Measuring Perceived Transfer of Responsibility Learning From Physical Education: Initial Validation of the Transfer of Responsibility Questionnaire

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Abstract:

Purpose: Research indicates that physical education can be an effective setting for promoting positive values, attitudes, and behaviors that transfer to other settings. However, there is a lack of instrumentation to assess the cognitive and motivational aspects of the transfer process. Therefore, this study proposed and validated the Transfer of Responsibility Questionnaire (ToRQ). Methods: After instrument development and pilot testing, an initial version of the ToRQ was completed by 442 adolescents. Data analysis began with exploratory factor analysis followed by confirmatory factor analysis. Results: The exploratory factor analysis yielded a stable three-factor structure that measured the participants' cognitive and motivational processes related to transfer. This factor structure was affirmed using confirmatory factor analysis, which also examined convergent and discriminant validity. Discussion/Conclusion: The model was a good fit for the data, and the ToRQ correlated positively with related scales from an existing life skill transfer survey. These analyses support the initial validation of the ToRQ.

Keywords: confirmatory factor analysis | exploratory factor analysis | reliability | transfer of learning | validity

Article:

There have been recent calls in the literature to more rigorously examine student outcomes and teacher effectiveness relative to the national physical education content standards (Hastie, 2017; McKenzie & Lounsbery, 2013; Rink, 2013; Ward, 2013). One of the standards that has received little attention in this regard relates to a physically literate individual's ability to exhibit responsible personal and social behavior that respects self and others (Society of Health and Physical Educators [SHAPE], 2015; Wright & Irwin, 2018). According to Hastie (2017),

> At its simplest level, this standard refers to students adopting activity-specific practices, rules, procedures and etiquette during physical activity, both in terms of promoting their own development, but also recognizing the rights of others to do the same. However, to help students focus on effort and self-direction and create a respectful and caring learning environment, most writers in this field believe that specific strategies for empowering students with choices and voices are necessary. (p. 10)

In light of the attitudes, values, and behaviors that might be associated with this aspect of physical education content, Hastie posits what questions should guide research in this standard: "The subsequent research that would follow would entail questions about first, the extent to which students do act in personally and socially responsible ways in physical education, but second, would examine specific interventions that promote these actions in and beyond the classroom" (2017, p. 10). Regarding the instrumentation required to support these lines of research, tools have been developed and validated to assess students' personal and social responsibility in the physical education setting via self-report (Li, Wright, Rukavina, & Pickering, 2008) and direct observation (Wright & Craig, 2011). However, none have been proposed to assess ways that responsibility learning in physical education may transfer to other settings; the current paper describes the development and validation of such an instrument.

To position physical education content associated with personal and social responsibility within a broader conceptual framework, we refer to social and emotional learning (SEL; Zins & Elias, 2007). This framework is supported by substantial research and policy support that spans the K-12 curriculum. SEL competencies can be broadly organized into self-awareness, self-management, social awareness, relationship skills, and responsible decision making (Elias, 1997; Zins & Elias, 2007). The relevance of such competencies across subject areas and settings establishes them as skills that can be developed and practiced in one setting and applied to relevant life contexts, such as school and home (Gould & Carson, 2008; Weiss, Bolter, & Kipp, 2014). Thus, this represents a framework that fosters transferrable life skills for youth that can equate to both short-term outcomes (i.e., practicing competencies in the learned setting) and long-term behavioral and academic outcomes (e.g., academic success, prosocial behavior, few conduct problems).

A meta-analysis of 213 school-based SEL interventions indicated significant improvements in participants' social and emotional skills, attitudes, behavior, and academic performance relative to control groups (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). A more recent meta-analysis of follow-up effects from 82 school-based SEL programs demonstrated sustained increases in social and emotional skills, attitudes, and various indicators of well-being, such as increased prosocial behavior and academic performance, as well as decreased emotional distress, conduct problems, and drug abuse (Taylor, Oberle, Durlak, &Weissberg, 2017). The working theory of action in many SEL programs is that strong implementation helps youth develop social and emotional assets that subsequently influence various indicators of well-being (Taylor et al., 2017).

The process by which their learning experience translates into behavior change (i.e., transfer), however, is insufficiently understood. Transfer describes the phenomenon of youth making use of content learned in one setting and applying that to another setting where application may not necessarily be required (Gould & Carson, 2008). In this context, the "learning content" is a life skill (e.g., leadership, respect, self-control), which can be taught through authentic experiences that are embedded in a sport and physical activity lesson. For example, a physical educator can highlight how effort is a necessary component to be successful in learning a new sport (e.g., badminton) and encourage students to be open to trying their best, even if the sport is unfamiliar to them. Likewise, transfer of learning is promoted when the teacher encourages the same students to give their best effort in preparing for a school exam or trying out a different extracurricular activity for the first time. However, equating transfer solely to behavior change represents a gap in the literature and a limitation in the prevailing logic applied to the transfer of learning. It is well established that adolescents are actively making choices involving values, behaviors, and social norms (Eccles, Barber, Stone, & Hunt, 2003; Lerner & Steinberg, 2009). Moreover, their cognitive and affective processes involve making connections between different life domains (Erikson, 1994). These processes and youth agency are often neglected in the study designs, leaving a "black hole" when researchers try to connect program experiences with behavior outcomes (Jacobs & Wright, 2017).

One approach to teaching physical education that explicitly addresses transfer is Hellison's (2011) Teaching Personal and Social Responsibility (TPSR) model. TPSR has been developed in practice for several decades with the intent of using physical activity as a vehicle for promoting positive values and teaching transferable life skills. The TPSR program goals, often referred to as levels, are framed as personal and social responsibilities. The personal responsibilities include self-motivation and self-direction, which can be enacted in skills such as effort, persistence, goal setting, and making good choices. The social responsibilities include respecting the rights and feelings of others and caring, which can be enacted in skills like inclusion, peaceful conflict resolution, and leadership. These responsibilities and associated skills are discussed and practiced in the program setting. The overarching goal of transferring responsibilities, life skills, and values is deliberately promoted through guided reflection and discussion. TPSR is widely recognized as an exemplary models-based practice for promoting personal and social development (Kirk, 2013; Metzler, 2017). It has also been observed in the literature that the responsibilities and life skills that comprise the TPSR model are strongly aligned with the SEL framework (Gordon, Jacobs, & Wright, 2016; Jacobs & Wright, 2014), as well as the tenets of sport-based youth development (SBYD; Petitpas, Cornelius, Van Raalte, & Jones, 2005; Weiss & Wiese-Bjornstal, 2009).

