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Youth Cognitive Empowerment: Development and Evaluation of an Instrument

Paul W. Speer
Vanderbilt University

N. Andrew Peterson
Rutgers - The State University of New Jersey, New Brunswick

Brian D. Christens
University of Wisconsin-Madison

Robert Reid
Montclair State University, reidr@mail.montclair.edu

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ORIGINAL ARTICLE

Youth Cognitive Empowerment: Development and Evaluation of an Instrument

Paul W. Speer,[1] N. Andrew Peterson,[2] Brian D. Christens,[3] and Robert J. Reid[4]

Highlights

- Youth development of a cognitive understanding about social power
- Measurement of the factor structure of empowerment
- Advances empowerment theory and measurement with youth

Abstract Psychological empowerment (PE) is a multicomponent construct that involves the mechanisms through which people and groups gain control over their lives and environments. Psychological empowerment has previously been operationalized using measures of sociopolitical control among young people, with findings indicating links between PE and other positive developmental outcomes. Sociopolitical control, however, is only an indicator for the emotional component of PE. Research has largely neglected the cognitive component of PE, particularly in studies of younger people. In fact, few studies to date have presented and empirically tested measurement instruments for the cognitive component of PE among youth. In this study, we adapted a measure, which previously had been validated and used among adults, for use among young people and tested it in a sample of high school students (53% female, 75% Hispanic) in an urban school in the northeastern U.S. Confirmatory factor analyses were used to assess the hypothesized three-factor structure of cognitive empowerment, and the measure was examined for association with the construct of social justice orientation. Results indicate an adequate fit for the second-order factor, and an expected relationship with the related construct.

✉ Paul W. Speer
paul.w.speer@vanderbilt.edu

[1] Human & Organizational Development, Vanderbilt University, Nashville, TN, USA

[2] Rutgers, The State University of New Jersey, New Brunswick, NJ, USA

[3] Vanderbilt University, Nashville, TN, USA

[4] Montclair State University, Montclair, NJ, USA

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Introduction

Empowerment has been defined as "a group-based, participatory, developmental process through which marginalized or oppressed individuals and groups gain greater control over their lives and environments, acquire valued resources and basic rights, and achieve important life goals and reduced societal marginalization" (Maton, 2008, p. 5). Empowerment theorists have developed an integrated multilevel conceptualization of empowerment processes and outcomes at psychological, organizational, and community levels (Peterson & Zimmerman, 2004; Zimmerman, 1995, 2000). This multilevel conceptualization makes clear that empowerment is beneficial at a societal level for democratic functioning, at an organizational level for both the capacity to make meaningful social change and to support leadership development among participants, and at a psychological level for increased involvement, critical awareness, and increased sense of agency in the civic arena. Theoretical work on empowerment has provided an influential orientation for practice, and has also led to the development of associated measurement tools for research and evaluation across several academic disciplines and professional fields (e.g., Holden, Evans, Hinnant, & Messeri, 2005; Israel, Checkoway, Schulz, & Zimmerman, 1994; Stanton-Salazar, 2011).

At the psychological level, empowerment has been studied as the set of behavioral and psychological changes that occur as people participate in community and

organizational settings and gain skills, motivation, and critical understandings of how to take effective strategic actions. Psychological empowerment (PE) has most often been studied according to a multidimensional framework that specifies three components: behavioral, emotional (intrapersonal), and cognitive (interactional) (Zimmerman, 1995). The emotional (intrapersonal) component captures the confidence and capacity individuals feel they have about effectively acting for change in their communities. The emotional component draws concepts from of perceived control, self-efficacy, motivation to control, and perceived competence. The cognitive (interactional) component assesses the critical understandings individuals hold about how communities function and draws on concepts related to critical awareness, understanding causal agents and resource mobilization. The behavioral component is focused on participation and involvement, and the methods and frequency through which individuals actively participate in community life. Many questions remain about this component structure (Christens, 2012), and the relationships between components of PE (Peterson, 2014).

Within community psychology, the bulk of empowerment scholarship has focused at the psychological level of analysis, and the component of PE that has received the most attention to date is the emotional (or intrapersonal) component (Cyril, Smith, & Renzaho, 2016). Emotional empowerment refers to how individuals perceive their capacity to influence various domains in their lives, such as their family, school, friends, or community. Emotional empowerment has been assessed using the measure of sociopolitical control (Peterson et al., 2006; Zimmerman & Zahinser, 1991). Sociopolitical control is measured using a bidimensional framework composed of a leadership competence and a policy control dimension. Recent studies have developed and tested youth-specific versions of the sociopolitical control scale (Peterson, Peterson, Agre, Christens, & Morton, 2011), with findings that support the theorized bidimensionality of the construct among youth. Versions of this sociopolitical control scale for youth have recently been translated and adapted for use in Italy (Vieno, Lenzi, Canale, & Santinello, 2014) and Malaysia (Christens, Krauss, & Zeldin, 2016). Furthermore, sociopolitical control has been empirically linked with other indicators of wellbeing in young people, including mental health and educational achievement, as well as avoidance of risk behaviors such as tobacco use and bullying (Christens, Peterson, Reid, & Garcia-Reid, 2015; Zimmerman, Ramírez-Valles, & Maton, 1999).

This emphasis on sociopolitical control as an indicator of the emotional component of PE has resulted in a large and growing body of research literature examining the antecedents and outgrowths of sociopolitical control. Although many studies also examine behavioral empowerment, by comparison substantially less research has focused on the cognitive (or interactional) component of psychological empowerment.

