

Development and Validation of the Critical Consciousness Scale

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Abstract

This article details the development and validation of a measure of critical consciousness, defined as the capacity of oppressed or marginalized people to critically analyze their social and political conditions, endorsement of societal equality, and action to change perceived inequities. In Study 1, an exploratory factor analysis (EFA) was conducted with a diverse sample of youth, resulting in three internally consistent factors: (a) Critical Reflection: Perceived Inequality, (b) Critical Reflection: Egalitarianism, and (c) Critical Action: Sociopolitical Participation. In Study 2, a confirmatory factor analysis (CFA) was completed with a new sample of youth. Strong model fit estimates in Study 2 confirmed the factor structure of Study 1 and resulted in a final 22-item measure called the “Critical Consciousness Scale” (CCS). The CCS has the potential to unite and advance the fragmented conceptualization and measurement of critical consciousness, the primary motivation for the development of the scale.

Keywords

critical consciousness, sociopolitical development, marginalized youth, scale development

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Critical consciousness (CC) represents oppressed or marginalized people's critical analysis of their social conditions and individual or collective action taken to change perceived inequities (Freire, 1973; Watts, Diemer, & Voight, 2011). Paulo Freire developed CC as a pedagogical method to help Brazilian peasants learn to "read the word" as well as "read the world," fostering literacy and the capacity for oppressed people to think critically about inequitable social conditions and take action to change them (Freire, 1993). These aspects of CC have been conceptualized as *critical reflection* and *critical action* (Prilleltensky, 2012; Watts et al., 2011). *Critical reflection* itself is composed of two subcomponents: (a) critical analysis of perceived social inequalities, such as racial/ethnic, gendered, and socioeconomic constraints on educational and occupational opportunity; and (b) egalitarianism, the endorsement of societal equality. The second component of CC has been conceptualized as *critical action*, which entails participating in individual and/or collective action to produce sociopolitical change. In sum, CC is characterized as "reflection and action upon the world in order to transform it" (Freire, 1993, p. 51).

Scholars have considered CC in disparate contexts since its inception, such as among indigenous people in Ecuador (Smith, 1975), South African youth (Campbell & MacPhail, 2002), urban youth of color in the United States (Berg, Coman, & Schensul, 2009; Diemer, Kauffman, Koenig, Trahan, & Hsieh, 2006), and urban African American (O'Connor, 1997) and Puerto Rican youth in the United States (Ramos-Zayas, 2003). CC has also informed contemporary theoretical frameworks, such as Watts' sociopolitical development theory (SPD; Watts, Griffith, & Abdul-Adil, 1999; Watts & Flanagan, 2007), Ginwright's social justice youth development theory (SJYD; Ginwright & James, 2002), empowerment theory (Speer & Peterson, 2000), and Zimmerman's notion of sociopolitical control (Zimmerman, Ramírez-Valles, & Maton, 1999; Zimmerman & Zahniser, 1991), which also frame how marginalized people wrestle with their social conditions and develop human agency despite structural constraints.

Critical consciousness and related theories (i.e., SPD, SJYD) argue that CC provides an "antidote" to the deleterious effects of structural oppression, in that the critical analysis of societal inequalities and participation in action to change inequity unlocks the individual and collective human agency that is constrained by sociopolitical inequities (Freire, 1993; Ginwright & James, 2002; Prilleltensky, 2012; Watts et al., 1999). Accordingly, CC has been associated with a host of desirable individual-level outcomes among marginalized people, such as healthier sexual decision-making among South African youth of color (Campbell & MacPhail, 2002), mental health among urban adolescents (Zimmerman et al., 1999), academic achievement and

engagement among urban African American (O'Connor, 1997) and Puerto Rican youth (Ramos-Zayas, 2003), political participation among poor and working-class youth (Diemer & Li, 2011), positive career outcomes among female survivors of domestic violence (Chronister & McWhirter, 2006), engagement with one's future career among urban (Diemer et al., 2006) and poor or working-class youth of color (Diemer et al., 2010), and, when measured during adolescence, the attainment of higher-paying and more prestigious occupations in early adulthood (Diemer, 2009).