Numerous program evaluations and action research projects indicate that TPSR programs, when implemented with fidelity to the key model tenets, can create a positive learning environment, foster prosocial behavior, and increase student responsibility in the program setting (Hellison & Martinek, 2006; Hellison & Walsh, 2002; Pozo, Grao-Cruces, & Pérez-Ordás, 2016). While some studies indicate that participants transfer TPSR lessons to other contexts,

these studies have generally used behavior change as a proxy for transfer (Martinek, Schilling, & Johnson, 2001; Walsh, Ozaeta, & Wright, 2010; Wright, Li, Ding, & Pickering, 2010), and there has been insufficient focus on the cognitive and motivational processes involved in connecting program lessons to other contexts.

Jacobs and Wright (2017) argued that, without understanding how youth learn life lessons, find relevance to other settings, and decide whether to apply them, researchers are hard pressed to interpret subsequent behavioral outcomes or to make meaningful suggestions to improve learning transfer. Although instruments to assess TPSR implementation and in-program effects have been developed in recent years (Li et al., 2008; Wright & Craig, 2011), no theory-driven, validated instruments have been published that align specifically with the model or focus on youth agency in the transfer process. In fact, we are aware of only one validated instrument in the field of SBYD that directly addresses transfer. The Life Skills Transfer Survey (LSTS; Weiss et al., 2014) is informative, but was developed to align with the First Tee program and focuses on the self-report of specific behaviors that represent life skills promoted in that program. For example, an item reflecting the life skill meeting and greeting is at school, I can introduce myself to a new student.An item reflecting the life skill planning for the future is I am able to prepare myself for a job interview. While the full range of life skills and behaviors that comprise the LSTS align with SBYD, they represent a very specific curriculum and do not address participants' cognitive and motivational processes. The dearth of valid measures to assess transfer of responsibility learning in physical education or TPSR programs constitutes a gap in the literature (Jacobs & Wright, 2017).

The desire to see learning transfer is certainly not restricted to physical education or the SBYD field. In fact, bodies of literature related to a variety of subject areas have grappled with similar issues (Jacobs & Wright, 2017). In the field of science education, for example, we have found the notion of transformative experience (Pugh, 2002, 2004) to be quite informative. Transformative experience relates to the transfer of learning in a way that addresses cognition (e.g., seeing opportunities to apply the material) and motivation (e.g., having the desire to apply the material), as well as behavior (e.g., choosing a course of action based on that understanding and motivation). The three dimensions that comprise transformative experience are motivated use, expansion of perception, and experiential value. We believe a conceptualization like this can be instructive for learning transfer in physical education because it illuminates the internal processes experienced by youth related to learning certain content rather than their outward behaviors, which may not have been inspired by or connected to that learning. In a subsequent section, we provide more detail on the transformative experience framework and an instrument developed to assess the three dimensions that comprise it (Pugh, Linnenbrink-Garcia, Koskey, Stewart, & Manzey, 2010).

In summary, while research supports the effectiveness of TPSR in promoting responsibility in physical education and teaching SEL competencies (i.e., life skills), the examination of transfer is underdeveloped. This reflects a need in the field of physical education and SBYD, as well as the prevailing theory of action guiding SEL research (Taylor et al., 2017).

Although some instruments have been developed to assess implementation and in-program effects of TPSR, there are few instruments developed to address the transfer of life skills and none with a focus on the cognitive and motivational processes involved in transfer. In an effort to fill this gap in the literature, the purpose of the present investigation was to propose and validate the Transfer of Responsibility Questionnaire (ToRQ). Specific research aims included (a) developing items to be included on the ToRQ, (b) identifying a stable factor structure for the ToRQ using exploratory factor analysis (EFA), (c) confirming the factor structure through confirmatory factor analysis (CFA) using a separate participant sample, and (d) examining the extent to which the ToRQ correlates with conceptually similar constructs.

Methods

Item Creation Process

The lead investigator secured human subjects' approval prior to data collection. Items to be considered for inclusion on the ToRQ were developed, and content was validated through a five-step process, which mirrored other instrument development studies (Richards, Gaudreault, & Woods, 2016; Weiss et al., 2014), and involved (a) reviewing theory and previous research, (b) interviewing children in a physical activity environment, (c) creating a pool of items, (d) conducting a pilot study, and (e) finalizing the list of items.

Reviewing theory and previous literature. Our literature review focused on research and theory related to students' experiences in responsibility-focused physical activity programs (Gordon et al., 2016; Hellison, 2011; Hemphill & Richards, 2016; Walsh et al., 2010; Wright & Burton, 2008; Wright et al., 2010), as well as transfer of learning and transformative experience in broader educational areas (e.g., Barnett & Ceci, 2002; Lawson & Lawson, 2013; Leberman, McDonald, & Doyle, 2006; Pugh et al., 2010). During this process, we found Pugh et al.'s (2010) instrument to measure a transformative experience, which provided the three dimensions of (a) motivated use, (b) expansion of perception, and (c) experiential value (Pugh, 2002, 2004). While Pugh et al. (2010) created items related to each of these three dimensions, their analysis focused on a transformative experience in a more general sense, so the items were not divided into subscales. Further, while the items were examined using Rauch analysis and principal components analysis, CFA was not used. Beyond the conceptual review, we examined recommendations for survey development by measurement experts (Brown, 2006; Knapp & Mueller, 2010; Tabachnick & Fidell, 2013) and reviewed studies describing survey development in physical activity settings (e.g., Kyrgiridis, Derri, Emmanouilidou, Chlapoutaki, & Kioumourtzoglou, 2014; Li et al., 2008; Weiss et al., 2014) in order to align our work with best practice.