Conceptually, the cognitive component of PE entails critical awareness of the forces that shape community and societal systems and environments, and the strategic understanding of what is required to make changes in these structures (Christens, 2012; Zimmerman, 1995). This cognitive component is therefore especially important for ensuring that the concept of PE is not limited to feelings and self-perceptions of agency (Christens, 2013; Riger, 1993), but includes knowledge and critical awareness of how such agency can be harnessed for strategic action (Pinderhughes, 1983). This is necessary for PE to truly be linked to community empowerment processes and transformative social power dynamics, and not to simply be an indicator of individualized efficacy (Cattaneo, Calton, & Brodsky, 2014; Christens, 2013; Speer, 2008).

Instruments for Measuring Cognitive Youth Empowerment

Scholarship on youth empowerment has increased in recent years, with some published studies reporting on the development of youth-focused cognitive (or interactional) empowerment. Instruments are limited, but those few instruments vary widely as to the factors through which cognitive empowerment is measured (Úcar Martínez, Jiménez-Morales, Soler Masó, & Trilla Bernet, 2017). Factors utilized across different youth empowerment instruments include sociopolitical skills, motivation to influence, participatory behavior, perceived control, assertiveness, advocacy, knowledge of resources, external organizational involvement, satisfaction with participation, social support mentors, adults as community resources, and resource mobilization (Eisman et al., 2016; Holden et al., 2005; Marr-Lyon, Young, & Quintero, 2008; Ozer & Schotland, 2011). Although this range of factors and the items reflecting these factors, are all interpreted through the lens of empowerment theory, some explicitly identify cognitive dimensions (Holden et al., 2005; Eisman et al., 2016), whereas others are more ambiguous in how their dimensions are linked to empowerment theory (Marr-Lyon et al., 2008; Ozer & Schotland, 2011).

Holden et al. (2005) identified three dimensions of their scale as reflecting cognitive empowerment: knowledge of resources ("What resources are available to your group in your community or school to help you work on tobacco issues?"), assertiveness ("I can talk with adults about issues I believe in"), and advocacy ("In the past year, how many times have you tried to convince other

students, your family, or friends to be more concerned about tobacco use?"). Similarly, Eisman et al. (2016) identified resource mobilization ("Adults can help me do a community project"), adults as community resources (measured as a count of how many adults could provide cognitive or instrumental support with problem-solving), and social support (measured by self-reported frequency of mentors providing encouragement, information, or caring). Ozer and Schotland (2011) identified sociopolitical skills ("I feel like I have a pretty good understanding of the important political issues which confront our society") and motivation to influence ("It is important for youth to try to improve our city even if we can't always make the changes we want"), whereas Marr-Lyon et al. (2008) identified external organizational involvement ("What other organizations have you ever been involved in?") as items reflecting youth cognitive empowerment.

Critique of Cognitive Youth Empowerment Measures

The conceptualization for some instruments explicitly focused on cognitive empowerment (Holden et al., 2005; and Eisman et al., 2016) is anchored in obtaining social and material supports rather than assessing a critical understanding of how a community functions, whereas other broad empowerment measures (Ozer & Schotland, 2011) and Marr-Lyon et al. (2008) are really more closely aligned with emotional and behavioral empowerment than cognitive empowerment. In the first two studies, adults are viewed as community resources who cultivate skills within youth to enhance youth problem-solving, coping with stress, and analysis of contexts. Adults, then, are presumed to serve as mentors or community resources who provide guidance, information, and advice about goods and services within the community, neighborhood, and schools that youth inhabit. Although adults are unquestionably resources for youth, an uncritical acceptance of this view misses important limitations. This orientation to adults is challenged in some studies where youth, particularly youth of color, report that communicating with adults in positions of authority is avoided as these figures are not viewed as reliable (Andres-Hyman, Forrester, Achara-Abrahams, Lauricella, & Rowe, 2007). Similarly, Arcidiacono, Procentese, & Di Napoli, 2007) found that in distressed neighborhoods youth had a lack of generalized trust, and avoided adults and authority figures. For young people to be effectively engaged in systems change processes, they do need supportive relationships with adults, but they also need the ability to collectively challenge some adults in decision-making positions.

Collectively, youth cognitive empowerment measures skew toward emotional empowerment (often in the sense of leadership competence) or behavioral empowerment. When items are more aligned with knowledge of sociopolitical systems, the focus is on youth knowledge of resources available to them, rather than assessing the extent to which youth question what resources are available, or whether youth understand how to alter the type or distribution of these resources. In this sense, existing measures of youth cognitive empowerment are designed to assess whether youth know how to navigate the systems in which they are embedded. This framing is one that accepts the status quo, which runs counter to much of what empowerment theory and community psychology seek to address (Cattaneo et al., 2014; Seidman, 1990). The disjuncture between theory and practice (and, we argue, measurement) was addressed by Kohfeldt, Chhun, Grace, and Langhout (2011) who emphasized the connection of empowerment theory to second-order change, and express concern about tokenistic participation by youth in what are claimed to be empowerment projects. They identified the need to focus youth on processes critical to social power, such as the shaping of narratives and discourses that frame how people understand what is "fair" or "right," rather than a singular focus on material resources as outcomes. Jennings, Parra-Medina, Hilfinger-Messias, and McLoughlin (2006) also critiqued the rather singular focus of youth empowerment measures, and stressed the importance of developing multidimensional measures that capture an understanding of sociopolitical processes, a sense of capacity to make change, and a political action component to enact such change.