Similarly, CC has also been found to be important in fostering institutional and/or community-level change, via community organizing (Speer & Peterson, 2000) as well as through positive youth development and social action efforts (Berg et al., 2009; Christens & Dolan, 2011; Ginwright & James, 2002). In these contexts, CC has been shown to be a central component of a marginalized group's collective effort to produce sociopolitical change via transformative activism and civic engagement.

Despite scholars' attention to CC in new theoretical frameworks and the linkages of CC to positive outcomes at both the individual and collective levels, one vexing problem in CC scholarship is the inconsistent conceptualization and measurement of CC (see Watts et al., 2011). Quantitative scholarship has only measured CC by repurposing scales developed to measure other constructs as proxy measures of CC. For example, critical reflection was measured by the proxy of inverted scores on the Social Dominance Orientation measure (Diemer & Blustein, 2006) and critical action by the proxy of Sociopolitical Control Scale scores (Diemer et al., 2006). Qualitative scholarship has used divergent conceptions of CC (Gordon, 2007; O'Connor, 1997; Ramos-Zayas, 2003; Taft, 2006), reliant on researchers' idiosyncratic conceptions of critically conscious responses as indicators of CC (Watts et al., 1999).

While recognizing the importance of scholarly innovation and reformulation, the fragmented and indirect approaches taken to conceptualize and measure CC limit our understanding of what CC is and which of its component parts (i.e., critical reflection vs. critical action) is associated with a given outcome. This has ultimately limited the advancement of CC scholarship. In short, *no scale exists that was explicitly designed to measure CC*. A scale explicitly designed to measure CC has the potential to unite and advance scholarship, which has relied on indirect and conflicting measures. Therefore, this article details the development and validation of the Critical Consciousness Scale (CCS).

The Present Study

This study details the development and validation of the Critical Consciousness Scale (CCS) with diverse young people. In Study 1, we describe the

development of the CCS and explore its reliability and factor structure using exploratory factor analysis (EFA). In Study 2, we use confirmatory factor analyses (CFA) to attempt to replicate the factor structure identified via the EFA analyses with a new and independent sample of participants.

Method

Instrument

CC is theorized to be composed of two subcomponents. The critical reflection component encompasses critically reflecting on perceived societal inequalities as well as the endorsement of societal equality; the critical action component encompasses individual or collective action taken to change perceived social inequalities (Freire, 1993). Guided by Freire's (1973, 1993) theoretical framework, the first author developed 46 items (either newly written or modified versions of existing items) to measure these CC components.

A number of critical reflection items were developed to gauge consciousness of racial/ethnic, gendered, and socioeconomic constraints on educational and occupational opportunity. Other critical reflection items were developed to assess the endorsement of equitable relations among societal groups, consonant with the rejection of unequal social position, status, and privilege between socially constructed groups (Diemer & Blustein, 2006). Items were also crafted to assess respondents' critical action, or the degree to which they have participated in individual and/or collective action to produce sociopolitical change.

Because this scale was developed for use with youth or adult populations, care was taken to write or adapt items that were clearly worded. The initial 46 items were written at a 10th grade reading level, according to the Flesch–Kincaid statistic of 9.6. The modified items were drawn from various measures and large-scale surveys, as detailed in Table 1. Items derived from previous measures or large-scale surveys were modified by the authors prior to inclusion in the CCS.

CCS items were initially piloted with graduate student reviewers, who were asked to rate the clarity and readability of each item, to rate how well each item appeared to measure CC, to suggest revisions, and to provide additional item suggestions. The items were then revised by the first author. Respondents are asked to answer each of these 46 items on a 6-point Likert-type agreement scale from *strongly disagree* to *strongly agree* for Critical Reflection items and on a 5-point behavioral frequency scale from *never did this* to *at least once a week* for Critical Action items.

Table 1. Listing of Original CCS Items and Sources.

