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A New, Depth-Based Quantitative Approach to Assessing Transformative Learning

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Abstract

Transformative learning (TL) goals are becoming commonplace in higher education, continuing education, and other adult learning contexts; however, valid and reliable assessments of TL are not so common. This imbalance begs the development of assessment methods that allow for a deeper understanding of how, when, and why deep reshaping of self takes place. We believe the Beliefs, Events, and Values Inventory (BEVI) to be an effective quantitative measure of TL based on the alignment of its scales with constructs identified by Hoggan's meta-analysis of TL research. In this article, we summarize the theoretical crosswalk between Hoggan and the BEVI, offer statistical evidence of construct validity for the BEVI as a measure of TL, and provide guidance for interpreting TL scores. We discuss implications of this methodology for higher education as well as other adult learning contexts such as mental health and wellness.

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Introduction

As he leaned back in his chair and set down his cup of tea, Thomas responded, “Students should be able to feel uncomfortable, to ‘de-place or recenter’ themselves. They should think critically about the process of globalization and how it is experienced [by others] and not make strong value statements about how others experience the world. Students should feel a connection, a responsibility, to their fellow humans.”

This excerpt from an educator’s articulation of ideal learning outcomes for a study abroad experience is sprinkled with themes of transformative learning (TL) while not explicitly acknowledging a framework or source for those particular outcomes. This is not an uncommon orientation for international educators or adult learning professionals at large. Yet, we continue to grapple with substantiating the connection between learning experiences and transformative outcomes. More broadly, many educators are uncomfortable facilitating those processes that would lead to transformation. The excerpt above identifies an educator’s desire to create learning environments that “recenter” or lead to reevaluation of worldviews and a different self-understanding. The idea of the “self” is full of complexity, however—making it difficult for educators and adult learners alike to begin to discuss, much less intentionally identify, transformations that occur within it (Shealy, 2016b). The case of a student in a study abroad experience illuminates the challenges and need for more robust methods of assessing TL (formatively as well as summatively).

Sarah: I’m not liberal . . . this [assessment result] is not me. Peers: Yeah . . . true . . . she’s conservative, but she’s **our** conservative . . . [warm laughter among the group] . . . As the study abroad learning assessment debrief went on with a discussion of what it means to wear a label in different cultural contexts, Sarah melted into her chair. Though she began the discussion fiery about being labeled as ‘liberal’ in certain contexts, the end of the session found her pensive and struggling for language to describe what she was experiencing internally. Educator: Sarah, would you feel comfortable sharing what you are thinking? You got quiet on us. Sarah: No one at home is going to understand my experience [of study abroad]. I won’t be able to talk about it with anyone. They won’t know what it means . . . I don’t want to go home.

Educators must be aware of the complicated interactional process that connects personal experience to need fulfillment, and ultimately value formation, that is illustrated in Sarah’s story. As they examine desired learning outcomes, they need

to also attend to what that learning will mean for the students' self-perception and their relationships that meet students' core need for belonging. It is not ethical to expect TL outcomes without an understanding of what transformation will mean to the individual self who experiences it. We hold a responsibility to understand the value and consequence of transformation to the student themself (Ettling, 2012). As Sarah's experience illustrates, people often experience internal discomfort or stress when going through a TL experience; however, they are not always able to articulate the cause or identify a resolution alone. Through the process of assessment, Sarah began her journey of seeing herself differently. She began to understand that returning home "different" or "transformed" could lead to changes in her friend groups or spark conflict in her family—threatening her basic need to belong.

Remembering how passionate our educator Thomas is about creating TL experiences, how can we support him and his students through assessment? How might clinicians, mentors, or leaders of other adult learning contexts benefit from empirical evidence that identifies who learners are at the outset of the intervention? Without deep thought into how the learner experiences transformation, we risk stagnating in the industrial models of education that do not respond to the individual needs and characteristics of the learner nor consider how the context of learning affects the learner. We also risk pushing learners beyond their internal capacity into a mindset that shuts out change and clings to the familiar to maintain internal stability. As educators, trainers, and clinicians alike face historic pressure to perform mentoring roles under unusual stress and trying constraints on mobility and face-to-face interactions, it is crucial for them to keep focus on the learner and their context, both present and future. What transformations will serve the learner? What transformations in the self of the learner do we need to build a sustainable society? As educators and potential change agents, it is our responsibility, in collaboration with learners, to understand, articulate, and assess the changes that occur in the self (learners' as well as our own).

The framework of TL theory (Taylor & Cranton, 2012) is particularly useful in this endeavor to describe and identify deep changes within the self as a result of a given learning experience. For example, practitioners and scholars in higher education have applied TL theory language to the so-called high impact practices (HIPs) like living learning communities, education abroad, undergraduate research, and so on (Bamber, 2016; Savicki, 2008). In response to calls for 21st-century skill and attitude development, high impact learning experiences, initially categorized by Kuh (2008), have been regarded for their transformative potential (Swaner, 2012). Yet, the public and scholarly discourse around these practices often overlooks the complex interactions within the self of the learner and the learning environment. Traditionally, the focus is on logically pragmatic, yet indirect, measures of change such as grade point average (GPA), participation, or persistence to degree instead of who the student is, how they see themselves and the world, or how their behaviors change as a result of the learning experience.