Despite our critique of existing measures of youth cognitive empowerment, there also exists promising work in this arena. Rodrigues, Menezes, and Ferreira (2017) conducted a study measuring emotional, cognitive, behavioral, and relational dimensions of empowerment with a sample of youth (14–22 years of age). Although the cognitive empowerment instrument was an older version of an instrument designed for adults, this measure aligned more with assessing youth understandings of how to produce second-order change. While not explicitly linked to cognitive empowerment or empowerment theory more generally, Wagaman (2016) measured empowerment among LGBTQ youth utilizing items that capture critical thinking about the status quo, as well as items capturing agentic efforts by youth to alter systems. Items in this measure inquire about the frequency youth engage in particular efforts, such as "have you challenged someone who used negative language or a stereotype about people based on their race or ethnicity?," "have you engaged in collective action?," and "have you questioned an authority figure about an unfair policy, decision or action?". These items ask youth about challenging the system and, in contrast to measures explicitly designed as measuring cognitive empowerment, the Wagaman (2016) items do not

presume that adults are inherently valuable or trusted resources for youth.

Cognitive Empowerment as a Multidimensional Measure

In addition to measurement of cognitive empowerment in youth, several important studies have recently been conducted that advance measurement of the cognitive empowerment dimension of PE in relation to the emotional and behavioral dimensions articulated in theory. Miguel, Ornelas, and Maroco (2015) worked with a sample of adults to test the relationship between emotional, cognitive, and behavioral dimensions of empowerment with higher order models. As recommended by Jennings et al. (2006), they scrutinized a multidimensional cognitive measure of empowerment (Speer & Peterson, 2000), finding support for a three-factor structure using a second-order model. Although tested with adults, this study bolsters support for three factors of this cognitive empowerment measure (Speer & Peterson, 2000). Rodrigues et al. (2017) also examined the components of psychological empowerment as a higher order structure, adding the component of relational empowerment to emotional, cognitive and behavioral domains.

Particularly relevant to the current study, Eisman et al. (2016) tested a higher order factor structure in their study using the youth cognitive empowerment instrument described here. Eisman et al. did not test the factor structure of items for their cognitive empowerment scale, instead using item parcels, which refer to total subscale scores computed from sets of homogeneous items, and modeling cognitive empowerment as a first-order factor. While this approach is controversial (Johnson, Rosen, & Chang, 2011; Little, Rhemtulla, Gibson, & Schoemann, 2013; Sterba, 2011), there are circumstances where this approach is acceptable, but evidence for the appropriateness of applying item parcels in that study was not provided. Of greater concern, the test of the second-order factor model in Eisman et al.'s study appeared not to constrain a parameter in the higher order portion of the second-order model, thus reporting a fit with the data that was based on a model in which the higher portion of the model was just identified. Methodologists have cautioned against this approach and emphasized the importance of adding a constraint on at least one parameter of the upper level in such a model, so that it will be overidentified and have a different degree of freedom than that the first-order model (Bentler, 2005; Byrne, 2010). Researchers can then compare whether the second-order model provided a significantly worse fit to the data than the first-order model, providing evidence to (dis)confirm the presence of a higher order factor (Worthington & Whittaker, 2006). Furthermore, Eisman et al. (2016) correlated error terms of item parcels that were conceptualized as part of distinctly different components of PE, despite criticism of this approach (e.g., Joreskog, 1993). Lastly, Eisman et al. (2016) tested their model of PE by predicting a related construct, prosocial engagement, but results showed a much stronger relationship between PE and prosocial engagement than between PE and a majority of the subscales composing PE.

Although the youth empowerment instruments critiqued above are valuable for advancing study of youth development, on the whole they fall short of advancing theoretical conceptualizations of cognitive empowerment that assess critical awareness of the forces that shape community and social systems and environments (Cattaneo et al., 2014; Christens, 2013; Christens et al., 2016; Woodall, Warwick-Booth, & Cross, 2012). Previously developed measures of the cognitive facet of youth psychological empowerment deviate from the central premise of cognitive empowerment theory. Perhaps these deviations reflect presumptions about developmental capacities of youth; certainly, there are legitimate questions about youth developmental stages, and the associated capacities to understand the dynamics and contradictions embedded in community systems and social power. Nevertheless, there remains a critical gap in the literature between theoretical conceptualizations of cognitive empowerment and how this is measured with youth.

A Measure of Youth Cognitive Empowerment

There are two goals to this study. First, we seek to develop a measurement instrument for youth that assesses cognitive empowerment in a way that better aligns with theory (Zimmerman, 1995, 2000) than the instruments reviewed here. This entails survey items tailored to youth that reflect a multidimensional understanding of how social power operates to affect change in sociopolitical systems. As part of this effort, we structured our scale as a self-report measure (like the measures we critique), but rather than asking respondents to assess the magnitude of their own critical awareness (i.e., "How much do you understand the sociopolitical environment?"), we asks respondents how much they agree or disagree with statements reflecting social science understandings about how social power functions (i.e., "Influential people work to keep teens unaware of issues"). Second, we seek to advance theory by developing an understanding of cognitive empowerment that aligns with the construct as a multidimensional phenomenon. Consistent with Jennings et al. (2006), the instrument tested here views cognitive empowerment as a multidimensional construct entailing understandings of the source of power, the nature of power, and the mechanisms or instruments through which power is exercised. Recent research has

examined the factor structure of cognitive empowerment using second-order models to test the construct (Eisman et al., 2016; Miguel et al., 2015; Rodrigues et al., 2017), thus sharpening the importance of theory development in relation to empowerment.