Interviews with children. Following the initial literature review, we conducted a series of three interviews with each of 11 children who were participating in a responsibility-based physical activity after-school program. Interviews have been found to play an important role in the creation and validation of psychometric instruments because they allow participants to generate ideas and possible survey topics (Horn, 2011). Among other topics, the interview addressed key aspects of Pugh's (2002, 2004) transformative experience framework, that is, motivated use, expansion of perception, and experiential value. The purpose of the interview was to understand transformative experience in the context of responsibility-based physical activity programs.

In line with Pugh et al. (2010), these interviews lent support to the notion that transformative experience is a multidimensional construct that includes behavior (i.e., motivated use), cognition (i.e., expansion of perception), and affect (i.e., experiential value). Specifically, participants noted how learning concepts that could be transferred beyond the physical activity program and developing a sense of motivation to use them influenced the likelihood of behavioral transfer. This perspective aligns with recent research related to transfer in the SBYD literature, which has emphasized the importance of defining transfer beyond observable behavior (Gordon & Doyle, 2015; Hemphill & Richards, 2016; Jacobs & Wright, 2017).

Creating a pool of items. Given our review of literature and interviews with children in responsibility-based physical activity programs, we created a pool of items based on Pugh et al.'s (2010) instrument for measuring transformative experience in science education. We modified the original items to create a total of 29 items that we expected to load on three factors related to motivated use (12 items), expanded perception (seven items), and experiential value (10 items). For example, I think about adaptation and/or natural selection outside of class just because I'm interested in the ideas (motivated use) was modified as I think about responsibility and/or life skills outside of this program just because I'm interested in the ideas. Prior to finalizing the survey, the items were shared with physical activity and physical education researchers (N = 4) whose scholarship focuses on responsibility-based pedagogy. These experts were asked to review the items and recommend changes to the wording or structure. The experts agreed that the items were in line with Pugh's (2002, 2004) transformative experience framework, and they did not recommend any substantive changes. The survey items were set to a 7-point, Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Seven response categories were chosen because the psychometrics literature indicates that 7-point scales tend to perform slightly better on measures of validity, reliability, and discriminant power (Preston & Colman, 2000). The following description and prompt was written to introduce the items to participants:

> In many physical activity programs, teachers want their students to learn about responsibility and develop life skills that can be useful outside of class. Life skills include things like respecting others, giving good effort, making good choices, setting goals, helping others, working as part of a team, and being a leader. We are interested in what you learn about these topics (responsibility and life skills) in your physical activity

program. After reading the following statements, please circle the response that best represents your level of agreement.

Conducting a pilot study. Using the 29 items created based on Pugh et al.'s (2010) survey, we conducted a pilot test with 105 middle school children (Mage = 12.56 years, 51.6% female, 47.6% White) participating in an after-school physical activity program that had a focus on responsibility and life skills. The purpose of this pilot was to check the survey structure, identify potential problems with the wording of the ToRQ items, and determine approximately how long it would take participants to complete the survey (the survey included the ToRQ in addition to the other items described below). Based on the results of the pilot test, minor changes were made to clarify the survey instructions and improve survey flow. It was determined that the survey would take 10–15 min to complete. For most ToRQ items, the participants used the entire range of response values. The items that showed low interitem correlations, item-total correlations, and squared multiple correlations (<.30) were flagged for possible removal (Knapp & Mueller, 2010).

Table 1 Final List of Items to be Considered for Inclusion on the ToRQ

Dimensions	**Items**
Motivated use	I talk about responsibility and/or life skills just for the fun of it.
	I look for chances to apply my knowledge of responsibility and/or life skills in my everyday life.
	I apply the knowledge I have learned about responsibility and.or life skills when I have to during this program.
	I love talking about responsibility and/or life skills.
	I think about responsibility and/or life skills in other places like the classroom, sports, or other activity programs.
	I think about responsibility and/or life skills outside of this program just because I am interested in the ideas.
	I apply the stuff I have learned about responsibility and/or life skills even when I do not have to.
Expansion of perception	During this program, I see things in terms of responsibility and/or life skills.
	When I am doing an activity in this program, I think of it in terms of responsibility and/or life skills.

	I notice examples of responsibility and/or life skills outside of this program.
	When I notice the ways other people behave, I think about them in terms of responsibility and/or life skills.
	I look for examples of responsibility and/or life skills outside of this program.
	I cannot help but see behavior in terms of responsibility and/or life skills now.
	I notice examples of responsibility and/or life skills during this program.
Experiential value	During this program, I think the stuff we are learning about responsibility and/or life skills is interesting.
	I am interested when I hear things about responsibility and/or life skills outside of this program.
	I find it interesting in this program when we talk about behavior in terms of responsibility and/or life skills.
	The ideas of responsibility and/or life skills are useful for me to learn for my future studies or work.
	I find that the ideas of responsibility and/or life skills make my experiences outside of this program more interesting.
	Knowledge of responsibility and/or life skills is useful in my current, everyday life.
	I find it exciting to think about responsibility and/or life skills outside of this program.

Note. ToRQ = Transfer of Responsibility Questionnaire.

Finalizing the list of items. After pilot testing, we met to discuss the items and decide which would be included in the final pool that would be tested through subsequent investigation. We considered what had been learned through the previous steps in the content validation process and retained the hypothesized three-factor structure of motivated use, expansion of perception, and experiential value. We also decided upon 21 items for inclusion in the survey (seven for each of the three factors). These items were believed to be most reflective of the constructs and had the highest interitem correlations, item-total correlations, and squared multiple correlations in the initial pilot testing. The final list of items is included in Table 1.

