' global competence has been considered as a key factor to decide whether schooling could be successful to prepare youths with a global perspective. If teachers are to teach with confidence from a global perspective, their general education and professional education programs must give them the tools to understand the connections between physiological, biological, ecological, social, and other worldwide systems (Hendrix, 1998). However, do teachers possess sufficient knowledge of relevant cultures, their beliefs, felt needs, histories, and

3 B) INSTRUMENTS

46 political economies to be able to provide students with the necessary background information? Unfortunately,
47 some scholars (Grant, 1992; Merryfield, 1991; Sleeter, 1992; ??olden & Hicks, 2007) indicate that most of teachers
48 have not been prepared to teach and to promote diversity, challenge inequities, or even recognize the effects
49 of globalization in the lives of their students and communities. In order to improve teacher education, some
50 researchers have studied teacher education in multicultural education, and have advocated for teacher education
51 and professional development in global education (Dilworth, 1992; Garm & Karlsen, 2004; Grant, 1993; Larkin &
52 Sleeter, 1995; Sleeter, 1992; Merryfield, 1995; ??erryfield, Jarchow & Pickert, 1997; ??ike & Selby, 1998; Tye &
53 Tye, 1992; Wilson, 1993; ??olden & Hicks, 2007). A number of scholars have worked to improve pre-service
54 teacher education for diverse K-12 students (such as Bennett, 1995; Jordan, 1995; McDiarmid, 1992; Merryfield,
55 1996; Zeichner & Hoeff, 1996). Some scholars have made an effort to increase cross-cultural experiences within
56 diverse populations in pre-service teacher education (such as Cushner & Mahon, 2002; ??erryfield, 199; Sahin,
57 2008; Willard-Holt, 2001).

58 As part of the closely interconnected global system, Taiwan can not escape globalization's influences on
59 educational innovation. Among relevant pieces of legislation, the revised University Law, the Teacher Education
60 Act, and the Law of Teacher Union and Teacher Selection are thought to be particularly significant in restructuring
61 the education system in Taiwan (Yang, 2002). According to the Administrative Guideline for Accreditation of
62 Teacher Education Programs (Ministry of ??ducation, 2002), universities are encouraged to build teacher training
63 programs full of diverse characteristics. In order to respond the age of globalization, many universities offer
64 multicultural education, environmental education, and information education, all of which are related to global
65 education, in their teacher education programs. However, will these courses promote more global knowledge
66 and abilities among pre-service teachers than among in-service teachers who were fostered by the old curriculum
67 system, which lacked a response to globalization?

68 Along the same lines, pre-service teachers in Taiwan not only have to take 26 educational credits, but also
69 take their major teaching courses. For secondary schools in Taiwan, these teaching fields include seven fields,
70 including Language Arts, Health and Physical Education, Social Studies, Arts and Humanities, Mathematics,
71 Sciences and Technology, and Integrative Activities. According to Merryfield (1995), global education demands
72 knowledge from the sciences, history, the social sciences, and the humanities. Among the seven areas, the area
73 of "Social Studies" is the most related to global education. If the pre-service teachers' majors and in-service
74 teachers' teaching fields are related to the knowledge of global education, will they have better global knowledge
75 and abilities? Do significant differences exist among various pre-service teachers' majors and in-service teachers'
76 teaching fields in global knowledge and abilities?

77 Little empirical evidence has been provided to examine the possible degree of diversity in global knowledge
78 and abilities between pre-service teachers and in-service teachers. In order to equip teachers with the core
79 capabilities necessary to transform education theories to meet actual global education requirements, it is necessary
80 to investigate teachers' global knowledge and abilities, to provide a basis for adjusting the preservice teacher
81 education program and in-service teacher training programs. Therefore, the present study used a questionnaire
82 approach to investigate both preservice teachers and in-service teacher's knowledge of global correlation systems,
83 global issues, and crossculture understanding, and global abilities. The following questions were explored: Are
84 there significant differences between pre-service teachers and in-service teachers in their global knowledge and
85 abilities? Are there any major differences in the perception of preservice teachers with regard to their global
86 knowledge and abilities? Are there any teaching field differences in the perception of in-service teachers with
87 regard to their global knowledge and abilities? The finding of the present study could provide valuable information
88 to teacher education and professional development in global education and could stimulate reflection on the
89 program of global education in a teacher education program, not only those in Taiwan but in any society.