If HIPs are intended to bring about TL, why are we not assessing the actual transformation of the self directly in these HIPs? Why isn't there a more robust body of literature describing how, what, and for whom transformation of the self occurs in various learning environments? We purport it is because researchers and practitioners have struggled to operationalize TL theory in such a way that it can be observed, assessed, and applied on a larger scale than the individual learner or small group (e.g., class, community of practice). Institutions of higher education need assessment tools and methodologies that account for the complexity of the learner and the learning experience (Shulman, 2010). In a prior project, we and a few additional colleagues began to address the need for robust, accessible quantitative and qualitative tools to focus on *who the learners are* instead of merely whether they participate (Acheson et al., *in press*). Building upon that project, this work is an attempt to focus with greater granularity on the theoretical framework and application for a new quantitative approach to capturing the complexity of TL.

The interdisciplinarity of our team has been an asset in this project, with co-authors bringing in perspectives from various academic disciplines and clinical contexts. Our interdisciplinarity has led to the convergence of two frameworks that bridge the gap between theory and practice: equilintegration (EI) theory (Shealy, 2016b) and *Hoggan's* (2016) typology of TL constructs, both of which we explore in greater detail below. The foundational project included a treatment of both qualitative and quantitative operationalizations of TL theory (Acheson et al., 2020). This current piece will focus on describing the quantitative methodology in more detail, as well as providing an example of its application for a specific learning experience. While the example data set used here is specific to higher education, it is important to highlight the relevance of this methodology to a wider array of adult learning contexts.

In the methodology offered here, we operationalize TL theory by connecting the self-(re)constructive dimensions of TL theory as identified by *Hoggan* (2016) with the 17 scales of the Beliefs, Events, and Values Inventory (BEVI; Shealy, 2016a). After describing the initial study utilizing pre-existing data with which we piloted these methods, we offer an example of the application of this approach on a study abroad program. We conclude with suggestions for use in other sectors and future directions for this work and its methodological applications. To ground ourselves in the day-to-day reality of learners and remind ourselves that a focus on the self in our work is paramount, we begin by delving more deeply into Sarah's narrative.

Sarah: A Case Study

Sarah (pseudonym), an early 20s, White, female undergraduate from an upper-class New England family, was studying Psychology at a prestigious, private liberal arts university and needed to fulfill an institutional requirement to study abroad. She grew up as the only child in a household where both parents held college degrees.

She described her family as moderately affluent in comparison with her peers. Sarah also considered herself a devout Christian and Republican, in that order.

Sarah had been studying Spanish at her home university for more than 2 years, as the program based in South America required. When Sarah arrived in the host country, she joined 11 undergraduates from different universities in the United States. They spent the first week of the program together, building relationships and learning about the expectations of the program. In that week, it became clear to Sarah that she was different from the other 11 students in her religious and political affiliation. However, she felt a kinship with them as fellow citizens sharing a learning experience together. The other students in the program reciprocated fondness for Sarah, and the group would travel, study, and hang out with one another for the entire semester.

Sarah's host family experience was not unlike her own on the surface—an affluent, professional couple whose grown children no longer lived at home. She became an only child to doting parents who let her adopt a street dog despite the inconvenience and local taboo of making house pets from feral animals.

Outside of her host family home, Sarah was able to meet indigenous peoples and learn about their struggles to maintain a homeland and water rights due to privatization efforts supported by the government. She spent time volunteering with a homeless youth outreach organization. Each week she was also supported in a task of reflection on what she was learning and experiencing by a local professor of intercultural communication.

During the assessment debrief at the end of the semester, the cohort of students marveled at how, in the United States, they would not likely have been interested in extending friendship over those differences. The context, however, highlighted their similarities and led them to find comfort as they were surrounded by perceived differences. Sarah hadn't acknowledged this affiliation until she received her assessment report during a re-entry session. She began to see a self that might not be acceptable at home. Sarah had spent the semester changing how she received knowledge (from books and authority figures at home to first-person accounts, peers, and reflection abroad). The subtlety of these shifts in Sarah and her unfamiliar context prevented her from making meaning of the changes until she saw them in the learning debrief.

Sarah's story highlights two key issues with high impact learning experiences. The first is the important role of the self in the learning process. The sense of self that Sarah brought was challenged and disrupted by her new experiences, and there were other selves in this scenario—the instructor, other students, the host family, and Sarah's friends and loved ones at home. The second issue is that of program evaluation. As adult educators or clinicians seeking deep learning through high impact experiences, we should ask: How can we best prepare and support program participants for the structural changes to the self that can occur as a result of these experiences? Through this study, we hope to contribute to the understanding of both concerns.

Measuring TL

Although HIPs in higher education are generally assumed to promote TL, finding clear evidence of a causal relationship between high impact programming and TL is difficult because we lack effective measures to document what learners are experiencing (Cranton & Hoggan, 2012). While a few scholars have attempted to develop quantitative tools for assessing TL (Cox, 2017; King, 2004; Stuckey et al., 2013), the majority of the TL research reflects qualitative approaches from interpretive or critical paradigms (Taylor & Cranton, 2012). These qualitative methodologies are necessary because of the insight they provide into learning processes; however, they are often neither generalizable nor scalable to large groups of learners for whom institutions are interested in documenting learning outcomes. Thus, the field of TL loses the opportunity to collaborate with peers whose role, it is to provide evidence of learning on a large scale.