Procedures and Instrumentation

Participants were recruited from in-school physical education classes taught by two experienced, licensed physical education teachers (each with at least 10 years of experience) at a middle school in the United States Midwest. The school, which was located in a small city near a regional university campus, housed 644 youth in sixth through eighth grade. The student body was 61% White, 19% Hispanic, 13% African American, 4% multiracial, and 2% Asian. Nearly half (48%) of students were from low-income families and were part of the free and reduced lunch program. The physical education curriculum at this school was aligned to the national content standards (SHAPE, 2015) and to state standards that included personally and socially responsible behavior as physical education outcomes. Moreover, this state has adopted K-12 SEL standards aligned with the SEL model described above (Elias, 1997; Zins & Elias, 2007). The students completed a single implementation pencil-and-paper survey at the beginning of their physical education classes. When verbal instructions were given, it was clarified that the context of interest was the students' current physical education class. Data were collected in two waves in which a total of 442 youth completed the survey (see Table 2 for participant demographics). The first wave took place in the spring of 2016 and included 135 youth across six physical education classes. In the second wave, an additional 307 youth across twelve classes completed the survey in the fall of 2016. In addition to the ToRQ items, the participants completed a brief demographic questionnaire and components of the LSTS (Weiss et al., 2014).

Tool for assessing responsibility-based education 2.0. To validate implementation of these curricular guidelines, each of the two physical education teachers was observed teaching multiple lessons using the Tool for assessing responsibility-based education (TARE) 2.0 prior to student data collection to document the extent to which personal and social responsibility was typically promoted in the program. The TARE 2.0 (Escartí, Wright, Pascual, & Gutiérrez, 2015) is a systematic observation tool that uses an interval rating scale to assess the extent to which teachers employ nine different strategies known to promote personal and social responsibility, and students engage in nine different personally and socially behaviors. At 3-min intervals, behaviors are rated on a 5-point scale (0 = absent through and 4 = very strong) indicating strength of implementation for teacher behaviors and enactment for student behaviors. Teacher behaviors include modeling respect, setting expectations, opportunities for success, fostering social interaction, assigning tasks, leadership, giving choices and voices, role in assessment, and promoting transfer. Student behaviors include participation, engagement, showing respect, cooperating with peers, encouraging others, helping others, leading, expressing voice, and asking for help. One of the teachers was observed teaching four lessons and the other was observed teaching five lessons. All observations were conducted by the third author, who had demonstrated greater than 80% interrater reliability coding with the TARE 2.0 after training with one of the instrument developers. The teachers received no coaching or preparation related to the content of the observations.

Table 2 Demographic Information for the Participants in Aggregate and for the Divided Samples

		Participants		
Category	**Subcategory**	**Total (n = 442)**	**EFA (n = 135)**	**CFA (n = 307)**
Gender	Male	240 (54.3%)	68 (50.4%)	174 (56.7%)
	Female	197 (44.6%)	67 (49.6%)	133 (43.4%)
Age (years)	11	116 (26.2%)	18 (13.3%)	98 (31.9%)
	12	137 (31.0%)	53 (39.3%)	84 (27.4%)
	13	133 (30.1%)	36 (26.7%)	97 (31.6%)
	14	56 (12.7%)	28 (20.7%)	28 (9.1%)
Grade level	Sixth grade	151 (34.2%)	32 (23.7%)	119 (38.8%)
	Seventh grade	144 (32.6%)	57 (42.2%)	87 (28.3%)
	Eighth grade	147 (33.3%)	46 (34.1%)	101 (32.9%)
Race/ ethnicity	White	185 (41.9%)	61 (45.2%)	124 (40.4%)
	African American	75 (17.0%)	28 (20.7%)	47 (15.3)
	Hispanic	94 (21.3%)	22 (16.3%)	72 (23.5%)
	Asian American	12 (2.7%)	2 (1.5%)	10 (3.3%)
	Multiple races	66 (14.9%)	18 (13.3%)	48 (15.6%)
	Other	10 (2.3%)	4 (3.0%)	6 (2.0%)

Note. EFA = exploratory factor analysis; CFA = confirmatory factor analysis.

Transfer of life skills survey. The LSTS (Weiss et al., 2014) includes 11 subscales with 50 total items that are used to measure transfer of life skills from a program environment to other areas in youth's lives. This study drew upon the managing emotions (nine items), goal setting (six items), resolving conflict (eight items), getting help from others (five items), and helping others (five items) subscales because they most closely aligned with the type of generalizable skills addressed in the ToRQ as opposed to discrete behaviors unique to the First Tee program. Participants are asked to evaluate the extent to which questions relate to their experience on a

5-point, Likert-type scale ranging from 1 (really not true for me) to 5 (really true for me). Example items include I calm myself down after receiving a bad grade (managing emotions), I set goals based on my own ability level in school (goal settings), and I comfort a friend when they are upset (helping others). These subscales were expected to correlate positively with the ToRQ, and were administered to evaluate convergent validity. Internal consistency reliability for the subscales of the LSTS has been demonstrated through previous research (Weiss et al., 2014) and was acceptable in this study (Cronbach α ranged from .90 to .94).

Scale Development and Validation

The scale development and validation process were conducted in a two-phase approach that utilized EFA and CFA (Brown, 2006). All preliminary analyses, including standard procedures for data cleaning and screening (Tabachnick & Fidell, 2013), descriptive statistics, and EFA procedures were conducted in IBM SPSS 23.0 (IBM Corp., Chicago, IL). The latent variable modeling program, LISREL 9.1 (Scientific Software International, Inc. Skokie, IL; Jöreskog & Sörbom, 2013), was used to conduct CFA. Since CFA requires larger samples than EFA (Brown, 2006), the first wave of participant responses (n = 135) was used for EFA, and the second wave (n = 307) was used for CFA.

During scale development, EFA helps researchers explore the relationships among variables and group together those that are highly correlated with one another (Tabachnick & Fidell, 2013). Given that Pugh et al. (2010) did not examine factorial validity of their instrument to measure transformative learning, data analysis began with EFA in an effort to identify a stable factor structure (Brown, 2006). The EFA procedures were conducted using maximum likelihood extraction and a direct oblimin (i.e., nonorthogonal) rotation. The initial 21-item model was run using data collected in Wave 1 (n = 135), three factors were extracted to align with the three dimensions of a transformative experience (i.e., motivated use, expansion of perspective, and experiential value). The scree plot and pattern matrix were used to identity and remove items that did not load significantly on a factor, did not load on the intended factor, or had large and significant cross loadings (Tabachnick & Fidell, 2013). Following the removal of an item, the EFA procedure was rerun until the most parsimonious solution was identified.