90 1 II.

91 2 Methodology a) Samples

92 The total subjects in the study were 537 teachers from two cohorts. There were 300 pre-service teachers from one
93 large national university in central Taiwan. There, pre-service teachers were taking teacher education courses
94 in the university, and therefore they had a dual identity, being both pre-service teachers and students. Of the
95 pre-service teachers, 63% were female and 37% were male. The major composition of subjects was as follows:
96 56.7% of the pre-service samples were studying art-related majors including social studies, English, etc.; 43.3%
97 were studying in science-related majors including math, biology etc.

98 The in-service teacher samples consisted of 237 secondary school teachers from central Taiwan, of whom
99 35.6% were male and 64.4% were female. Approximately 40.1% of them taught in the Language Arts teaching
100 area, 16.0% in the Mathematics teaching area, 11.0% in the Social Studies teaching area, 4.2% in the Arts and
101 Humanities teaching area, 17.3% in the Natural Sciences and life technology teaching area, 7.2% in the Health
102 and Physical Education teaching area, and 4.2% of them in the Integrative Activities teaching area.

103 3 b) Instruments

104 Based on theories advanced in previous studies (Clarke, 2004; ??anvey, 1982; Hicks, 2003; Kniep, 1989; Merryfield,
105 2002; ??ike & Selby, 1999; Tye & Tye, 1992), the author developed the questionnaire. With an additional review of

106 global education, through factor analysis, teachers' global knowledge and abilities was categorized into four main
107 categories with 40 items in total, including global correlation systems global issues, cross-culture understanding,
108 and global abilities.

109 The questionnaire that was used consisted of 40 five-point Likert-scale items, the responses to which were coded
110 as 1 = "know nothing" through 5 = "know a lot." Thirteen items (Scale I-global correlation systems) were intended
111 to investigate students' and teachers' knowledge of the interdependency and correlation among politics, economy,
112 ecosystem, environmental pollution, social change, sciences, technology, and universal systems. Fourteen items
113 (Scale II-global issues) were intended to explore students' and teachers' knowledge of the international and
114 controversial issues, such as technology, population, ethnicity, energy resources, food, ecological environment,
115 health and hygiene, and globalism. Six items (Scale III-crossculture understanding) were intended to investigate
116 students' and teachers' understandings and appreciation of different cultural backgrounds, viewpoints, religions,
117 history, and geography. Seven items (Scale V-global participatory) were intended to assess students' and teachers'
118 global abilities, such as multiple views, interdependency, responsibilities, analysis and evaluation skills, creative
119 skills, participatory abilities, and communication abilities. Individual item descriptions are given in Table 1.
120 Reliability coefficients within each scale were calculated both for the pre-service sample of teachers and for the
121 in-service sample of teachers. The results are summarized in Table 2. For the pre-service sample, the reliability
122 (Cronbach's alpha) for Scale I, II, III, V was .89, .89, .88 and .75, respectively. For the in-service sample, the
123 reliability (Cronbach's alpha) for Scale I, II, III, V was .94, .89, .91 and .80, respectively. The overall reliability
124 (Cronbach's alpha) for pre-service and inservice teachers was .94 and .96, respectively. Data analyses were
125 performed using SPSS for Windows. Descriptive statistics, including mean and standard deviation, were used
126 for data description. Scale scores were generated using the mean value of the items within each scale. Statistical
127 tests included an independent sample t-test, ANOVA analysis, and Post hoc comparison. In order to understand
128 the differences between pre-service and in-service teachers' awareness, subsequent statistical comparisons were
129 made between pre-service and in-service teachers' scores. In addition, scores were used as the outcome variable
130 to examine the major's effect on pre-service teachers' knowledge toward global correlation systems, global issues,
131 cross-culture understanding, and global abilities, and the teaching field effect on in-service teachers' corresponding
132 knowledge.

