SCALE DEVELOPMENT PROCESS

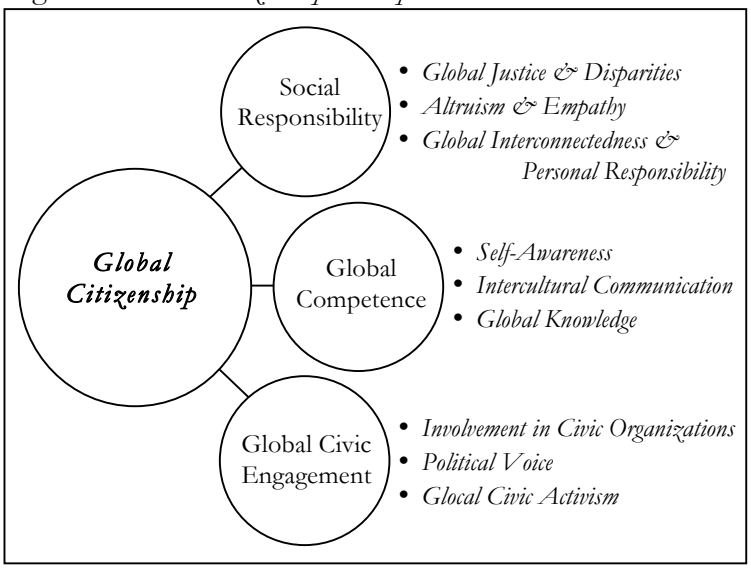
INTRODUCTION:

Integration of education abroad experiences into the undergraduate curriculum is widely assumed to be an effective way to enhance student academic development and to provide a pathway to empower students to become responsible global citizens. However, there are no widely accepted operational definitions of these two constructs or instruments to reliably assess the extent to which international educational experiences enhance academic development and lead to gains in global citizenship. Thus, it was the purpose of this study to develop a statistically reliable and valid measure of global citizenship and academic development to be used in the context of undergraduate education abroad. Although there are excellent scales currently being used in education abroad outcomes research, these scales are either narrowly focused in scope or do not align with operational definitions of global citizenship and academic development.

OPERATIONALIZING GLOBAL CITIZENSHIP:

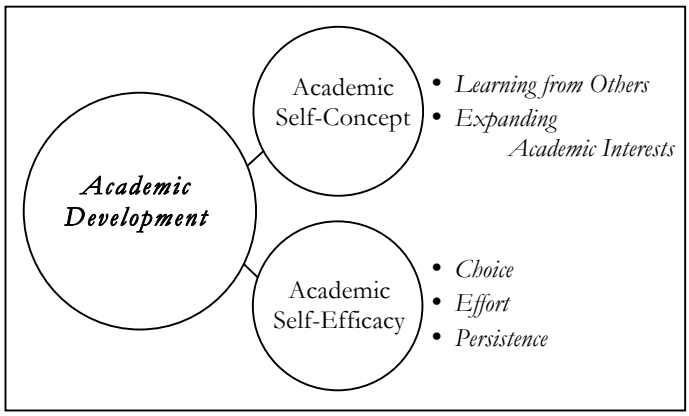
Although no one uniform or commonly accepted definition of global citizenship emerges from the literature, overarching dimensions of global citizenship are consistently and pervasively noted across the disparate perspectives. Accordingly, global citizenship is understood as a multi-dimensional construct that entails: *social responsibility, global competence* and *global civic engagement*. Within each are sub-dimensions that add further refinement. These interrelated dimensions align with the theoretical perspectives described in the literature; reflect how associations and prominent educators have framed global citizenship; and articulate ideas that resonate with education abroad.

Figure 1. *Global Citizenship Conceptual Model*



OPERATIONALIZING ACADEMIC DEVELOPMENT:

Figure 2. *Academic Development Conceptual Model*



Based on existing literature and limitations associated with utilizing academic achievement as a reliable indicator of student learning, a model of academic development emerges as a broader, interdisciplinary measure of student learning in education abroad outcomes research. Academic development is understood in relation to two interrelated dimensions: *academic self-concept* and *academic self-efficacy*. These dimensions align well with the overarching concept of academic development, have been clearly identified and discussed in the literature, and offer measurable constructs that resonate with education abroad.

SCALE DEVELOPMENT METHODOLOGY:

The scale development process was informed by an eight-step process proposed by DeVellis (1991). The steps included: 1.) determine the conceptual scope and operational definitions of global citizenship and academic development; 2.) generate an item pool; 3.) determine the format for measurement; 4.) facilitate an expert review of the item pools; 5.) pilot test the scales; 6.) determine whether the proposed dimensional structures reliably assess global citizenship and academic development; 7.) conduct confirmatory factor analyses to assess whether the observed data fit the expected factor structure for each scale; and 8.) validate the scale. The methodology employed was multi-faceted, including two expert face validity trials conducted in 2008, extensive exploratory and confirmatory factor analyses with multiple datasets, and a series of three, small-group interviews utilizing *Nominal Group Technique* to verify the scope of the global citizenship construct.

RESULTS:

The scale development process identified three dimensions of global citizenship with six related sub-dimensions. Social responsibility proved to be a dimension of global citizenship with a less clearly defined structure. Global competence and global civic engagement are both strong dimensions of global citizenship however, and each has three reliable sub-dimensions that add further refinement to the construct. The study identified two dimensions of academic development, but with less precision at the sub-dimension level. Academic self-concept revealed one factor combining expanding academic interests and learning from others. Academic self-efficacy showed two strong sub-dimensions, a combined factor of choice and effort and another sub-dimension on persistence. Overall, the scale development process yielded reliable and valid scales to measure the complexity of global citizenship and academic development. Although some modifications are still needed, the scales and their conceptual frameworks have important implications for education abroad outcomes research and practice.

Table 1. *Goodness of Fit Indices (Confirmatory Factor Analyses)*

Scale	S-B Scaled χ^2	*df*	CFI	NNFI	RMSEA	SRMR
Global Citizenship:	707.79	394	.91	.90	.05	.06
Academic Development:	277.71	146	.94	. 94	.05	.06

Note: S-B = Satorra-Bentler; CFI = Comparative Fit Index; NNFI = Non-Normed Fit Index; RMSEA = Root Mean-Square Error of Approximation; SRMR = Standardized Root Mean Square Residual.

IMPLICATIONS:

These scales provide education abroad outcomes assessment researchers with measures that align with the higher education mission to graduate global citizens and tools with which to better understand and measure the success of international education efforts. The multi-dimension model of each construct adds refinement and outlines a conceptual approach for structuring education abroad courses and programs with global citizenship and enhanced academic development as intentional learning outcomes. The scales do not rely on student self-reports or reflections on their experiences abroad and yet, have been designed to align closely with the goals of undergraduate education abroad. With some modification, the scales will ideally be used freely as pre-/post-test instruments and with control groups or in quasi-experimental research.

For more information about this process or to request a copy of the scales, please contact Anthony C. Ogden at, aco3@psu.edu