Dimensional Structure of the GLOSSARI instrument

The original iteration of GLOSSARI (circa 2003) reported a 7-dimension factorial structure for our instrument. [See attachment 1]. The dimensions as reported were (1) Functional Knowledge, (2) Global Interdependence Knowledge, (3) Knowledge of Cultural Relativism, (4) Verbal Acumen, (5) World Geography Knowledge, (6) Knowledge of Interpersonal Accommodation, and (7) Sensitivity to Cultural Difference. These seven dimensions were set to be mildly correlated (that is, not orthogonal), and was based on a principal component analysis. A subsequent (unpublished) paper confirmed this structure in a different data set, but found a better fit with a more parsimonious model (3 or 5 dimensions).

We conducted an exploratory factor analysis on our largest data set, the Phase I data set. These data were comprised of 399 DOM students and 682 SA students at pretest. At posttest 271 DOMs and about 465 SAs provided usable data. Pretest data were used to create the models, and posttest data were used to see if the factorial structure was replicated by those same participants (or some of the same participants) three months later.

After examining multiple factorial models, the most "simplex" solution (that is, clarifying both the unique loading of each survey item and the definition of each underlying dimension), was a 6-factor classic factor analysis. The factors collectively accounted for 52.5% of the variance. This was a principal axis factor analysis with uncorrelated (orthogonal) factors. The sixth factor is uninterpretable, that is, it included no "significantly" loading variables. So essentially we have five meaningful factors. Those five factors map onto the original 7 factors pretty well. [See attachment 2.] They are: (A_{pre}) Functional Knowledge, (B_{pre}) World Geography Knowledge, (C_{pre}) Interpersonal Accommodation Knowledge, (D_{pre}) Global Interdependence Knowledge, and (E_{pre}) Cultural Sensitivity Knowledge. The verbal acumen items and the cultural relativism items were dispersed among the other dimensions.

As one way of confirming the stability of these dimensions, another exploratory factor analysis was run on the posttest data. (Note: An alternative and more sophisticated approach will be to run a confirmatory factor analysis, which almost certainly will show a reasonable fit of the pretest 6-factor solution on the posttest data.) Regrettably the dimensional structure of the posttest data only approximated that of the pretest. The posttest factor analysis again resulted in a six-factor solution, and again the sixth factor could not be assigned any meaningful label. About 60% of the shared variance was accounted for. The five meaningful factors were again (A_{post}) Functional Knowledge, (B_{post}) Cultural Sensitivity Knowledge, (C_{post}) Global Interdependence Knowledge, (D_{post}) World Geography Knowledge, and (E_{post})Interpersonal Accommodation Knowledge.

Although the pretest and posttest dimensions were similar in their general structures, the factor loadings of several items at posttest were not as well defined as in pretest. Thus, a number of items would need to be eliminated from the posttest Functional Knowledge subscale because their factor loadings had become too ambiguous. These items that would need to be eliminated at posttest include knowledge of different ways of expressing ideas, knowledge of taboos, knowing how to take public transportation, knowing where to purchase common goods, and knowing how to use a public telephone. One item, knowing the importance of not judging others, would need to be eliminated from the interpersonal accommodation subscale.

       Interim conclusion: The dimensional structure of GLOSSARI remains mainly conceptually consistent across three different administrations. Nonetheless, research complications arise because of the divergence in which items should be retained.

<u>Reliability of the GLOSSARI subscales</u>

We can feel confident about the five dimensions that are consistent across all GLOSSARI administrations; in that sense, the *construct validity* of the instrument is bolstered. However future users will wish to know exactly which items they should administer and analyze. Here, users will be more interested in demonstrated *internal consistency reliability*. The following table reports internal consistency reliabilities for three administrations of the survey: pretest Phase I, posttest Phase II, and modified Phase I. In the latter, three items were modified on the basis of focus group discussions with SA program directors. Also, participants in the modified Phase I were all SA students, whereas the other data sets included DOMs as well.

Table 1
Comparing Reliabilities Across Subscale Composition and Administrations

	Pretest N=1065*	Posttest N=755*	PretestModified Phase I n=115*	PosttestModified Phase I N=96*
Functional-14 items	.90	.92	.91 (13 items**)	.88 (13-items)
Functional-8 items	.86	.89	.87	.86
Geography-5 items	.70	.78	.72	.77
Interpersonal Accommodation-3 items	.72	.78	***	***
Interpersonal Accommodation-2 items	.83	.87	.86	.87
Global Interdependence 5-items	.71	.79	.73	.67
Global Interdependence- 4 items	.68	.77	.70	.61
Cultural sensitivity-3 items (from post)	.67	.75	.78	.80
Cultural sensitivity-4 items (from pre)	.62	.75	.72	.72

* Sample size varies for each particular analysis based on missing data
** language/culture comparing item deleted at behest of focus group
***importance of not judging item deleted at behest of focus group

Interim conclusion: The dimensional structure extracted from the largest administration (Pretest) can be imposed on other administrations—even those with slight variations in factorial structure (i.e., posttest)—without loss of subscale reliability. (The one exception is the IA scale, which behaves better with 2 items than with 3; here the definition of culture item detracts from reliability). Therefore adopt 29-item version of the survey for conducting comparisons between groups.

The final composition of the survey, accordingly, would be as follows

A. Functional Knowledge
    1. leading discussion/conversation
    2. talking way out of difficult situations
    3. giving directions
    4. pacifying angry person
    5. know what's funny
    6. know advantage of taking risks
    7. locate info in newspaper
    8. locating bar/restaurant
    9. take public transport
    10. use public telephone
    11. purchase toothpaste
    12. knows norms/taboos
    13. know different ways of expressing my ideas
    14. can compare languages and cultures

B. Knowledge of World Geography
    1. knows names 4 rivers in Europe
    2. knows names 3 rivers in Asia
    3. knows names 6 countries Africa
    4. knows names 4 countries South America
    5. knows names 7 continents

C. Knowledge of Global Interdependence
    1. world markets affect my career
    2. can explain US foreign policy
    3. foreign manufacturing affects costs of goods in US
    4. understand military situation (N. Korea)
    5. compare political and cultural freedom

D. Knowledge of Interpersonal Accommodation
    1. knows importance flexibility
    2. knows importance patience

E. Knowledge of Cultural Sensitivity
    1. understand my own reactions in different settings
    2. understand significance of language/cultural differences
    3. know how settings affect my style of interacting