Among quantitative approaches, King (2004) was one of the pioneers in attempting to measure the extent to which participants in professional development programs experience TL. Although the validity and reliability of King's Learning Activities Survey Professional Development Technology Format instrument were adequately demonstrated, the survey has never been well-connected to TL theory, nor does it provide a rigorous means to assess self-construction or transformation (Vittoria et al., 2014). More recently, Stucky et al. (2013) piloted an instrument with more solid theoretical grounding, and Cox (2017) Transformative Outcomes and Processes Scale builds on that work with the development of a new quantitative instrument for measuring TL. However, these methodologies have not garnered wide-spread acceptance or use in higher education settings; an unmet need for an effective means of assessing the transformative dimensions of high impact learning thus remains. To meet this need, scholars must operationalize TL in a way that not only reflects a deep understanding of the self but also appeals to higher education institutions (HEIs) for large-scale adoption.

In this study, we took a different approach than past attempts to create new instruments, turning instead to existing frameworks that hold potential for examining these phenomena. By doing so, we may be able to capitalize on the familiarity of these frameworks in the U.S. higher education context without creating and validating entirely new tools. We strove to operationalize TL theory in such a way that the methodology and framework would be applicable across a range of contexts. To this end, several considerations emerged as guiding principles, including theoretical compatibility, scalability, previous validation and/or use, robust and sophisticated nature, logistical considerations, and usefulness for formative assessment (Acheson et al., *in press*).

Catalyzing Capacity: TL and EI frameworks

That TL has evolved as a framing concept as well as a call to action in higher education in the 21st century (Acheson et al., *in press*). Within that context, TL

refers to both the processes and the outcomes of particular kinds of learning experiences. This underscores the centrality of the self-conception in high impact learning experiences and how it comes to be constructed and reconstructed through processes of critical reflection on one's beliefs, assumptions, and values. This TL framework also speaks to how working symbolically with unconscious content of the psyche, such as emotion-laden experiences and images, fosters consciousness development (Dirkx, 2012).

In an attempt to clarify conceptualizations of TL with an eye toward encouraging more coherent scholarly discourse in this field, Hoggan (2016) undertook an extensive content analysis of the TL literature, resulting in a set of constructs that includes the following aspects of transformation, in descending order of frequency of discursive presence: worldview, self, epistemology, ontology, behavior, and capacity.

At the edge of what it means to experience and understand TL is the effort to authentically measure it. Accordingly, the EI framework (Shealy, 2004) as the theoretical foundation for the BEVI explains the "processes by which beliefs, values, and 'worldviews' are acquired and maintained, why their alteration is typically resisted, and how and under what circumstances their modification occurs" (p. 1075). EI theory provides a means for understanding the *what* that transforms—that is, the structures of the self that change. Similarly, TL theory explains how our structures for making meaning (Mezirow, 1991) come to be constructed and reconstructed in processes of transformation of the self, the ways we take in and understand our being in the world, and the individuation of the self. EI theory addresses developmental processes by accounting for formative experiences of need expression and response that shape one's beliefs and values. The BEVI especially highlights underlying social-emotional dimensions of high-impact learning to emphasize, address, and adequately assess how emotions are activated, managed, and ultimately regulated, as they mediate the capacities for perspective transformation. Likewise, it describes disruptive experiences that open space for a reformulation of these systems, which have become resistant to change over time. TL highlights adult learning processes and experiences through which we become increasingly aware of the conscious and unconscious beliefs and assumptions that have been guiding our behavior (Dirkx, 2012). This results in a transformation of our meaning perspectives, or the structures of the self that EI theory articulates and the BEVI reveals in practice.

The application of this alignment of TL and EI theory holds considerable potential for operationalizing, measuring, deeply understanding, and, thereby, informing our discussion and practice of high impact learning (Brownell & Swaner, 2010). For example, it is a commonly held assumption that participants with any combination of worldviews will be *positively* influenced by the same TL experience—for example, a shared study abroad program or a counseling approach. The operationalization of TL theory through the BEVI (based upon EI theory) will allow educators, clinicians,

and others to more completely acknowledge the importance of designing learning experiences with individual differences in identity and worldview in mind.

This opens up the possibility for participants to be able to make sense of their experiences in more authentic ways that honor the complexity of human experience and mindset and for educators, evaluators, and instructional designers to demonstrate commitment to HIP that catalyzes TL in representative and competent ways, as for Sarah.

TL Operationalized With BEVI Scales

A crosswalk between *Hoggan's* (2016) typology of TL outcomes and the scales of the BEVI was originally developed by Acheson et al. (2020). The crosswalk began with *Hoggan's* typology (changes in worldview, epistemology, etc.) and mapped BEVI scales that theoretically aligned with each construct. Therefore, the crosswalk was the first step in operationalizing TL through an existing instrument. Subsequently, a team of researchers conducted a pilot study with existing BEVI data to determine the feasibility of the approach and to consider initial evidence for the validity of the operationalization (Acheson et al., *in press*). We used the same crosswalk for this project (see Table 1); however, we expanded the data set significantly to encompass an even wider array of learning experiences.