133 4 III.

134 5 Results

135 6 a) Global Knowledge and Abilities Between Pre-Service and 136 in-Service Teachers

137 The mean and standard deviation on the preservice and in-service teachers' scale scores are listed in Table 3.
138 A comparison of the scale scores of pre-service and in-service teachers was conducted. The results showed that
139 pre-service teachers held a significantly higher score of global correlation systems and global issues than those of
140 in-service teachers ($t=3.43$, $p< .01$, and $t=2.83$, $p< .05$, respectively). In addition, both pre-service and in-service
141 teachers had a statistical difference in the score of cross-cultural understanding and global abilities ($t = 1.91$, p
142 = .06, and $t = -.79$, $p = .43$, respectively).

143 In order to further investigate the differences in item responses between pre-service and in-service teachers,
144 individual t-tests were administered on an item-by-item basis; the results are presented in Table 1. The significant
145 results indicated that, first, pre-service teachers had a higher score on global correlation systems than that of
146 in-service teachers in several items (e.g., Items 5, 6, 7, 8, 9, 10, 12, and 13). For example, pre-service teachers
147 better understood the derivational social problems due to economic development (Item 9) and the positive and
148 negative influence of technological development global systems bring on (Item 13). Preservice teachers also had
149 more knowledge to distinguish well-developed nations and developing nations (Item 8) and to understand the
150 global information network (Item 10). Second, pre-service teachers also had more knowledge of global issues
151 than did in-service teachers in some items (e.g., ??tems 14,15,17,18,20,21,23, and 24). For example, pre-service
152 teachers better understood the issue of the changing model and tendency of population structure (Item 15) and
153 the issue of the changing model and tendency of population structure (Item 23).

154 Regarding global abilities, however, in-service teachers had better abilities than did pre-service teachers in two
155 items. In-service teachers can discard the sense of individual and national superiority for the country's culture
156 that falls behind one's own country (Item 37) and be a person who is against stereotype, indifference, and dogma
157 (Item 38).

158 Pre-service and in-service teachers' responses showed no differences in relation to other items (see Table 1). In
159 eight of the thirteen items in Scale I, preservice teachers were more knowledgeable of global systems than were
160 in-service teachers. For Scale II, preservice teachers had more knowledge than in-service teachers for eight of the
161 fourteen items. In one of the six items in Scale III, pre-service teachers were more knowledgeable of cross-cultural
162 understanding than were in-service teachers.

163 For Scale V, in-service teachers had better abilities than pre-service teachers for two items but lower abilities
164 for one of the items.

8 DISCUSSION A) DIFFERENCE IN KNOWLEDGE OF GLOBAL CORRECTION SYSTEM AND GLOBAL ISSUES

165 In order to examine the major effect on preservice teachers' global knowledge, the scale scores of Scales I, II, III
166 and V were used as dependent variables; the results are shown in Table 4. The relevant t-tests revealed that art-
167 related pre-service teachers held significantly higher scores of global issues, crosscultural understanding, and global
168 abilities than did their science-related counterparts. In addition, statistically, there is no significant difference in
169 global correlation systems between art-related in-service teachers and science-related in-service teachers. *** p<
170 .001.