CCS item	Item adapted from	Citation
1. Certain racial or ethnic groups have fewer chances to get a good high school education.	CivEd#BS4F1	Williams et al. (2002)
2. Poor children have fewer chances to get a good high school education.	CivEd#BS4F3	Williams et al. (2002)
3. Certain racial or ethnic groups have fewer chances to get good jobs.	CivEd#BS4F5	Williams et al. (2002)
4. Women have fewer chances to get good jobs.	CivEd#BS4F6	Williams et al. (2002)
5. Poor people have fewer chances to get good jobs.	Written by first author	
6. Certain racial or ethnic groups have fewer chances to get ahead.	MADICS Wave5 #482 and CivEd	MADICS website and Williams et al. (2002)
7. Women have fewer chances to get ahead.	MADICS Wave5 #500 and CivEd	MADICS website and Williams et al. (2002)
8. Poor people have fewer chances to get ahead.	MADICS Wave5 #500 and CivEd	MADICS website and Williams et al. (2002)
9. Poor people have the same opportunities as everyone else.	Written by first author	
10. Social and economic inequalities exist because some groups have more ability than others.	Written by first author	
11. All racial/ethnic groups have the same opportunities in our society.	Written by first author	
12. Some groups of people are simply inferior to other groups.	SDO#1	Pratto, Sidanius, Stallworth, and Malle (1994)
13. It is OK if some groups have more of a chance in life than others.	SDO#3	Pratto et al. (1994)
14. It is a good thing that certain groups are at the top and other groups are at the bottom.	SDO#6	Pratto et al. (1994)
15. Inferior groups should stay in their place.	SDO#7	Pratto et al. (1994)
16. It would be good if groups could be equal.	SDO#9	Pratto et al. (1994)
17. Group equality should be our ideal.	SDO#10	Pratto et al. (1994)
18. All groups should be given an equal chance in life.	SDO#11	Pratto et al. (1994)

(continued)

Table 1. (continued)

CCS item	Item adapted from	Citation
19. We would have fewer problems if we treated people more equally.	SDO#14	Pratto et al. (1994)
20. There is not much that young people can do to solve major social problems like racism and environmental pollution.	YSRS#7	Pancer, Pratt, Hunsberger, and Alisat (2007)
21. It is important for people to speak out when an injustice has occurred.	YSRS#8	Pancer et al. (2007)
22. Young people have an important role to play in making the world a better place.	YSRS#14	Pancer et al. (2007)
23. It is important for young people to know what is going on in the world.	YSRS#18	Pancer et al. (2007)
24. Teenagers should just enjoy themselves and not worry about things like poverty and the environment.	YSRS#19	Pancer et al. (2007)
25. Participated in a civil rights group or organization.	MADICS, Wave 4#21	MADICS website
26. Participated in a political party, club, or organization.	YII#6	Pancer et al. (2007)
27. Wrote a letter to a school, community newspaper, or publication about a social or political issue.	YII#17 and CivEd	Pancer et al. (2007)
28. Contacted a public official by phone, mail, or email to tell him or her how you felt about a social or political issue.	YII#21	Pancer et al. (2007)
29. Joined in a protest march, political demonstration, or political meeting.	YII#22 and CPHS#65	Pancer et al. (2007)
30. Worked on a political campaign.	YII#27	Pancer et al. (2007)
31. Participated in a discussion about a social or political issue.	YII#29	Pancer et al. (2007)
32. Participated in a social action group.	NELS and ELS item	Curtin, Ingels, Wu, Heuer, and Owings (2002) and Ingels et al. (2005)
33. Signed an email or written petition about a social or political issue.	CPHS#66 and CPHS#67	Lopez et al. (2006)

(continued)

Table 1. (continued)

CCS item	Item adapted from	Citation
34. You did NOT buy something because of conditions under which the product is made, or because you dislike the conduct of the company that produces it.	CPHS#69	Lopez et al. (2006)
35. Bought a certain product or service because you like the social or political values of the company that makes it.	CPHS#69	Lopez et al. (2006)
36. Participated in a human rights, gay rights, or women’s rights organization or group.	CivEd#BSGAS07; MADICS, WWave 5 #272	Williams et al. (2002) and MADICS website
37. Confronted someone who said something that you thought was racist or prejudiced.	Written by first author	
38. Confronted someone who said something that you thought was sexist or prejudiced.	Written by first author	
39. Political issues are not relevant to people who are not old enough to vote.	YSRS#26	Pancer et al. (2007)
40. It is important to be an active and informed citizen.	ELS#FIS40P	Ingels et al. (2005)
41. It is important to correct social and economic inequality.	ELS and NELS	Curtin et al. (2002) and Ingels et al. (2005)
42. It is important to confront someone who says something that you think is racist or prejudiced.	CPHS#93	Lopez et al. (2006)
43. We should work to make homosexuality more accepted by society.	CPHS#95	Lopez et al. (2006)
44. It is my responsibility to get involved and make things better for society.	CPHS#87	Lopez et al. (2006)
45. People like me should participate in the political activity and decision-making of our country.	SPCS#14	Zimmerman and Zahniser (1991)
46. It does not matter whether I participate in local organizations or political activity because so many other people are involved.	SPCS#7	Zimmerman and Zahniser (1991)