To provide a narrative description of one element in the crosswalk, we will use the Worldview aspect of *Hoggan's* (2016) typology. When looking at the 17 subscales of the BEVI and considering *Hoggan's* grade point average description of what changes in worldview encompass, five scales appeared to be theoretically aligned: Sociocultural Openness, Religious Traditionalism, Gender Traditionalism, Ecological Resonance, and Global Resonance. *Hoggan's* worldview aspect and these five BEVI scales encompass potential changes in the learner's assumptions about how systems in their world function—awareness of religious, economic, or political systems and their contradictions—as well as changes in understandings of power and privilege. The worldview dimension of TL and these five scales of the BEVI illuminate how learners view the world outside of the self, the systems that make up that world, and their interpretations of their experience in that world. This work was performed for four of *Hoggan's* domains—*Hoggan's* domain of behavior is not assessed by the BEVI scales.

It is important to note that the TL theoretical framework and the BEVI scales do not neatly align, and there is not a one-to-one mapping. Moreover, we were unable to distinguish between two of *Hoggan's* TL dimensions, "Epistemology" and "Capacity," with BEVI scales. Thus, the two dimensions were conflated in the crosswalk and assigned five BEVI scales together. Finally, while the BEVI is a neutral instrument with no value attached to direction of movement, the same is not true of TL theory. The latter assumes development of more self-awareness, more connectedness with the larger world, and more complex thinking. Mezirow (1990) suggests a perspective that is "more inclusive, discriminating, permeable, and

Table 1. The Crosswalk: TL Constructs Mapped to BEVI Scales.

TL typology (Hoggan, 2016)	Operationalized with BEVI scales (Shealy, 2016)—change on scales indicates transformative learning (<i>directional indicator</i>)
Worldview: Change in underlying worldview assumptions or conceptualizations	<ul style="list-style-type: none"> • Sociocultural openness: progressive/open regarding actions, policies, and practices in culture, economics, education, environment, gender/global relations, politics (example item: <i>We should try to understand cultures that are different from our own.</i>) • Religious traditionalism: sees self/behavior/events as mediated by God/spiritual forces; believes in one way to the “afterlife” (reversed; example item: <i>There is one way to heaven.</i>) • Gender traditionalism: prefers traditional/simple views of gender and gender roles (reversed; example item: <i>A man's role is to be strong.</i>) • Ecological resonance: deeply invested in environmental/sustainability issues; concerned about the fate of the earth/natural world (example item: <i>We should protect the land no matter who owns it.</i>) • Global resonance: invested in learning about/encountering different individuals, groups, languages, cultures; seeks global engagement (example item: <i>It is important to be well informed about world events.</i>) • Basic determinism: prefers simple explanations for differences/behavior; believes people don't change/strong will survive (reversed; example item: <i>It's only natural that the strong will survive.</i>) • Socioemotional convergence: open, aware of self/other, larger world; thoughtful, pragmatic, determined; sees world in shades of gray, such as the need for self-reliance while caring for vulnerable others (example item: <i>Too many people don't meet their responsibilities.</i>) • Self-certitude: strong sense of will; impatient with excuses for difficulties; emphasizes positive thinking; disinclined toward deep analysis (reversed; example item: <i>If you play by the rules, you get along fine.</i>) • Self-awareness: introspective; accepts complexity of self; cares for human experience/condition; tolerates difficult thoughts/feelings (example item: <i>I have problems that I need to work on.</i>) • Meaning quest: searching for meaning; seeks balance in life; resilient/persistent; highly feeling; concerned for less fortunate (example item: <i>I want to find a better sense of balance in my life.</i>)
Epistemology: Changes in epistemic beliefs More autonomous, systemic, authentic, or embodied ways of knowing Capacity: Development of cognitive abilities Consciousness	

(continued)

Table 1. (continued)

TL typology (Hoggan, 2016)	Operationalized with BEVI scales (Shealy, 2016)—change on scales indicates transformative learning (<i>directional indicator</i>)
Self:	
Outcomes of self	• Meaning quest: searching for meaning; seeks balance in life; resilient/persistent; highly feeling; concerned for less fortunate (example item: <i>I think a lot about the meaning of life.</i>)
Changes in one's sense of identity	• Needs closure: unhappy upbringing/life history; conflictual/disturbed family dynamics; stereotypical thinking/odd explanations (example item: <i>I had a wonderful childhood.</i>)
Relatedness to others	• Needs fulfillment: open to experiences, needs, and feelings; deep care/sensitivity for self, others, and the larger world (example item: <i>I like to think about who I am.</i>)
Self-efficacy	• Identity diffusion: indicates painful crisis of identity; fatalistic regarding negatives of marital/family life; feels “bad” about self and prospects (example item: <i>I have gone through a painful identity crisis.</i>)
Empowerment	• Basic openness: open and honest about the experience of basic thoughts, feelings, and needs (example item: <i>I don't always feel good about who I am.</i>)
Ontology:	• Self-awareness: introspective; accepts complexity of self; cares for human experience/condition; tolerates difficult thoughts/feelings
Affective experience	• Meaning quest: searching for meaning; seeks balance in life; resilient/persistent; highly feeling; concerned for less fortunate
Ways of being	• Physical resonance: receptive to corporeal needs/feelings; experientially inclined; appreciates the impact of human nature/evolution (example item: <i>My body is very sensitive to what I feel.</i>)
Mindful awareness/presence in the moment	• Emotional attunement: emotional, sensitive, social, needy, affiliative; values the expression of affect; close family connections (example item: <i>I don't mind displays of emotion.</i>)
Dialogue with the unconscious	• Not measured by the 17 BEVI scales, although potentially addressed in life history items and/or open-ended questions
Behavior/action	
Change in observable behavior	