Next, CFA was used to confirm the factor structure identified through EFA using data collected during Wave 2 (n = 307). As a confirmatory technique, CFA examines the relationships among manifest indicators and latent constructs that are supported by logic or theory (Hatcher, 1994) and is often used as part of the instrument validation process to confirm a factor solution suggested by EFA (Loehlin, 2004). In latent variable models, fit statistics are used to examine the extent to which a hypothesized model fits study data (Hatcher, 1994). Good model fit indicates that the hypothesized pattern of relationships fits the data, whereas poor fit indicates that the model is likely misspecified (Schreiber, Nora, Stage, Barlow, & King, 2006). In this study, multiple fit indices were used to evaluate model fit (Brown, 2006). These included $\chi 2$, the nonnormed fit index (NNFI), the comparative-fit index (CFI), the standardized root mean square

residual (SRMR), and the root mean square error of approximation (RMSEA). Traditionally, a nonsignificant $\chi 2$ test was used to evaluate model fit in latent variable models, but the test is sensitive to sample size and no longer considered a reliable indicator. Instead, the ratio of $\chi 2$ to its degrees of freedom ($\chi 2/df$) is recommended, with a ratio of ≤ 3.00 indicating good fit (Schreiber et al., 2006). Good fit is also supported by NNFI and CFI values $\geq .95$, and SRMR and RMSEA $\leq .08$ (Brown, 2006)

The CFA procedures were also used to examine convergent and discriminant validity of the model. Convergent validity was examined through factor (λ) loadings, composite reliability (ρ_c), and average variance extracted (AVE). A λ loading associated with a t value >1.98 is significant at the $\alpha = .05$ level and considered a good indicator of the underlying construct (Brown, 2006). To indicate evidence of convergent validity, the ρc values should be $\geq .70$ (Diamantopoulos & Siguaw, 2000), and AVE scores should be approximately $\geq .50$ (Fornell & Larcker, 1981). Discriminant validity was assessed by examining the latent correlations among the factors and replacing the diagonal elements of the correlation matrix with $\sqrt{AVE}$. When the factor correlations are $\leq .85$ and when $\sqrt{AVE}$ is larger than the correlation between the factors, the factors can be considered independent (Teo, Lee, Chai, & Wong, 2009).

Correlation Analysis

A correlational analysis was conducted to examine the extent to which the ToRQ subscales related to theoretically similar constructs. Specifically, the ToRQ subscales were expected to correlate positively with the subscales of the LSTS. A correlation coefficient $\geq |.10|$ is small and reflects a weak association, a coefficient $\geq |.30|$ indicates a moderate relationship, and a coefficient of $\geq |.50|$ is large and represents a strong relationship (Cohen, 1988).

Results

Preliminary Results

As displayed in Table 3, teachers in this physical education program were observed using seven of the nine teaching strategies reflected in the TARE 2.0. To relatively high degrees, teachers were seen modeling respect (M= 3.03, SD = .83), setting expectations (M= 2.98, SD = 1.00), providing opportunities for success (M= 2.39, SD = .97), fostering social interaction (M= 2.30, SD = 1.14), and assigning responsible tasks (M= 3.03, SD = .83). The sharing leadership roles with students and giving choices and voices were observed less often, and the teachers were not observed giving students' roles in assessment or directly promoting transfer. Despite the teachers' varied use of the observed strategies, students were seen engaging in all nine TARE 2.0 behaviors to varying degrees. The behaviors enacted most strongly included participation (M= 3.50, SD = .71), engagement (M= 3.36, SD = .82), showing respect (M= 2.94, SD = 1.02), cooperating with peers (M= 2.81, SD = 1.05), and encouraging others (M= 2.09, SD = 1.11).

Students were seen helping others, leading, expressing voice, and asking for help less often. While the results may have been stronger if the teachers had been specifically implementing the TPSR model, they are sufficient to indicate that state and curricular guidelines regarding the integration of personal and social responsibility in physical education and SEL were evidenced in practice. For the purposes of validating the ToRQ, the results are sufficient to show that students were exposed to the types of instruction and engaged in the types of behavior that would provide them a valid reference point for the topic of the surveys (i.e., responsibility and life skill development).

Exploratory Factor Analysis

The analytic procedure began with EFA to identify a stable factor structure using participant data collected during the first wave (see Table 2 for demographic data). The first EFA procedure on the 21 potential ToRQ variables extracted three factors and explained a 62.39% of the variance. The $\chi 2$ statistic was significant, $\chi 2(150) = 341.61$, $p < .001$, but the $\chi 2$ is highly dependent upon sample size and often significant in EFA models (Brown, 2006). In examining the pattern matrix, some variables failed to load significantly (factor loading <.32) or loaded on the incorrect factor, and there were significant cross-loadings. Item reduction was thus deemed necessary to identify a more stable factor structure. Through the process of item reduction, several potential factor structures were examined, but the one that was most theoretically justifiable and parsimonious included nine items, with three items loading on each factor (see Table 4). As hypothesized, the three factors included items that related to motivated use, expansion of perception, and experiential value.

In the final solution, all primary factor loadings were .45 or higher, and there were no significant cross-loadings (i.e., >.32). The model explained 81.78% of the variance, and the $\chi 2$ goodness-of-fit statistics was not significant, $\chi 2(12) = 17.98$, $p = .116$. The first factor represented expansion of perception, had an eigenvalue of 5.66, and explained 62.89% of the variance. Motivated use was reflected in the second factor, had an eigenvalue of 1.01, and explained 11.19% of the variance. The third factor, experiential value, had an eigenvalue of .69 and explained 7.70% of the variance. While the third factor had an eigenvalue below the commonly applied cut point of 1.00 (Guttman, 1954), it was retained in the model for two reasons. First, some scholars have criticized the arbitrary application of the eigenvalue greater than one principal (Cliff, 1988; Hayton, Allen, & Scarpello, 2004). Second, the experiential value factor made theoretical sense given that the survey was based on the notion of transformative experience.