Note. CCS = Critical Consciousness Scale; CivEd = Civic Education Study; MADICS = Maryland Adolescent Development in Context Study; SDO = Social Dominance Orientation measure; YSRS = Youth Social Responsibility Scale; YII = Youth Inventory of Involvement; CPHS = Civic and Political Health Survey; NELS = National Education Longitudinal Study; ELS = Education Longitudinal Study; SPCS = Sociopolitical Control Scale.

Sampling Strategy

Because CC frames how people think about and act on marginalizing social conditions, we recruited participants whom we assumed would experience racial/ethnic and socioeconomic marginalization, based on their demographic characteristics. Participants were recruited from high schools within three sites, two urban areas and an African American high school student association. At each of the three sites, parental consent and participants' assent was obtained prior to participation.

These sites afforded sampling youth of color, many of whom come from lower-income families. To describe the socioeconomic conditions of the schools sampled and thereby measure the social class of participants, we primarily considered the percent of free/reduced price lunch (FRL) eligible students at the participant's school and whether their school was a Title I school (Diemer, Mistry, Wadsworth, López, & Reimers, 2013). FRL eligibility is determined by comparing parental income to the federal poverty threshold (in 2011, the year much of these data were collected, this threshold was US\$22,811 for a family of four).

The number of participants recruited from each site, along with the percentage of FRL students at each school within each site, are as follows: (a) 277 students attending four urban high schools in a large Midwestern city (84.97% of the total sample; FRL at four schools = 57%, 76%, 100%, and 100%), (b) 37 students attending an urban high school in a different large Midwestern city (11.35% of the total sample; school FRL = 72%), and (c) 12 student members of a high school's African American student organization in a mid-sized Midwestern city (3.68% of the total sample; school FRL = 26%). All these schools were officially designated as Title I school-wide schools, a designation for schools that serve greater than 40% of students from low-income families, save the school in the third site (which receives some Title I funds but is not designated as a Title I school; Diemer et al., 2013). In sum, 96.32% of our participants came from Title I urban schools where between 57% and 100% of students were FRL eligible.

Participants

The entire sample consisted of 326 students, with more female ($N = 178$; 56.9%) than male participants ($N = 135$; 43.1%). Most participants self-identified as Black/African American ($N = 187$; 63%) or as biracial or multi-racial ($N = 73$; 24.6%), while others self-identified as White ($N = 23$; 7.7%), Latino ($N = 6$; 2%), American Indian/Native American ($N = 3$; 1%), or as, Asian/Asian American ($N = 1$; 0.3%). Four (1.3%) self-identified "other."

Participants' age ranged from 13 to 19 years old, with a mean of 15.47 ($SD = 1.34$). Participants' academic performance was discerned by asking whether they mostly received As (= 1) to mostly Fs (= 5); mean performance was 2.55 ($SD = 0.82$), which corresponds to mostly Bs and Cs.

Procedure

Consensus in the scale validation literature is to conduct an exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) on the same set of items, but with different samples (e.g., DeVellis, 2003; Worthington & Whittaker, 2006). From the study's larger data set ($N = 326$), two independent data sets were randomly generated, without replacement, to ascertain and then confirm the factor structure of the CCS with independent samples. Each data set included 163 cases; the first data set was used in Study 1 for an EFA, and the second data set was used in Study 2 to cross-validate this factor structure via a CFA.