Note. The BEVI is meant to be utilized holistically (not with a single scale in isolation). BEVI = Beliefs, Events, and Values Inventory; TL = transformative learning.

integrative of experience” (p. 146). For this reason, the BEVI scales that we used in calculating TL composite scores were assigned a positive or negative direction based on the assumptions of TL theory.

Table 2. Consistency of Hoggan Domain Scores and Correlations With BEVI.

Hoggan Domain (Cronbach's α)	Constituent BEVI Scale (Italics Indicates Reversed Score)	Partial Correlation
Worldview ($\alpha = .77$)	Sociocultural openness <i>Religious traditionalism</i> <i>Gender traditionalism</i> Ecological resonance Global resonance	.81 -.38 -.49 .45 .63
Epistemology/capacity ($\alpha = .61$)	<i>Basic determinism</i> Socioemotional convergence <i>Self-certitude</i> Self-awareness Meaning quest	-.39 .61 .11 .59 .50
Self ($\alpha = .64$)	Meaning quest Needs closure Needs fulfillment Identity diffusion Basic openness	.44 .30 .39 .34 .54
Ontology ($\alpha = .80$)	Meaning quest Self-awareness Physical resonance Emotional attunement	.74 .80 .35 .67

Note. BEVI = Beliefs, Events, and Values Inventory.

Method

The purpose of this work is to test a new quantitative method for assessing TL. We quantitatively test the internal consistency of *Hoggan* domain scores and their convergent validity with the existing BEVI scale scores from which they are calculated. The relationship is a theoretical correspondence based on prior scholarship (Acheson et al., 2020). As a method, it will allow for the quantitative assessment of *Hoggan*'s domains for the purposes of measuring gains which occur during a transformative experience. This section provides a brief description of the proposed calculation of *Hoggan*'s domains, reliability, and validity evidence for this mapping, and an example of its use based on archival program data.

Data

To evaluate the performance of the crosswalk mapping, domain scores were calculated from a comprehensive dataset of historic BEVI administrations. The data set comprised 25,751 observations across 47 institutions of higher education, collected between January 2010 and January 2020. The experiences represented in the data set include an array of HIPs: internships, study abroad, multicultural coursework, undergraduate research abroad, and global studies coursework. It is worth noting that a

large majority of cases were study abroad participants. The average participant age was 20 years old, with 86% of respondents falling between 18 and 22.

Calculating scores for Hoggan's domains. Scores for the four domains proposed by *Hoggan* were calculated as the average of selected scale scores from the BEVI, as indicated in Table 2. Knowing that TL theory assumes generally positive transformation, some of the BEVI scales were reversed in their directionality before being averaged because they are theoretically opposed to their corresponding *Hoggan* scale. For example, Gender Traditionalism in the BEVI is assessed such that a higher score reflects greater traditionalism, which is consistent with a less ideal Worldview in *Hoggan's* typology. Reversed scales are indicated in italics in Table 2. Once reversed and averaged, the range of *Hoggan* domain scores is 0 to 100, mirroring the range of the constituent BEVI scales.

Reliability and validity. Once *Hoggan* domain scores were calculated, we assessed reliability in the form of Cronbach's α within each domain. In this analysis, reliability ranged from modest to strong (see Table 2). For the worldview domain score, for example, an α of .77 speaks well to the internal consistency of that construct, especially when applied to a group of students (Thorndike & Thorndike-Christ, 2010). The same can be said for the Ontology domain at .80. Coefficients of .61 and .64 for Epistemology and Self are moderate, prompting further consideration.

To address the validity of the relationship between the domains and their constituent subscales, we calculated full and partial correlations between the BEVI scales and the domains in which they were included. For partial correlations, each constituent scale was removed from the calculation of its domain to remove its influence, then the scale in question was correlated with the remaining partial domain score. Because the partial correlations represent a more conservative estimate of consistency than full correlations, only the former are provided in Table 2. Correlations and reliability are both calculated on calculated scale scores, not on their constituent items.

The consistent directions and moderate to strong magnitudes of these correlations provide another layer of validity evidence for the proposed BEVI/TL crosswalk. While further analysis might advise differential weighting of individual BEVI scales, the current mapping allows us to use psychometrically sound BEVI results to infer personal gains on *Hoggan's* (2016) transformational learning typology. Implications of this methodological experiment are discussed in the conclusion below, following the description of the qualitative operationalization.

Describing the domain scores. The characteristics of the *Hoggan* domain scores as calculated from the comprehensive data set are given in Table 3. It is important to note that these statistics encompass measurements taken both before and after transformative experiences, and so are a broad description of students in many contexts. In the absence of a program-specific t test, as shown in Applying Domain

Table 3. TL Domain Scores.