Psychometric research on the cognitive component of PE has led to support for the reliability and validity of a multidimensional cognitive empowerment scale in samples of adult participants (Miguel et al., 2015; Speer, 2000; Speer & Peterson, 2000). Specifically, versions of this scale have been used to assess cognitive empowerment according to three dimensions drawn from theory (Speer, 2008): knowledge of (a) the source of social power, (b) the nature of social power, and (c) the instruments of social power. While there are additional theoretical perspectives on power that could be developed (Barnes, 1988; Haugaard, 2012; Hayward, 1998), the three dimensions addressed in this scale represent fundamental features of power for organizations and communities seeking to agentically shape their own community environments. The youth cognitive empowerment scale is based on the view that to effectively utilize power, people must develop stable organizations and collective structures as a source of power, these organizations must be capable of wielding some instruments of power, and they must understand the nature of power and how it functions in community. In this way, the scale seeks to capture critical awareness of how communities can harness strategic action.

Knowledge of the source of social power involves the awareness that individual actors are not capable of achieving social and systemic change by accessing available resources as an individual (contacting elected officials, following institutional procedures for grievances, etc.; Beh, 1997). Instead, organized groups of people working together are required to affect systems change (Speer & Hughey, 1995). This dimension therefore assesses an understanding of the importance of organized group relationships for the formation and successful exercise of social power.

Knowledge of the nature of social power involves awareness that with the exercise of social power for transformation and change, conflict is likely to result and thus readiness to deal with conflict when it arises is a critical component of understanding community change processes. Conflict emerges because powerful entities have vested interests in maintaining the status quo, a perspective supported by studies where elite interests were challenged and finding that conflict does occur in most cases (Albee, 1986; Alinsky, 1971; Domhoff, 2009). Those who lack an understanding of the nature of social power will often believe that transformative systemic changes can be accomplished in a purely collaborative or conflict-free way. This dimension of the cognitive component of PE therefore assesses youth understanding that conflict is highly likely in change processes, and should be anticipated due to the nature of social power.

Knowledge of the instruments of power involves understanding three common instruments through which social power is exercised: the ability to reward and punish, gatekeeping and agenda-setting capabilities, and the ability to shape beliefs and ideology. These three instruments of social power have been identified in successive waves of social science research on social power and community power structure. The ability of those with power to reward friends and punish enemies and to prevail in publicly visible disputes—is the most easily observed and understood of the three instruments (Polsby, 1958). Somewhat less easily observed and understood is the ability of those with power to determine agendas and to play gatekeeping roles in important decision-making arenas (Bachrach & Baratz, 1962). The least easily observed and understood instrument of social power is the ability of those with power to shape the narratives, perceptions, or ideology and public understandings of what is possible or reasonable in terms of social and political structure (Lukes, 1974; Gaventa, 1980). This instrument of power is what is sometimes used to shape dominant cultural narratives (Rappaport, 1995) or prevailing beliefs that certain aspects of the status quo are inevitable and natural, while transformative alternatives are impractical or otherwise unviable (Prilleltensky, 2008; Wright, 2013).

Method

Participants

Participants of this study were public high school students (n = 389) from a racially and ethnically diverse community. All students in 33 health classes within the school (approximately 1700 students in the school) were recruited for this study (health classes were mandatory for all students). Enrollment in those classes was approximately 790 students, making a response rate of about 50%. Those completing the study were 53% female; 75% Hispanic or Latina/o, 24% Black or African American, and 8% white, non-Hispanic. Approximately 33% of the participants were in the 9th grade, 27% were in the 10th grade, 19% were in the 11th grade, and 21% of the participants were in the 12th grade.

Procedures

Data were collected as part of a larger study to assist with the planning and implementation of a federally funded substance abuse and HIV/AIDS prevention initiative targeting

racial and ethnic minority youth in an urban school district located in the northeastern United States. Self-administered written surveys were distributed throughout health classes by members of the research team under teacher supervision. Before administering the surveys, institutional review board approval was obtained for the data collection procedures involving human subjects. Signed parental consent and student assent forms were completed for each student who participated in the study.

Measures

Cognitive Empowerment

The measure of cognitive empowerment was developed based on social science theories (Speer, 2008) about the nature and functioning of social power in community contexts. In contrast to other PE instruments which might ask respondents about direct experiences or to assess their own knowledge of, say, sociopolitical dynamics, survey items made statements about how social power functioned across three dimensions (source, nature, and instruments of power). Items were structured as if social theory were "correct," and respondents were asked to provide their level of agreement with those statements. A cognitive empowerment measure developed for adults (Speer & Peterson, 2000) was rewritten by the research team and pilot tested with youth. Research team members then met with youth to debrief youths' understanding of individual survey items. Based on analysis of pilot data and youth feedback, the research team revised items and conducted a second pilot test and youth debrief. Two minor modifications were made based on this second pilot study to finalize the instrument (items shown in Table 2). In some cases, items were adapted to reflect the fact that young people most often experience adults as the bearers of societal and institutional power (Camino & Zeldin, 2002). This scale had a mean of 3.79 (SD = .68, α = .88).

Social Justice Orientation

The four-item social justice orientation scale developed by Westheimer and Kahne (2004) was used to explore construct validity as cognitive empowerment has been hypothesized to be positively associated with a social justice orientation (Christens et al., 2016). In contrast to the predominant focus on citizenship and civic participation as solely an act of personal responsibility, this scale assesses the extent to which young people focus on social problems and structural critique (Flanagan, Syversten, & Stout, 2007). Items, rated for agreement along a five-point Likert-type response scale for agreement, included: "After high school, I will work with others to change unfair laws," and "I think it is important to challenge things that are not equal in society." This overall scale, generated from an average of all items, had a mean of 3.59 (SD = .95, α = .82).