Although 163 cases fall below general guidelines such as $N = 200$ or "ten participants per indicator," these broad suggestions have failed to receive empirical support. Instead, simulation studies indicate that the ratio of indicators (p) per factor (f), or p/f , as well as how well items measure latent constructs (measured by standardized factor loadings) yield more precise estimates of the necessary sample size for factor analyses (Gagné & Hancock, 2006; Marsh, Hau, Balla, & Grayson, 1998). When $p/f = 6$ and standardized loadings all equal .60, the Marsh et al. (1998) simulation suggested that only $N = 50$ is necessary, underscoring the general trend that as measurement quality and p/f increase, the sample size necessary for factor analysis decreases (Gagné & Hancock, 2006). Briefly, the p/f ratios in this study ($p/f = 8, 9, 5$, respectively, for the three obtained factors, detailed below) and magnitude of standardized factor loadings (see Table 3, all but one exceed .60, several indicators loading .88-.93) indicated that $N = 163$ provided sufficient sample size for both the EFA and CFA.

Results

Study 1: Exploratory Factor Analysis

An EFA was first carried out using MPlus 7.0 (Muthén & Muthén, 2010). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .77 and Bartlett's test of sphericity was significant ($p < .001$), indicating that the relationship between CCS items was strong enough to conduct factor analyses (Worthington & Whittaker, 2006). Factors were extracted using WLSMV

(Weighted Least Squares, Mean, and Variance adjusted) estimation for these categorical indicators. An oblique rotational method (promax) was used because any obtained factors were hypothesized to be related, based on previous theoretical (Freire, 1973, 1993; Watts et al., 2011) and empirical (Diemer et al., 2006) evidence for correlations among CC components. The amount of missing data was not extensive, with each CCS item ranging from 11% to 16.6% missingness. Missing data were not imputed because missingness was relatively limited and because of the difficulties inherent in imputing categorical variables (CCS items are 1-5 and 1-6 Likert-type scaled). Data were instead analyzed under Full Information Maximum Likelihood (FIML) conditions, which uses all existing data points instead of deleting essential information by removing cases pairwise or listwise (Muthén & Muthén, 2010).

A factor solution was obtained by considering Kaiser's criterion (retaining factors with eigenvalues greater than one), the interpretability of obtained factor solutions, the internal consistency of obtained factors, and model fit indices provided by MPlus, which initially suggested competing three- and five-factor models. The EFA was also used to inform the retention and removal of CCS items (Worthington & Whittaker, 2006). Items were removed if they did not load onto a distinct factor of at least 3 items. Items that exceeded our a priori criteria—loading at .40 and above and without significant cross-loadings onto other factors—were retained. In comparing the three- and five-factor models, consideration of these criteria resulted in a final scale comprised of three factors and 22 items. The three-factor model was determined to be the final EFA model because it yielded a much more interpretable factor structure than the five-factor solution (Worthington & Whittaker, 2006).

Model fit indices suggested that the three-factor solution was a relatively good fit to the data. The Root Mean Square Residual (RMR) value (.06) was below the suggested .08 cutoff for very good fit; the Root Mean Square Error of Approximation (RMSEA) value (.075) was above the recommended .06 cutoff for "very good" fit—but below the .08 cutoff for "adequate" fit (Hu & Bentler, 1999; Kline, 2010). (The Comparative Fit Index [CFI], Tucker-Lewis Index [TLI], and Weighted Root Mean Square Residual [WRMR] fit indices are not provided by Mplus for EFA analyses with categorical indicators; Muthén & Muthén, 2010.) Given the complexities in determining precise model fit cutoffs for analyses with smaller sample sizes, such as this one, some scholarly disagreement regarding exact cutoffs for fit indices (i.e., $RMSEA < .08$ or $< .06$), and the RMR estimate of very good model fit, the three-factor EFA model was determined to be the best model.

This solution was composed of three conceptually meaningful factors reflective of the underlying CC construct. The first factor, *Critical Reflection*:

Table 2. Factor Correlations in Study 1 (EFA) and Study 2 (CFA).