Hoggan Domain	Range	Mean	SD
Worldview	(1.2, 96.8)	59.4	20.2
Epistemology/capacity	(0.4, 97.0)	57.2	16.9
Self	(0.0, 99.2)	45.1	19.1
Ontology	(1.8, 98.5)	63.0	18.0

Note. TL = transformative learning.

Table 4. Sample Analysis for Short-Term Study Abroad.

Hoggan Domain	Mean (Pre)	Mean (Post)	Gain	SD (Gain)	p	Effect Size (Cohen's d)
Worldview	81.13	85.22	4.09	3.28	<.001*	1.25
Epistemology/ capacity	73.85	78.45	4.60	7.99	.008*	0.58
Self	42.18	46.37	4.19	9.66	.040	0.43
Ontology	69.19	76.02	6.83	8.26	<.001*	0.83

*p < .05/4.

Scores below, the table offers a sense of what represents, for example, a full standard deviation of change in a given score.

Applying domain scores. While it is important to be able to calculate the *Hoggan* domain scores at a static moment in time to explore reliability and validity, their intended usage is as a measure of personal transformation across an experience. To demonstrate this application, we focused on three semesters of data from a single short-term study abroad program within the data set. The program was the setting for Sarah's experience. Based in a South American city, it involved host family housing and a minimum of five semesters of Spanish language study prior to participation. Participants were able to take some of their courses with host community students at a local university. They also participated in themed extracurricular excursions where local activists, artists, or scholars would provide context for current events. Participants were asked to reflect about their experiences in a journal in which an intercultural instructor provided feedback and prompted further reflection.

Students in the program were asked to take the BEVI pre/post-study abroad. There were 25 of 46 participants who opted to complete both T1/T2 administrations of the BEVI. We calculated *Hoggan* domain scores from that data, such that we had a snapshot of each student in these domains from both before and after traveling. We

then conducted paired *t* tests, adjusting for multiple comparisons, to detect any significant changes in the four domains. Results are shown in Table 4.

Participants entered the program with scores in worldview, epistemology/capacity, and ontology that were well above the average in the larger data set. Nevertheless, the group demonstrated statistically significant gains in worldview, epistemology/capacity, and ontology across the study abroad experience, with medium to large effect sizes. Gains in self were not demonstrated, though the moderate effect size suggests that this may be an artifact of the small sample.

Using these data, Thomas, the director of this program, has quantitative evidence at high levels of significance and effect that the time abroad is changing students under *Hoggan's* transformative framework. In addition, they have an insight into the nature of their participants, who enter the program with worldview, epistemology/capacity, and ontology scores between 1 and 2 standard deviations above the averages indicated above. By way of contrast, they are situated below average in the self domain, which is also the domain in which no gains seem to be evident.

Using the TL theoretical framework to reflect the development of the self not only shifts the way educators such as Thomas understand learners but also changes how learners understand themselves, essentially better equipping all involved for a modern reality in which information is widely accessible but internal processes of self are not. If Thomas had known through formative assessment that Sarah's understanding of her own system of values and beliefs (and the origins of that system) was relatively underdeveloped at the beginning of this program, he would have been able to incorporate different activities to support Sarah's preparedness for this growth opportunity. Even coming to this realization late in the learning experience is valuable, since Thomas could modify the program for future participants. And, making Sarah aware of TL frameworks helps her make sense of her experience abroad.

Discussion of Study Outcomes

The BEVI has been used in multiple educational and clinical settings where transformative processes are central to experience, bringing together two theories that represent the intricate relationship between identity, context, and growth. Situated in this assessment methodology, these pilot studies yielded two primary conclusions. First, the BEVI can be used as a valid quantitative operationalization of TL Theory. We demonstrated statistically that there are valid arguments for group BEVI scales and mapping them to *Hoggan's* TL domains as we did in the crosswalk. Researchers should be able to use the BEVI as a measure of TL following the method that we have described to create composite scores.

Second, the BEVI can be used to inform TL and practice across contexts, with implications in particular for higher education, mental health, and wellness. Toward the effort of utilization and complementary to the work that underpins this project (Acheson et al., *in press*), Barber and King (2014) have engaged in similar

development theory and assessment efforts. Specifically, their findings on *developmentally effective experiences* corresponds with BEVI assessment outcomes. Thus, educators and practitioners tasked with the design, implementation, and/or assessment of TL experiences can utilize BEVI findings for their cohorts or individual constituents to support intentional pathways for well-scaffolded preparation, experience, and meaningful reflection.

Practical Implications

Implications for higher education settings. The nature of higher education is changing from content conveyance to internal capacity building to prepare citizens for the globally entangled reality formed by our economic, political, and social environments. Learning is interpersonal and engages affective as well as cognitive aspects of the self. Implementation of HIPs is one response to pressure to change learning outcomes and diversify instructional modalities. Our project focused on the development of methodologies that could be applied in an array of higher education contexts to better understand the transformative outcomes of HIPs. Here, we make recommendations for applying these methodologies in two overarching domains: assessment of learning and pedagogical approaches.