Analytic Strategy

Table 1 reports the means, standard deviations, and correlations among the overall measure of youth cognitive empowerment, the three subscales, and the measure of justice-oriented citizen. In addition to examining this pattern of correlations, a confirmatory factor analysis (CFA) was performed to test the hypothesized three-factor structure of the youth cognitive empowerment scale (Y-CES) by comparing a first-order, one-factor model; a first-order, three-factor model; and a second-order model reflecting three underlying factors. Additionally, CFA was used to test a second-order factor structure of the multidimensionality of construct so as to advance empowerment theory. Finally, the Y-CES was tested relative to the justice-oriented citizen scale with a structural equation model (a fourth model) to assess the conceptual alignment of the scale with a related construct (i.e., the extent one is focused on social problems and structural critique).

Model Specifications

The psychometric properties of the Y-CES were evaluated with CFA using data from high school students. Drawing on theory and measurement development in previous research (Speer & Peterson, 2000; Zimmerman, 1995), we tested measurement models for a single factor structure, the hypothesized three-factor structure, and a second-order factor structure. This analytic approach was based on the theoretical understanding that cognitive empowerment among youth was a superordinate construct leading to

Table 1 Means, standard deviations, and correlations

	Mean	*SD*	Cognitive empowerment	Source	Nature	Instruments	Justice orientation
Cognitive empowerment	3.79	.68	1				.331[a]
Cognitive: source	4.02	.83	.799[a]	1			.369[a]
Cognitive: nature	3.69	.82	.823[a]	.515[a]	1		.209[a]
Cognitive: instruments	3.66	.80	.860[a]	.505[a]	.575[a]	1	.235[a]
Social justice orientation	3.59	.95	.331[a]	.369[a]	.209[a]	.235[a]	1

[a]Correlation is significant at the .01 level (2-tailed).

three subscales. CFA was executed with maximum likelihood estimation procedures of AMOS 24 (Arbuckle, 2011) and these models were then evaluated by examining indices from several measures of fit. The second-order factor structure draws on previous theoretical work hypothesizing that cognitive empowerment is superordinate (although research is continuing to test this perspective, including Peterson (2014) and Rodrigues et al. (2017)), which refers to a higher order construct that is manifested or reflected by the three dimensions that characterize individuals' cognitive understandings about the functioning of social power. Finally, we examined the validity of this measure using the second-order factor model to predict a measure theorized to be associated with cognitive empowerment. Prior to the analysis, two items were dropped from the scale due to low reliability. When executing the CFA, four correlations for error terms in relation to items were included due to similarity of concepts and wording of the items thought to influence shared error variance.

Results

To test this instrument, we included a one-factor or unitary model in addition to the hypothesized three-factor model to allow for more rigorous statistical tests to compare with the multidimensional and second-order models. Factor loadings for the CFAs on individual items in the cognitive empowerment scale are shown in Table 2.

Model 1 (M1): The unitary model. This model examines the fit of items loading together as a single factor of how youth understand the operation and functioning of social power. All 12 items of the cognitive empowerment scale were forced to load on a single latent factor.

Model 2 (M2): First-order, three-factor model. This tested how the 12 items loaded onto three factors. All items loaded at .4 or higher on one and only one factor. The items loaded onto three separate factors in ways expected by theory (either the source of power, the nature of power, or the instruments of power).

Model 3 (M3): Second-order factor model. In the model specifications, a second-order factor was identified that accounted for the covariations among the first-order factors. The second-order factor had one parameter constrained at the second-order level to avoid a just-identified model (Byrne, 2010) (see Figure 1).

Model 4 (M4): To help validate this model, the second-order factor model was tested with regression to predict the measure of justice-oriented citizen, a construct conceptually related to cognitive empowerment (see Figure 2).

Model Evaluations

Table 3 presents fit indices for the CFAs performed in our study. The one-factor solution for the Y-CES (M1)

Table 2 Means and standard deviations for items on Youth Cognitive Empowerment Scale (n = 389) and factor loadings for one- and three-factor confirmatory factor models

			Factor loadings			
				3-factor model		
Item	*M*	*SD*	1-factor model	Source	Nature	Instrmt
Only by working together can teens make changes in [X][b]. [work together]	4.17	.961	.615	.642		
The only way I can affect community issues is by working with other teens. [community issue]	3.74	1.14	.610	.751		
To improve [X], it is better to work with a group than alone. [work as group]	4.29	.997	.634	.708		
The only way I can improve [X] is by working with other teens. [work with teens]	3.90	1.13	.641	.787		
If teens are making changes in [X], sooner or later they will face difficulties. [face difficulties]	3.49	1.29	.422		.485	
Those with power try to stop teens who challenge them too much. [stop challenge]	3.74	1.06	.639		.720	
When teens work for change, it doesn't take long for them to experience negative consequences. [negative consequence]	3.65	1.1	.628		.754	
Adults undermine teens that work for changes that these adults dislike. [adults undermine]	3.60	1.03	.711			.739
When teens raise issues, schools and communities ignore the issues they don't agree with. [ignore issues]	3.49	1.1	.595			.630
Influential people work to keep teens unaware of issues. [keep unaware]	3.56	1.13	.628			.669
Those with power can get most teens to believe what the powerful want. [power to believe]	3.65	1.13	.629			.660
School officials, politicians, and other authorities are able to get teens to see most things from their point of view. [authority power]	3.70	1.093	.591			.581

[a]Standardized regression coefficients.
[b]X = insert name of community.