Confirmatory Factor Analysis

Using data collected in Wave 2 (see Table 2 for demographic information), a CFA was conducted on the nine-item, three-factor ToRQ model suggested through the initial EFA. The

model fit statistics indicated that the model was a good fit for the data, $\chi 2(24) = 55.31$, $p < .001$, NNFI = .973, CFI = .982, SRMR = .027, RMSEA = .065 (90% confidence interval [.043, .089], p = .125). The ratio of $\chi 2$ to df was <3.00 (55.31/24 = 2.30). Goodness-of-fit was further supported by NNFI and CFI values >.95, and RMSEA and SRMR values <.08. The variance/covariance matrix for this model is presented in Table 5. Given that no theoretically justifiable changes were suggested through the model modification indices, this was deemed the final model, and it is depicted in Figure 1 with standardized factor loadings. The λ loadings, ρc and AVE values, and the latent correlation matrix are included in Table 6. All of the λ loadings were strong (≥.40) and significant (t > 1.98), and the ρc and AVE values were above the respective .70 and .50 cut points, which provides evidence of convergent validity. The latent correlations among the constructs were strong, but below the .85 cut point for discriminant validity. The $\sqrt{AVE}$ values were larger than the correlations between their constructs and other constructs in the model.

Table 3 Overview of Teacher Strategies and Student Behaviors as Captured on the TARE 2.0

Teacher strategies		**Student behaviors**	
Strategies	**Mean (SD)**	**Behaviors**	**Mean (SD)**
Modeling respect	3.03 (0.83)	Participation	3.50 (0.71)
Setting expectations	2.98 (1.00)	Engagement	3.36 (0.82)
Opportunities for success	2.39 (0.97)	Showing respect	2.94 (1.02)
Fostering social interaction	2.30 (1.14)	Cooperating with peers	2.81 (1.05)
Assigning tasks	2.66 (1.03)	Encouraging others	2.09 (1.11)
Leadership	0.41 (0.81)	Helping others	1.60 (1.10)
Giving choices and voices	0.50 (0.96)	Leading	0.49 (0.92)
Role in assessment	0.00 (0.00)	Expressing voice	0.53 (0.96)
Promoting transfer	0.00 (0.00)	Asking for help	0.28 (0.66)

Note. All values set to a 5-point scale that includes (0) absent, (1) weak, (2) moderate, (3) strong, and (4) very strong. TARE = tool for assessing responsibility-based education.

Descriptive Statistics and Correlational Analysis

Using the same group of 307 youth utilized for CFA, descriptive statistics and bivariate correlations were examined for the subscales of the ToRQ and select subscales of the LSTS (see Table 7). Based on the metric underlying each scale, the participants perceived moderate levels of motivated use, expansion of perception, experiential value, managing emotions, and resolving conflicts, and moderately high levels of goal setting, getting help from others, and helping others. All of the constructs correlated significantly and positively, as expected. The strongest correlations among the ToRQ subscales and the subscales of the LSTS were between getting help from others and experiential value ($r = .46$, $p < .001$), motivated use and resolving conflict ($r = .43$, $p < .001$), motivated use and goal setting ($r = .41$, $p < .001$), and motivated use and getting help from others ($r = .41$, $p < .001$). The weakest correlations were between motivated use and managing emotions ($r = .29$, $p < .001$), and expansion of perceptions and resolving conflicts ($r = .31$, $p < .001$).

Table 4 Factor Structure for the ToRQ After Conducting Factor Reduction Procedures

	Factors		
ToRQ items	MU (α .88)	EP (α = .91)	EV (α = .90)
I talk about responsibility and/or life skills just for the fun of it.	.99		
I love talking about responsibility and/or life skills.	.84		
I think about responsibility and/or life skills outside of this program just because I am interested in the ideas.	.46		
I notice examples of responsibility and/or life skills during this program.		1.03	
When I notice the ways other people behave, I think about them in terms of responsibility and/or life skills.		.76	
During this program, I see things in terms of responsibility and/or life skills.		.59	
I find that the ideas of responsibility and/or life skills make my experiences outside of this program more interesting.			.93
I am interested when I hear things about responsibility and/or life skills outside of this program.			.89

I find it exciting to think about responsibility and/or life skills outside of this program.			.61

Note. MU= motivated use; EP = expansion of perception; EV = experiential value, factor loadings below .32 are not omitted; ToRQ = Transfer of Responsibility Questionnaire.

Table 5 Variance/Covariance Matrix for All Items Included on the ToRQ and Entered Into CFA

Items	**EV1**	**EV2**	**EV3**	**EP1**	**EP2**	**EP3**	**MU1**	**MU2**	**MU3**
EV1	3.46								
EV2	2.13	2.96							
EV3	2.41	2.06	3.08						
EP1	1.67	1.32	1.50	2.79					
EP2	1.43	1.46	1.37	1.70	2.82				
EP3	1.51	1.37	1.37	1.83	1.59	3.03			
MU1	1.94	1.73	1.77	1.44	1.59	1.54	3.06		
MU2	1.83	1.80	1.55	1.61	1.47	1.49	2.12	3.24	
MU3	2.01	1.72	1.71	1.37	1.51	1.47	2.43	2.31	3.20

Note. MU= motivated use; EP = expansion of perception; EV = experiential value; ToRQ = Transfer of Responsibility Questionnaire; CFA = confirmatory factor analysis