High impact learning in higher education, particularly in the United States, has faced growing criticism from an array of stakeholders because institutions implement them without solid empirical evidence to support the outcomes commonly associated with them (Brownell & Swaner, 2010; Kuh et al, 2015). With the methods we described in this chapter, institutions could better understand their institutional profile, capturing an in-depth snapshot of the students who enroll in coursework at their university. This would allow institutions to differentiate experiences, to strategically support students, and to make evidence-based improvements. An additional benefit is the identification of gaps in inclusivity that may be present (see Kuh and O'Donnell's, 2013, critique on the predominantly Caucasian and middle-class composition of high impact programs).

It is common practice for HEIs in the United States to focus on participation in their high impact programs to support arguments for institutional effectiveness in accreditation applications. However, these arguments would benefit from the alignment of evidence of self-transformation and institutional outcome goals. The methodology piloted here is a viable alternative to the more common superficial practice of “counting noses.”

When we move beyond proxy indicators of learning to a deeper longitudinal examination of learners themselves, we return to transformation of the self at the individual level, highlighting the need to use methods of formative assessment as pedagogical interventions. Administering the BEVI early in the experience and providing a group debriefing allows students to reflect metacognitively on their results.

Consider again Sarah's study abroad experience. Operationalizing TL as we have modeled in this project could have benefited Sarah as well as those around her. Sarah's experience might have been different if she had been given an early opportunity to reflect on her beliefs and values and prepare for how they would be challenged. The resulting dialogue might have provided support for Sarah's internal processes and relationships. These implications are widely applicable to adult learning and development outside higher education and across a variety of contexts, including clinical practice.

Applications for mental health and wellbeing. The EI/TL crosswalk is a cross-pollination of constructs between the two fields of psychology and education. This interdisciplinary research team came together due to a shared conviction that by breaking down academic silos, finding common ground, and exploring new ideas, we would not only integrate highly congruent concepts and literatures but also enrich each disciplines' epistemologies and assessment methodologies. The common ground we found was in the construct of the "self"—what constitutes it, what elements of the "self" may be transformed, and how might we assess such changes. We found that these questions are pertinent to both disciplines. Furthermore, ongoing discussions revealed that though the objectives of a study abroad or service learning opportunity may diverge from the goals of therapeutic communities, they share core similarities and tend to have similar elements that constitute high impact experiences. Just as the study abroad context promoted self-reflection and an uncomfortable realization about acceptance in her family for Sarah, individuals in treatment often experience similar changes and have insights about how these new shifts within impact the important people in their lives. Hence, we argue that this approach is not only comparable with the efficacy and outcomes assessments of different psychotherapeutic treatments but can additionally enrich that literature by highlighting those elements of the self that are indeed transformed.

Clinical outcomes assessments have traditionally assessed treatment benefits by measuring changes in psychological well-being, safety, mental status, symptom management, and the impacts of mental health conditions on overall functioning. While such measures have substantial utility and benefits (e.g., treatment efficacy), for the "depth-oriented" researcher who is seeking a more comprehensive and nuanced understanding of who a person *was* and who the person *becomes*, this methodological framework and assessment tool's ability may be of notable worth. The BEVI's ability to assess variables such as the capacity for self-awareness, affect regulation, behavioral growth, dialectical thinking, and relationship to self, others, and the world at large allows for much-needed complexity inherent in many psychotherapeutic endeavors that are rarely formally evaluated. By apprehending and accounting for individual differences in patients/clients, we may be better able to determine therapy readiness, type of therapeutic modality, clinician fit, and therapeutic outcomes (Cozen et al., 2016). Furthermore, in obtaining more nuanced information about individual characteristics and background variables, the mandate for individualizing

therapy to optimize treatment efficacy—an endeavor the research demonstrably supports (Norcross & Wampold, 2018)—can be better implemented. Such a methodology can make significant contributions to the broader mental health field by allowing clinicians to better assess the depth of their psychotherapeutic work.

Future Directions for Research

This project inspired an array of useful directions for further investigation. For highly complex learning experiences with dozens of interacting variables, like education abroad, it is crucial to have systems of assessment that capture the complexity of both learners and learning environment. An important extension of this study would be to pilot and explore ways to link qualitative and quantitative methods to develop a robust mixed-methods approach to assessing TL in HIPs. For example, focus groups of students in high, medium, and low change on BEVI TL outcomes could help us understand more deeply which aspects of themselves transformed and why. This could help identify students who need more support within high impact experiences. To complement that line of research, this methodology could be paired with tools that can operationalize components of the learning experience in order to better understand the interaction of variables between learner and learning environment and how those interactions influence outcomes. Additionally, more focused qualitative study of high impact experience discourses could demonstrate the potential of this methodology for contributing rich understandings of how and why some experiences are more impactful than others.

Finally, there is further cause for research on this quantitative method. As indicated above, the relationships between some of the BEVI subscales and their resultant TL domains deserve attention. Additional evidence of validity could be accumulated by expanding the sample to include learners outside the study abroad context and participants in other stages of life, which was a limitation on generalizability in the current study. Furthermore, the ability to discern between demographic groups, pre and post administrations, and program types offers a rich landscape in which to look at such traits of self and epistemology as predictive of experience in a given context. With the introduction of this method, a new lens is available to scholars and practitioners invested in supporting and documenting transformation of the self.