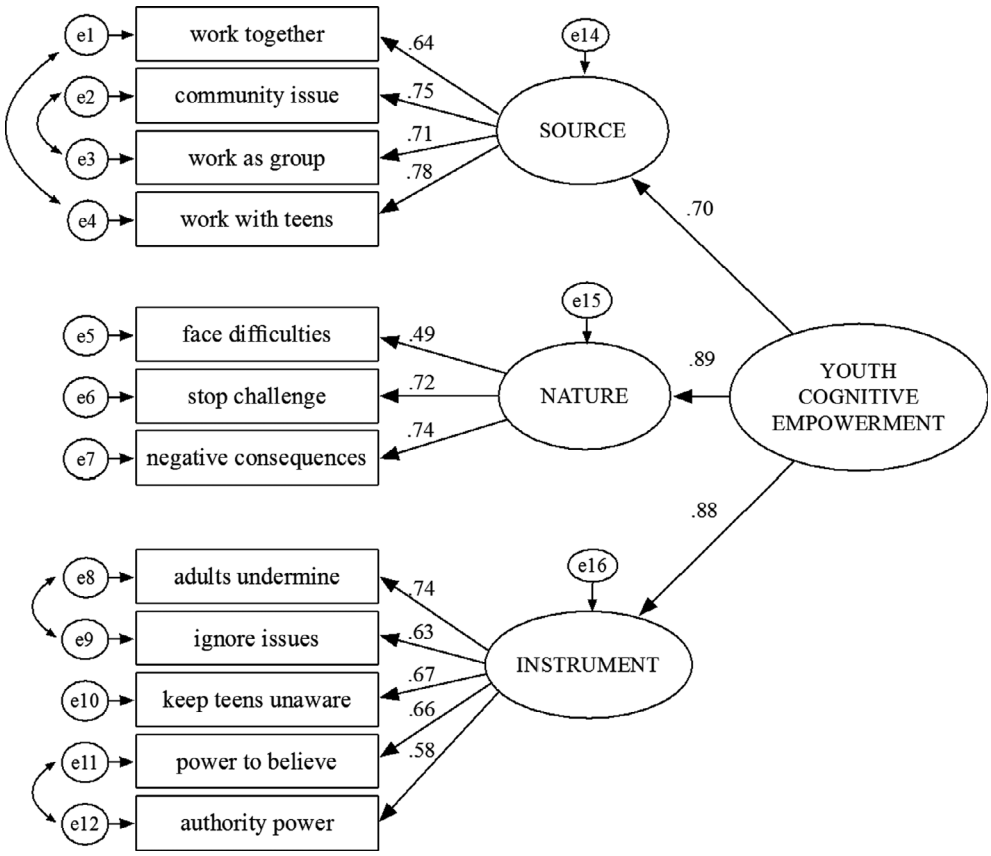

Fig. 1 Second-order CFA model. Standardized estimates shown, all significant paths at .01 level. Error correlations community issue and work as group: −.28; work together and work with teens: −.16; ignore issues and keep teens unaware: .13; and power to believe and authority power: .30

provided a poor fit to the data from the sample. As can be seen in Table 1, the discrepancy X^2 for Model 1 was statistically significant; however, this test is often considered too stringent and an unrealistic standard (Johnson et al., 2011). The discrepancy-to-*df* ratio value was >2.0; and the values for the Tucker–Lewis Index (TLI) and Comparative Fit Index (CFI) were below .90, indicating poor fit for the 1-factor solution. In addition, the root mean square of error approximation (RMSEA) for M1 was well beyond the .08 threshold for acceptable model-to-data fit (Browne & Cudeck, 1992). Contrary to the one-factor solution, the three-factor solution for the Y-CES (M2) provided a good fit to the data. As shown in Table 3, the discrepancy X^2 for M2 was also statistically significant at the .01 level but this is acceptable (Fabrigar, Wegener, MacCallum, & Strahan, 1999); the discrepancy-to-*df* ratio value was <2.0; and the values for the TLI and CFI were above .90, indicating good fit for the 3-factor solution. In addition, the RMSEA for M2 was within the threshold for acceptable fit. Values for the Aikake information criterion (AIC) shown in Table 3 are interpreted such that the AIC model value closest to the AIC saturated value is considered as providing the better fit to the data. Table 3 shows that M3 had the AIC value closest to saturated AIC value, indicating that the second-order factor model provided a better fit to the data than the first-order, three-factor model.

Also shown in Table 3, the second-order factor fit indices show very slight improvements in most indexes (RMSEA improves from .042 to .039, and the AIC improves from 164.5 to 161.9 in the three-factor, first-order solution compared to the second-order factor solution, respectively). A chi-square difference test between M2 and M1 was significant [$\Delta X^2 = 204.9$; $\Delta df = 4$; $p = .001$]. M3 and M2 was nonsignificant [$\Delta X^2 = .4$; $\Delta df = 1$; $p > .05$, ns], but the rough equivalence in the two models, the slight improvements in fit indices for the second-order factor structure, and the more parsimonious second-order model leads to an acceptance of the second-order model as the preferred solution to this measure (Graham, Guthrie, & Thompson, 2003; Kahn, 2006). Figure 1 shows path coefficients for the final second-order CFA model (M3).