171 After examining the major effect by t-tests, effect sizes were also calculated in order to examine the significance
172 of scale-score differences between artrelated and science-related teachers. The effect size for t-test is often
173 described as Cohen's d. According to Cohen's rough characterization ??1988, pp. 24-26), d = 0.2 is deemed to
174 be a small effect size while a value of d = 0.5 is regarded as a medium effect size and d = 0.8 is considered to be
175 a large effect size. It should be noted that when the standard deviations are not equal, the definition of d needs
176 to be slightly modified. The results shown in Tables 3 and 4, which reached statistical significance by t-test,
177 were viewed as having at least a small to medium effect size, indicating adequate practical significance for the
178 difference investigated (Scale I and II in Table 3

179 7 c) Global Knowledge and Abilities Among Various

180 Teaching Fields in in-Service Teachers

181 In order to examine the teaching field effect on in-service teachers' global knowledge, the scale scores of Scales
182 I, II, III and V were used as dependent variables; the mean and standard deviation are shown in Table 5 and
183 the results are shown in Table 6. The F-tests indicated that there were significant differences on Scale I, II,
184 III, and V among various teaching field in in-service teachers ($F = 4.7$, $p < .001$, $F = 2.57$, $p < .05$, $F = 5.11$,
185 $p < .001$, and $F = 3.26$, $p < .01$, respectively). As shown in Table 6, for Scale I, Scheffé tests revealed that
186 in-service teachers teaching Social Science had higher score in global correlation systems than teachers teaching
187 Languages and Literature, Mathematics, and Health and physical education. For Scale II, Scheffé tests revealed
188 that inservice teachers teaching Social Sciences had higher score in global issues than teachers teaching Health
189 and physical education. For Scale III, Scheffé tests revealed that in-service teachers teaching Social Sciences
190 had higher scores in cross-cultural understanding than teachers teaching Mathematics and Health and physical
191 education. For Scale V, Scheffé tests revealed that in-service teachers teaching Social Sciences had higher score
192 in global abilities than teachers teaching Mathematics and Health and physical education.

193 IV.

194 8 Discussion a) Difference in Knowledge of Global Correction 195 System and Global Issues

196 The purpose of this study was to examine global correlation systems, global issues, cross-culture understandings,
197 and global abilities between pre-service teachers and in-service teachers. When examining the gap between pre-
198 service and in-service teachers towards global knowledge, significant differences were found in that pre-service
199 teachers held significantly more knowledge in global correlation systems and global issues than did in-service
200 teachers. This statistical difference reached adequate significance when effect sizes were examined. This result was
201 also confirmed by an item-by-item comparison of pre-service and inservice teachers' responses which showed that
202 preservice teachers had more knowledge of global correlation systems in eight of thirteen items and global issues
203 in eight of fourteen items. In general, pre-service teachers might be able to learn the contents of environmental
204 education and information education due to curriculum changes of teacher preparation program that facilitate pre-
205 service teachers' understandings of global correlation systems and global issues. In contrast, in-service teachers
206 were less able to do so because it might not have been emphasized in global education in the past.

207 However, some possible reasons for this difference include age, life style, educational opportunities, and climate
208 of globalization. The average age for pre-service teachers is twenty years old. They are belonging to a new
209 generation. New global realities increasingly define the contexts in which they are growing up, living, learning,
210 loving, and working. Indeed, globalization in its various manifestations-economic, demographic, socio-cultural-is
211 a quotidian part of the experience of pre-service teachers today. They might have better computer literacy,
212 richer educational resources, and more opportunities to learn global correction system and global issues than
213 in-service teachers. In contrast, most in-service teachers might be busy in their teaching jobs. If they have
214 chances to arrange personal professional development, they might focus on learning the knowledge and skills in
215 their teaching fields and might not be interested in learning global correction system and global issues.

216 However, the results of the present study also showed that there is room for in-service teachers to recognize how
217 necessary global knowledge in nowadays while they're teaching; therefore, more training programs with carefully
218 designed global education are necessary for facilitating in-service teachers' global correlation system and global
219 issues.

220 In contrast to global correction system and global issues, within Scale I and II, in Scale V, the items for which
221 in-service teachers had more abilities than preservice teachers were Item 37 (discard country superiority) and 38
222 (against stereotype, indifference, and dogma). This might be due to the in-service teachers' relatively greater
223 teaching experience and communication abilities, which might lead to more understanding and appreciation for

224 others. The result suggests that teacher education programs should increase pre-service teachers' communication
225 knowledge and skills, as well as greater understanding and experience in different cultures.