	CR: PI	CA: SPP	CR: E
Study 1			
CR: PI	1.00		
CA: SPP	.29*	1.00	
CR: E	-.04	-.27*	1.00
Study 2			
CR: PI	1.00		
CA: SPP	.18*	1.00	
CR: E	-.10	-.42*	1.00

Note. EFA = exploratory factor analysis; CFA = confirmatory factor analyses. Factors are abbreviated as follows: CR: PI = Critical Reflection: Perceived Inequality; CA: SPP = Critical Action: Sociopolitical Participation; CR: E = Critical Reflection: Egalitarianism.

* $p < .05$.

Perceived Inequality, consisted of eight items that measure youths' critical analysis of socioeconomic, racial/ethnic, and gendered constraints on educational and occupational opportunity. The second factor, *Critical Reflection: Egalitarianism* consisted of five items that measure youths' endorsement of societal equality, or all groups of people treated as equals within society. The third factor, *Critical Action: Sociopolitical Participation* consisted of nine items that measure youths' participation in social and political activities to change perceived inequalities. More information about the CCS items, scoring instructions, and reverse-coded items is included in the online supplement or can be obtained by contacting the first author.

The three CCS subscales were internally consistent, particularly for shorter measures, demonstrating Cronbach's alpha estimates of .90 (*Critical Reflection: Perceived Inequality*), .88 (*Critical Reflection: Egalitarianism*), and .85 (*Critical Action: Sociopolitical Participation*). However, the three factors did not associate with each other in expected directions (see Table 2). As hypothesized, *Critical Reflection: Perceived Inequality* had a significant positive correlation with *Critical Action: Sociopolitical Participation*. *Critical Action: Sociopolitical Participation* had a significant but unexpected negative correlation with *Critical Reflection: Egalitarianism*. Counter to hypotheses, *Critical Reflection: Perceived Inequality* did not correlate with *Critical Reflection: Egalitarianism*.

This pattern of association supported the use of an oblique rather than orthogonal rotation in the EFA, as only one of the three-factor correlations was not significant (Worthington & Whittaker, 2006). Table 3 depicts the

Table 3. Critical Consciousness Scale Exploratory Factor Analysis ($N = 163$).

Factor name and items	Loadings		
Factor 1: "Critical Reflection: Perceived Inequality" ($\alpha = .90$)	1	2	3
#1 Certain racial or ethnic groups have fewer chances to get a good high school education	.69*	.04	.06
#2 Poor children have fewer chances to get a good high school education	.78*	-.11	.10
#3 Certain racial or ethnic groups have fewer chances to get good jobs	.78*	.01	.00
#4 Women have fewer chances to get good jobs	.80*	.03	-.19
#5 Poor people have fewer chances to get good jobs	.87*	.04	.14
#6 Certain racial or ethnic groups have fewer chances to get ahead	.79*	.01	-.03
#7 Women have fewer chances to get ahead	.73*	.08	-.25
#8 Poor people have fewer chances to get ahead	.85*	-.05	.09
Factor 2: "Critical Action: Sociopolitical Participation" ($\alpha = .88$)			
#33 Participated in a civil rights group or organization	.10	.87*	.13
#34 Participated in a political party, club or organization	-.10	.82*	.04
#35 Wrote a letter to a school, community newspaper, or publication about a social or political issue	-.02	.86*	-.02
#36 Contacted a public official by phone, mail, or email to tell him or her how you felt about a social or political issue	.07	.87*	-.13
#37 Joined in a protest march, political demonstration, or political meeting	.02	.90*	.08
#38 Worked on a political campaign	-.05	.81*	-.20
#39 Participated in a discussion about a social or political issue	.13	.60*	.15
#41 Signed an email or written petition about a social or political issue	.00	.66*	-.04
#44 Participated in a human rights, gay rights, or women's rights organization or group	-.12	.70*	.05
Factor 3: "Critical Reflection: Egalitarianism" ($\alpha = .85$)			
#14 It is a good thing that certain groups are at the top and other groups are at the bottom ^a	-.02	-.18	.57*
#16 It would be good if groups could be equal	.07	.18	.95*
#17 Group equality should be our ideal	.03	.09	.86*
#18 All groups should be given an equal chance in life	-.04	-.13	.84*
#19 We would have fewer problems if we treated people more equally	-.04	-.15	.80*

Note. Item numbers correspond to the original 46-item CCS. CCS = Critical Consciousness Scale.