Youth Cognitive Empowerment and Related Constructs

To explore the utility of the Y-CES, particularly its relationship with related constructs, we conducted a full structural equation model of the scale—including not only the measurement model, but also the structural relationship between

latent constructs representing cognitive empowerment and social justice orientation. The measure of social justice orientation reflects those with an orientation to "critically assess social, political, and economic structures and consider collective strategies for change that challenge injustice" (Westheimer & Kahne, 2004, p. 239). Whereas the social justice orientation scale assesses the degree to which one thinks critically about the world-as-it-is, and is attentive to social justice outcomes in the community and society, the Y-CES assesses one's understanding of the mechanisms that shape community outcomes. This correspondence allows for a test of the predictive validity of the Y-CES instrument to scores on the justice-oriented citizen. Results of model fit can be seen in Table 3 (M4) and the overall model with path coefficients is shown in Figure 2. The Y-CES significantly predicted social justice orientation, $R^2 = .16$.

Discussion

Results were supportive for use of the Y-CES tool to assess the cognitive empowerment of youth, and the

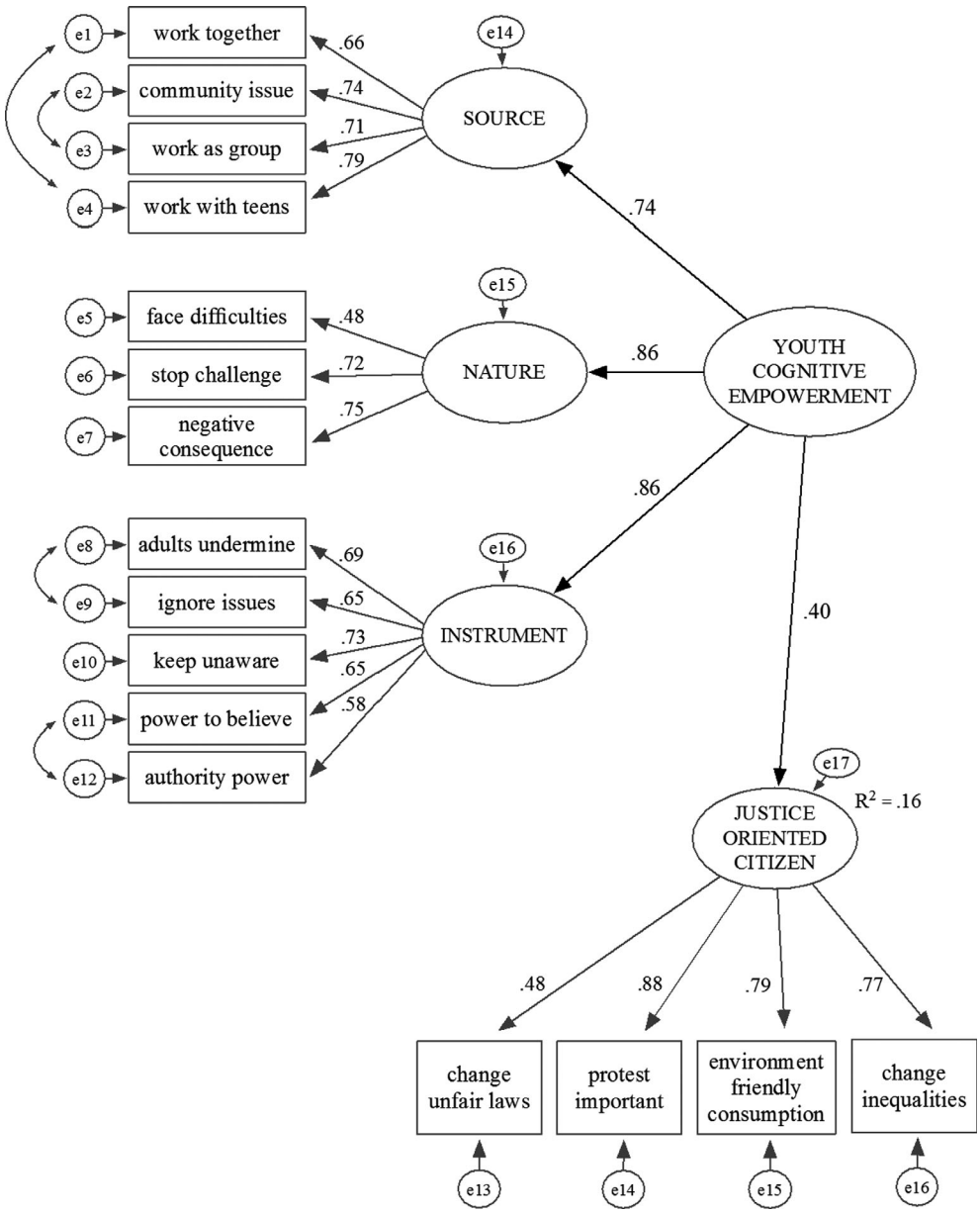

Fig. 2 Second-order CFA model predicting social justice orientation. Standardized estimates shown, all significant paths at .01 level. Error correlations community issue and work as group: −.17; work together and work with teens: −.16; ignore issues and keep teens unaware: .13; and power to believe and authority power: .30

Table 3 Fit statistics for youth cognitive empowerment confirmatory factor analyses