226 **9 b) Difference in Global Knowledge and Abilities among 227 Majors and Teaching Fields**

228 When the major's effect was considered for each scale-wise, t-tests showed medium effect sizes in the pre-service
229 teacher sample, and that art-related preservice teachers held significantly higher scores in global issues, cross-
230 cultural understanding, and global abilities than did their science-related counterparts. The item-by-item major-
231 effect analysis provided more information to illustrate the points above. For example, art-related pre-service
232 teachers held higher scores in the global issues such as oncoming issues, environmental issues, distribution of
233 living resources (Item 22, 23, and 25), human rights of race and gender, and guarantee and protection of basic
234 rights (Item 26 and 27). In addition, art-related pre-service teachers showed more understanding and appreciation
235 of different cultural backgrounds, viewpoints, religions, history, and geography (Item 28-33) as compared to
236 science-related pre-service teachers. According to Merryfield (1995), global education demands knowledge from
237 social studies, and the humanities. Because most of the artrelated pre-service teachers came from geography and
238 English majors, this finding concurs with Scholz's (1990) research finding. Scholz's study investigates the effects
239 of pre-service education on the global understanding of elementary education majors, and the attitudes and
240 classroom practice of selected elementary teachers. The results indicated those teachers who had studied global
241 education as undergraduates felt more positively about including it in the curriculum. The art-related preservice
242 teachers in this study might be more knowledgeable and comfortable in discussing global issues, understanding
243 cross-cultural diversities and participating global affairs, while science-related preservice teachers might be less
244 knowledgeable in their learning and daily life.

245 Scale-wise, teaching field differences were also found in the in-service teacher sample on the scale of global
246 correlation system, global issues, cross-cultural understanding, and global abilities. Overall, the results indicated
247 that there were significant differences on Scale I, II, III, and V among various teaching fields in in-service
248 teachers. Social studies teachers were more aware of global perceptions than teachers in other teaching fields—in
249 particular, math teachers and health and physical education teachers. As mentioned above, global education
250 demands knowledge from social studies (Merryfield, 1995). The social studies teachers accepted more training
251 and experiences related to global education than teachers in other fields.

252 Social studies teachers were therefore more able to recognize the importance of global education in classroom
253 practices. If in-service teachers of other teaching fields could be provided with more global knowledge, skills,
254 experiences and appreciation, then it may be possible that their students would benefit from their teaching and
255 then students' attitudes might also improve. However, the effect and the influence of global education which was
256 delivered by the teachers still needs further validation by future research.

257 Based on the above, these significant major and teaching field differences can be observed in both pre-service
258 and in-service samples of teachers, and reveal a quite interesting phenomenon suggesting that art-related and
259 social studies teachers, regardless of their pre-service or in-service status, held even higher perceptions towards
260 global knowledge and global abilities.

261 V.

262 **10 Conclusions**

263 Today youths experience most serious health problems, inequities among nations, environmental deterioration,
264 overpopulation transnational migrations, ethnic nationalism, and the decline of the nation-state. These changes
265 are creating a need to acquire a global education. If teachers are to teach with confidence from a global
266 perspective, their general education and professional education programs must give them the tools to understand
267 the connections between physiological, biological, ecological, social, and other worldwide systems. The present
268 study has explored the global knowledge and abilities of both pre-service teachers and in-service teachers. Our
269 results showed that pre-service had more global knowledge than did inservice teachers in general. Major played a
270 role in preservice teachers' responses and teaching field played a role in in-service teachers' responses about global
271 knowledge in general—where the subject of social studies had higher score in both cases. Future research needs
272 to be undertaken in order to develop ways to enhance science-related pre-service teachers' understanding and
273 appreciation towards global issues and to increase concerns for in-service teachers of other teaching fields to apply
274 the notion of globalization as an interface for global education. Moreover, the present study only involved one
275 measure of teachers' global knowledge and abilities. The future research could consider to apply other measures
276 (e.g., classroom observation of curriculum design and implementation related to global education) to acquire
277 more evidences regarding teachers' global knowledge and abilities.