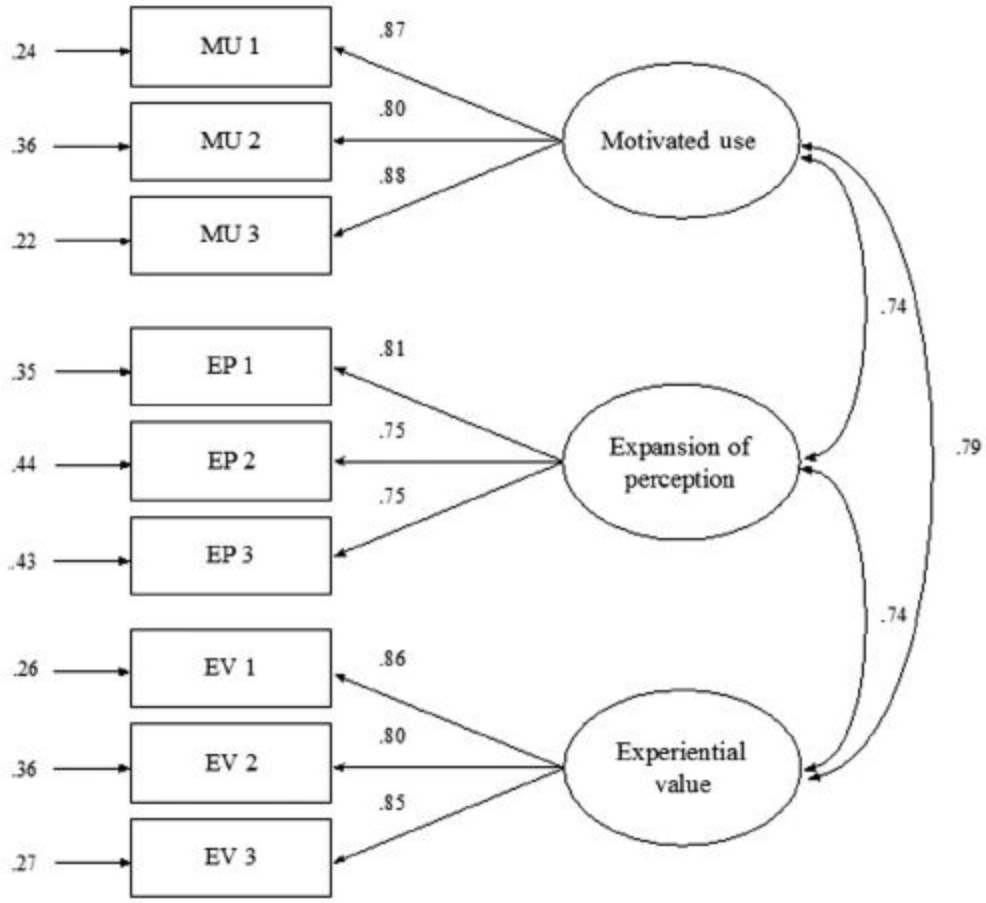

Figure 1 — Latent factor solution for the ToRQ with completely standardized λ loadings, $\chi 2(24) = 55.31$, $p < .001$, NNFI = .973, CFI = .982, SRMR = .027, RMSEA = .065 (90% confidence interval [.043, .089], p = .0125). Note. MU= motivated use; EP = expansion of perception; EV = experiential value; ToRQ= Transfer of Responsibility Questionnaire; NNFI = nonnormed fit index; CFI = comparative-fit index; SRMR = standardized root mean square residual; RMSEA= root mean square error of approximation.

Table 6 Convergent and Discriminant Validity for All Constructs Included in the Model

	λ loading		**t values**		**ρc**	**AVE**
Motivated use					.89	.72
MU1	.87[a]		-			
MU2	.80		16.53			
MU3	.88		18.01			

Expansion of perception					.81	.59
EP1	.81[a]		-			
EP2	.75		13.08			
EP3	.75		13.16			
Experiential value					.88	.70
EV1	.86[a]		-			
EV2	.80		17.14			
EV3	.85		19.75			
		EV		**MU**		**EP**
EV		(.84)				
MU		.74		(.76)		
EP		.79		.74		(.85)

Note. Diagonal elements of the correlation matrix have been replaced with $\sqrt{AVE}$, all factor loadings were significant (t > 1.98). MU= motivated use; EP = expansion of perception; EV = experiential value; ρc = composite reliability; AVE = average variance extracted.
[a]Factor loading fixed to 1.00.

Table 7 Descriptive Statistics For and Bivariate Correlations Among All Variables Included in the Study

Scale	**MU**	**EP**	**EV**	**ME**	**GS**	**RC**	**GHFO**	**HO**
MU	1.00							
EP	.58*	1.00						
EV	.62*	.60*	1.00					
ME	.29*	.35*	.37*	1.00				
GS	.41*	.40*	.34*	.52*	1.00			
RC	.43*	.31*	.36*	.49*	.43*	1.00		
GHFO	.41*	.39*	.46*	.49*	.56*	.53*	1.00	

HO	.34*	.37*	.35*	.49*	.49*	.53*	.62*	1.00
Mean	3.37	4.10	3.77	3.25	3.52	2.89	3.47	3.72
SD	1.72	1.58	1.70	1.14	1.19	1.06	1.15	1.09
Skew	.20	-.34	-.04	-.31	-.47	.10	-.44	-.79
Kurtosis	-.84	-.53	-.76	-.52	-.58	-.46	-.47	.26
Minimum	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Maximum	7.00	7.00	7.00	5.00	5.00	5.00	5.00	5.00

Note. n = 307 youth; ToRQ items were set to a 7-point, Likert-type scale ranging from 1 to 7; LSTS items were set to a 5-point, Likert-type scale ranging from 1 to 5; MU= motivated use; EP = expansion of perception; EV = experiential value; ME = managing emotions; GS = goal setting; RS = resolving conflict; GHFO = getting help from others; HO = helping others; ToRQ = Transfer of Responsibility Questionnaire; LSTS = Life Skills Transfer Survey.
*$p < .01$.

Discussion

The purpose of the present investigation was to propose and validate the ToRQ, an instrument for measuring the transfer of learning related to responsibility lessons promoted in physical education. In line with examples in the literature (Richards et al., 2016; Weiss et al., 2014), the item creation process involved (a) reviewing theory and previous research, (b) interviewing children in a physical activity environment, (c) creating a pool of items, (d) conducting a pilot study, and (e) finalizing the list of items. Reliability and validity for the ToRQ were then examined through a two-phase approach using EFA and CFA procedures. The results of these analyses support the reliability and validity of the ToRQ as a measure of the transfer of responsibility from physical education to other settings (e.g., home, classroom, and neighborhood).