Measures of fit	Models			
	M1: one factor	M2: three factor	M3: second order	M4: second order validation
Discrepancy X^2	283.2	78.5	77.9	184.5
df	51	47	48	97
p value	0	.003	.004	0
Discrepancy/*df*	5.55	1.67	1.62	1.9
TLI	.766	.972	.968	.942
CFI	.847	.98	.981	.959
RMSEA	.108	.042	.039	.048
90% CI	.096, .121	.025, .057	.022, .055	.038, .059
AIC model	361.2	164.5	161.9	294.5
AIC saturated	180	180	180	304
ECVI	.931	.424	.399	.759
90% CI	.804, 1.08	.371, .497	.349, .468	.670, .868

measure significantly predicted the related construct of social justice orientation. Although not overwhelming, these results are supportive of the idea that cognitive empowerment can be conceptualized as a higher order factor composed of three dimensions reflecting understanding of how social power functions in community settings. Results provide an important empirical basis for this measure of cognitive empowerment as manifested among adolescents. In addition, findings in support of the second-order factor structure offer an important challenge to how previous measures have been conceptualized, and suggest that youth are cognizant of the deeper systemic challenges we all face in society—thus providing a tool to advance community psychology as an action science capable of challenging systems and the status quo (Seidman, 1990). Particularly, in relationship with cognitive understandings of power, this measure offers a rich conceptualization and validated measurement tool for scholars working to understand critical understandings about community power processes as discerned by youth. Developmentally, adolescents are at a stage where contradictions between the representations they have been socialized into by schools, parents, and various community institutions are challenged by the lived experiences and understandings that youth confront. Future research should examine how cognitive understandings of power at different developmental stages impact youth development. Perceptions and understandings of social power are likely to impact youth development in important ways. Additionally, the predominant Latino sample should be considered more fully, both for developmental questions and in general use of this instrument across diverse races and ethnicities.

Although other valuable youth cognitive empowerment measures exist, other measures predominantly assess how youth feel about their knowledge of how to act and engage with communities—or they draw heavily on assumptions that youth have access to trusted, supportive adults who will support the empowerment of youth. All previous measures of youth cognitive empowerment deviate from conceptualizations of a critical understanding of how social power functions in communities, and have an implicit framing that youth cognitive empowerment is about leveraging existing resources rather than questioning the system itself. In contrast, cognitive understandings about how power functions in communities emerge for youth as they learn about their world and process the contradictions they are confronting. Both emotional and cognitive measures are important—a singular focus on either emotional empowerment or cognitive empowerment may miss critical understandings of the empowerment process.

This current study has several limitations. It is a cross-sectional study of high school aged youth in a single urban high school in the northeastern United States. The instrument was tested with a predominantly Latino sample, and although this measure was focused on assessing youth understandings of how social power functioned (rather than the impact of social power on individual youth—where race, ethnicity, and other social classification would deeply influence results), future research should explore variability in understandings across various social classifications. Also, future research should explore how cognitive empowerment varies across different groups of youth, how it evolves over time, and how it varies based on different life experiences of youth. For example, the participants in this study were from the 9th to 12th grade whereas in the Eisman et al. sample they were from middle schools (age 11–16)—these age differences may be very important for the appropriateness of different types of measures. There is also a need to study this construct in relation to emotional empowerment and other related constructs like critical consciousness (Diemer, Rapa, Park, & Perry, 2014; Watts, Diemer, & Voight, 2011).

Although this study focused specifically on the cognitive component of psychological empowerment, further study is needed to understand the relationship between this component and psychological empowerment as a whole. Specifically, there is a need to consider the Y-CES in relation to measurement theory, and explore whether the superordinate approach tested in this study is appropriate, or whether an aggregate measurement method is a more appropriate approach for cognitive empowerment and other components of psychological empowerment (Peterson, 2014). Several other recent studies have tested alternative models for understanding the relationship between psychological empowerment and its various hypothesized components (e.g., Miguel et al., 2015; Rodrigues et al., 2017), and this is an important direction for future research.

An additional understudied area of youth empowerment is the long-term impact that youth engagement in empowering processes may have on individuals. We believe that individuals must cultivate an emotional feeling or psychological belief that they can be effective actors in shaping their world. However, our view is that this feeling of potential efficacy is necessary but not sufficient for genuine impact and healthy development—we believe critical understandings of how power functions within communities is also required to affect social change. We have too little understanding of what happens to youth who participate in efforts that are successful in producing social change versus those who participate in efforts that are ineffective. One extremely important example is a study of youth involvement in the U.S. Civil Rights Movement (McAdam, 1990). This study found that youth who participated with the Student Non-Violent Coordinating Committee (SNCC) in the "Freedom Summer" went on to be exceptionally engaged and civically productive individuals, and as a group they were remarkably impactful in shaping our world. The richness of this study is that McAdam compares those individuals who participated, with a comparison group that applied for, and were accepted to participate, but for diverse reasons were unable to engage in SNCC Freedom Summer activity. So, although the groups were comparable in terms of selection, the long-term trajectories for those able to participate was vastly different from those unable to engage in these social change activities. Although the context of Freedom Summer represents a dramatic example, the substantial group differences illuminated in this natural experiment raise profound questions for scholars focused on youth development and empowerment scholars studying the relationship between feelings of agency and critical understandings of how social power operates. Many other experiences of youth civic participation may lack the same type of developmental quality (Ferreira, Azevedo, & Menezes, 2012).

The measure developed and tested in the current study is one tool to help scholars begin to examine these exceptionally important developmental processes more deeply. Our emphasis in this study has been to develop a measurement tool for the cognitive component of psychological empowerment that is tailored explicitly to youth, conceptualized from social science theory about community-level power processes, and psychometrically sound, to allow for richer future research and enhancement of empowerment theory in support of social change.

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