Authors' Note

In the original project, we first calculated T1 to T2 gains in BEVI scores, then we calculated *Hoggan* domain scores from those gains. As a result, there was no attempt to calculate *Hoggan* scores for “before” and “after.” This emphasized the importance of the transformation in the meaning of those scores. It also allowed us to use absolute values of needs fulfillment and needs closure in the calculation, equating large positive changes and large negative changes in these scales as they contributed to *Hoggan's Self*.

However, in the analysis presented in this article, we have adjusted our analysis to calculate *Hoggan* scores on BEVI scores from a single administration. This allows us to see domain scores as a temporal characteristic of a person, such that we can characterize the worldview of a student preparing to study abroad, as well as a revised worldview upon their return. The gain, of course, is still calculable. It also allows us to base our validity and reliability evidence on considerably more individual cases, as we are not limited to pre-post observations.

The issue is that, without first calculating BEVI change scores, we cannot incorporate the absolute values indicated above, as negative values do not exist without subtracting T1 from T2. This begs the question, how do we think needs fulfillment and needs closure contribute, if at all, to *Hoggan's* self? Correlations suggest that they both contribute positively to the domain, but theory seems uncertain. For the purposes of this article, we are following the apparent positive relationship in our calculations.

Author's Note

Jennifer L. Wiley is now affiliated from Corecollaborative International and James Madison University, Loren Intolubbe-Chmil is now affiliated from Naropa University, Devi Bhuyan is now affiliated from Sheppard Pratt Hospital.

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Author Biographies

Jennifer L. Wiley continues to make her career about understanding how learning can be transformative and what that means for the learner. She has an EdD in Educational Policy Analysis from the University of Missouri-Columbia and a Master’s in International Affairs and Administration from Missouri State University. Her work in the field of international education began in 2004 as she conducted a national survey of high school exchange organizations to better understand how they assessed learning in the students they supported. In 2013, Wiley joined with three colleagues to found CoreCollaborative International (corecollaborative.com), a women-owned consulting firm that conducts program evaluations, intercultural training, and learning assessment. She is currently serving as the Research Fellow for James Madison University’s Center for Global Engagement where she has led multi-institution research projects studying the impact and effectiveness of global learning programs such as virtual exchange and education abroad. Her current research involves refining a tool she developed to operationalize programmatic variables of learning experiences (duration, depth of engagement, difference, etc.). She also works collaboratively with intercultural film non-profit Crossing Borders Education to investigate the use of authentic peer videos to model and bring humanness to virtual exchange experiences. She is a Returned Peace Corps Volunteer (Ukraine) and lives in the beautiful Shenandoah Valley of Virginia.

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Loren Inolubbe-Chmil has devoted her professional life to social justice education for change; community-university partnerships; the engagement of scholars and citizens; and transformative learning in diverse contexts. She has a Ph.D. in Education from the University of Virginia and also a founding partner at CoreCollaborative International. Loren is an educator and activist with over 30 years of experience in teaching, administrative, programming, and research associate positions across diverse post-secondary and preK-12 education contexts. Loren's deepest interests encompass representative stakeholder engagement, education for change, and human rights-based decision-making. Her work is most significantly shaped through her indigenous (Choctaw) heritage, engagement within transformative teaching and learning environments, the promotion of civic spaces, and the habit of reflexive practice. She is also currently the Dean of the Naropa College and Graduate Collective at Naropa University.

Dr. Devi Bhuyan is the Director of Clinical Psychology at Sheppard Pratt. She previously served as Senior Psychologist at The Menninger Clinic and Assistant Professor at the Baylor College of Medicine, Houston, TX where she worked in an in-patient unit for personality, complex trauma, mood, anxiety, and co-morbid addictive disorders. Beginning her career in the non-profit sector, her professional experiences include addressing domestic violence and sexual abuse in India, as well as capacity building of human resources and developing fund raising strategies.

Devi Bhuyan received her doctoral degree in Clinical and School Psychology at James Madison University, Virginia. She completed two postdoctoral fellowships; the first, at the International Beliefs and Values Institute (IBAVI), whose mission is to explore how beliefs and values influence actions, policies, and practices. Her second fellowship was at the Baylor College of Medicine and The Menninger Clinic's Compass Young Adult Program. She has also worked and trained in a variety of mental health institutions in India and the United States serving a range of diverse populations across the clinical and developmental spectrum. She continues to work in IBAVI initiatives and is currently working with an interdisciplinary team on an MMPI-like assessment tool called The Beliefs, Events, and Values Inventory (BEVI).

Kris Acheson holds a PhD in Intercultural Communication from Arizona State University and is a former faculty at Georgia State University and Fulbright Scholar to Honduras. At Purdue University, she directs the Center for Intercultural Learning, Mentorship, Assessment and Research (CILMAR), which works with faculty and staff to embed intercultural learning across the curriculum and produce cutting-edge research on intercultural competence development. Dr. Acheson is a well-published scholar and an in-demand trainer on pedagogy and assessment. Several years ago, Dr. Acheson dreamed of creating a “science gateway” for interculturalists, and the Intercultural Learning Hub (www.hubicl.org) has recently become a reality under her leadership.