Transfer of responsibility and associated life skills is a topic lacking empirical and theoretical support (Hastie, 2017; Jacobs & Wright, 2017; Weiss et al., 2014). There is debate in the literature regarding the nature of transfer and how it occurs (Gordon & Doyle, 2015; Jacobs & Wright, 2017), as well as inconsistent findings coming from empirical studies (Allen, Rhind, & Koshy, 2015; Holt, Tink, Mandigo, & Fox, 2008). Many scholars in TPSR and SBYD have equated transfer with observable behavior change (Walsh et al., 2010; Weiss et al., 2014; Wright et al., 2010). This is consistent with the approach taken by many in the broader fields of positive youth development and SEL (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2002; Durlak et al., 2011; Taylor et al., 2017). However, we argue here that focusing exclusively on

behavioral change oversimplifies the transfer process and fails to account for youth agency, as well as the cognitive and motivational processes that are central to transformative experiences (Jacobs & Wright, 2017; Pugh, 2002, 2004; Pugh et al., 2010). A more nuanced understanding of transfer based on Pugh's (2002, 2004) concept of transformative experience has also been integrated into a conceptual framework proposed by Jacobs and Wright (2017) for SBYD programs. Therefore, the ToRQ may be particularly useful in physical education and SBYD research.

While the ToRQ and its underlying theory, transformative experience (Pugh, 2002, 2004; Pugh et al., 2010), align with transfer as it is conceived in the broader SBYD literature, it is particularly applicable to the TPSR model (Hellison, 2011). Numerous reviews of the literature reflect well on the short-term responsibility outcomes associated with participation in TPSR programs, but acknowledge the need to for more conclusive evidence of transfer (Hellison & Martinek, 2006; Hellison & Walsh, 2002; Pozo et al., 2016; Weiss et al., 2014). While qualitative and case study methods will remain relevant in terms of understanding participant experience and contextual applications, complementing these approaches with quantitative measures will allow this body of literature to advance in terms of theory and empirical evidence (Wright, Dyson, & Moten, 2012). Other quantitative instruments have been created to reflect effective TPSR implementation (Escarti et al., 2015; Wright & Craig, 2011) and self-reported personal and social responsibility in the program setting (Li et al., 2008). The ToRQ complements these by addressing participants' cognition and motivation regarding the transfer of responsibility and life skills. This is a timely addition to the literature based on Hastie's (2017) recent comments: "With this notion of transfer in mind, it would also seem prudent for American-based researchers to explore student outcomes from TPSR programs and interventions (within physical education) to include variables other than those of simply behavior change" (p. 11).

In addition to helping researchers' study transfer and related outcomes in TPSR, the ToRQ can yield practical information for program development. Because the final version is relatively short, comprised of only nine items, it is a manageable size and feasible for use in practice. Program evaluators could use this instrument to examine the relative effectiveness of different strategies for promoting transfer (e.g., discussion, goal setting, journaling, service projects; Hellison, 2011). Such evaluations could yield concrete recommendations to share with current and future teachers/coaches through professional development and preparation programs. Finally, the continued development of such instruments will enable researchers to conduct comprehensive studies of TPSR. This could involve establishing pathways from program implementation through transfer of learning using structural equation modeling.

Even physical education teachers who are not implementing the TPSR model are expected to promote personal and social responsibility behavior by virtue of the national content standards (SHAPE, 2015). As with any other aspect of the curriculum, the ultimate aim of any learning objective is that the concepts and skills they represent can be applied or transferred beyond the program setting. In this light, it stands to reason that researchers in the United States

(and other nations with similar curricula) may find the ToRQ useful as a measure to assess transfer of responsibility learning. This may be particularly timely due to strong calls in the physical education literature to define and assess student learning outcomes and to use such data to define and assess teacher effectiveness (McKenzie & Lounsbery, 2013; Rink, 2013; Ward, 2013). The ToRQ may be useful in developing this line of research, as it relates to affective learning objectives in physical education and broader mandates to promote SEL in schools (Jacobs & Wright, 2014; SHAPE, 2015). While other instruments exist to assess such learning in the program setting (e.g., Li et al., 2008; Wright & Craig, 2011; Wright & Irwin, 2018), the ToRQ could expand the scope of such studies to include the transfer of learning to other settings.

Although this study makes an important contribution to the literature by providing initial evidence of reliability and validity for the ToRQ, it is not without limitations. First, the students were all middle-school-aged and from the Midwest region of the United States. Findings may not, therefore, generalize to youth from other regions of the United States or internationally, and further research will be required to evaluate the validity of the ToRQ among elementary and high school students. Second, the cross-sectional nature of the study prohibits the ability to examine the invariance of study constructs over time, negating the ability to discuss temporal stability. Third, it should be noted that the instrument validation process is ongoing and requires support gathered through multiple independent studies (Weiss et al., 2014). In this study, for example, the experiential value factor was associated with an eigenvalue below 1.00, which is the commonly applied cut point in EFA (Guttman, 1954). While the absolute nature of this cut point has been questioned (Cliff, 1988; Hayton et al., 2004), the retention of this factor should be interpreted with caution and examined with additional scrutiny through future research. As a result, the evidence for validity provided in this study should be viewed as preliminary, and it needs to be confirmed through future inquiry. Future research using the ToRQ will also have the opportunity to examine invariance across variables such as gender, age, and social status.

In addition to applications for scholars and practitioners working with TPSR and the notion of personal and social responsibility in physical education, this measure and the conceptualization of the transfer process it represents are relevant to the broader fields of SBYD and SEL (Jacobs & Wright, 2017). As noted earlier, numerous studies on SBYD and SEL, regardless of program content, report results in terms of behavior change and discrete outcome variables (Taylor et al., 2017). While these studies have clear value, the extent to which findings can inform practice may be limited due to the fact that they do not account for youth agency, cognition, or motivation (Jacobs & Wright, 2017). Therefore, the ToRQ, which represents a novel application of the transformative experience (Pugh, 2002, 2004), may serve as a model for instruments that can be developed and applied in a number of fields to gain a more nuanced understanding of what constitutes transfer in a SBYD or SEL program and how it occurs.

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