278 The findings of the present study could contribute to recent calls for more evidence of the effects of teacher
279 education program in global education and suggest teacher educators create suitable systems that would enhance
280 prospective teachers' global knowledge and abilities. When teachers attain adequate global knowledge and positive

10 CONCLUSIONS

1

Item	teachers' responses items	t
Scale I -global correlation systems		
1.	political systems	1.19
2.	national organizations	1.53
3.	economic systems	1.35
4.	national trade, foreign investment and national rescue	.06
5.	planned economy, socialism	2.07*
	economy, and free market	
6.	well-developed countries	4.44***
7.	revolutions of economic activities	2.75**
8.	distinguish between well-developed and developing nations	4.55***
9.	social problems	3.80***
10. global information network		2.32*
11. development of technology and information		1.84
12. technological innovation and extension		2.58*
13. influence of technological development		3.12**
Scale II -global issues		
14. population migration		2.63**
15. changing model and tendency of population structure		3.98***
16. immigration and refugees		1.46
17. prejudice and discrimination		2.02*
18. areas, causes, and influences of global refugees		1.99*
19. family plan		-.64
20. application and influence of global resources		2.10*
21. environmental influence caused by technology		2.82**
22. oncoming issues		-1.31
23. environmental issues		3.77***
24. human right of races and gender		2.06*
25. distribution of living resources		.58
26. guarantee of basic rights		.88
27. protection of basic rights		.72
Scale III -cross-culture understanding	6	
28. physical geography states		1.58
29. products and distributions		1.17

2

Pre-service

In-service

Figure 2: Table 2 :

3

	teachers' scale scores				t	d
	Pre-service	Mean	SD	In-service		
Scale I -global correlation systems	3.51	.55	3.33	.67	3.43**	.29
Scale II -global issues	3.94	.51	3.83	.55	2.39*	.21
Scale III -cross-culture understanding	3.27	.69	3.15	.70	1.91	.17
Scale V -global participatory	3.48	.55	3.51	.56	-.79	.05

[Note: * $p < .05$. ** $p < .01$.]

Figure 3: Table 3 :

4

scores	Pre-service responses	Science-related	t	d
Art-related				

Figure 4: Table 4 :

Figure 5:

5

Teaching Field	Scale I	Scale II	Scale III	Scale V
Languages Arts	3.34(.67)	3.79(.51)	3.21(.68)	3.57(.54)
Mathematics	3.25(.70)	3.75 (.57)	2.81 (.77)	3.29(.54)
Social Studies	3.89(.49)	4.13 (.57)	3.67(.58)	3.76(.59)
Arts and Humanities	3.18(.49)	3.88(.55)	3.07(.69)	3.69(.69)
Sciences and Technology	3.31(.52)	3.91(.46)	3.18(.61)	3.49(.54)
Health and Physical Education	2.94(.59)	3.53 (.70)	2.82(.41)	3.21(.48)
Integrative Activities	3.11(.98)	3.81(.67)	3.12(.82)	3.57(.36)

Figure 6: Table 5 :

10 CONCLUSIONS

6

source	SS	df	MS	F value	Scheffé
Scale I -global correlation systems					
Between groups	11.65	6	1.94	4.7***	3>1, 2, 6
Within groups	94.50	230	.41		
sum	106.15	236			
Scale II -global issues					
Between groups	4.53	6	.76	2.57*	3>6
Within groups	67.69	230	.29		
sum	72.22	236			

Figure 7: Table 6 :

281 attitudes, they are prepared for teaching the future global citizenship. In contrast, if teachers lack of global
282 knowledge and attitude, it is difficult for them to arrange global education. ¹

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