^aIndicates that this is a reverse-coded item.

* $p < .05$.

loading of these items onto the three factors in the EFA. Study 1 suggests that the CCS consists of three factors. Each subscale evinced strong internal consistency. Moreover, based on factor loadings, the subscales were distinct enough to be considered separate scales. In sum, the results of this study offer preliminary support for the feasibility of measuring CC with these items.

Study 2: Confirmatory Factor Analysis

The three-factor model identified via EFA in Study 1 was cross-validated by a CFA in Study 2, with an independent sample of randomly selected participants (Worthington & Whittaker, 2006). The CFA establishes a measurement model for the CCS and is a more rigorous test of underlying factor structure, in that items are restricted to only load on one factor; items' loadings onto all other factors are fixed to zero in CFA (Muthén & Muthén, 2010). Because an oblique rotation was used in the EFA, correlations between all factors were estimated in the CFA.

The initial CFA was an adequate fit to the data (note that different fit indices are reported by MPlus in CFA: RMSEA = .07, 90% confidence interval [CI] = [.06, .08], CFI = .96, TLI = .96, WRMR = 1.04). RMSEA was just above the suggested .06 cutoff for good fit, CFI and TLI were above the .95 cutoffs variously proposed in the literature, and WRMR was just above the 1.00 cutoff for good fit (Hu & Bentler, 1999; Kline, 2010). However, model modification indices suggested that error covariances between some pairs of items should be estimated. Of the pairs suggested, we freely estimated error covariances for three pairs of items (i.e., #1 and #3, #10 and #11, #4 and #7—item numbers correspond to final CCS item numbers; see Table 4) that may share common sources of error variance because of their semantic similarity. Substantive concerns (primarily) and model modification indices (secondarily) guided these modifications.

Model fit indices indicated that hypothesized relationships between observed variables and their corresponding latent construct were a very good fit to the data in the respecified CFA (RMSEA = .05, 90% CI = [.04, .07], CFI = .98, TLI = .97, WRMR = 0.89).

Table 4 provides internal consistency estimates, standardized factor loadings, standard errors, and R^2 values for the final CFA model. All standardized factor loadings were statistically significant ($p < .05$). All variables significantly loaded onto the same factor in the CFA as they had in the EFA, which provides psychometric support for the CCS and its factor structure—particularly because the factor structure identified via EFA was replicated with an independent sample via CFA (Kline, 2010; Worthington & Whittaker, 2006).

Table 4. Measurement Model: Confirmatory Factor Loadings ($N = 163$).

Latent variable and indicators	Standardized estimate	SE	R ²
Factor 1: "Critical Reflection: Perceived Inequality" ($\alpha = .89$)			
1. Certain racial or ethnic groups have fewer chances to get a good high school education	0.63*	.05	.39
2. Poor children have fewer chances to get a good high school education	0.77*	.03	.59
3. Certain racial or ethnic groups have fewer chances to get good jobs	0.79*	.04	.62
4. Women have fewer chances to get good jobs	0.63*	.06	.40
5. Poor people have fewer chances to get good jobs	0.83*	.03	.69
6. Certain racial or ethnic groups have fewer chances to get ahead	0.88*	.03	.77
7. Women have fewer chances to get ahead	0.63*	.05	.40
8. Poor people have fewer chances to get ahead	0.85*	.03	.72
Factor 2: "Critical Action: Socio-Political Participation" ($\alpha = .87$)			
14. Participated in a civil rights group or organization	0.86*	.03	.74
15. Participated in a political party, club or organization	0.76*	.05	.58
16. Wrote a letter to a school, community newspaper, or publication about a social or political issue	0.74*	.05	.55
17. Contacted a public official by phone, mail, or email to tell him or her how you felt about a social or political issue	0.81*	.05	.65
18. Joined in a protest march, political demonstration, or political meeting	0.93*	.04	.87
19. Worked on a political campaign	0.84*	.04	.70
20. Participated in a discussion about a social or political issue	0.60*	.06	.36
21. Signed an email or written petition about a social or political issue	0.80*	.05	.64
22. Participated in a human rights, gay rights, or women's rights organization or group	0.68*	.06	.47

(continued)

Table 4. (continued)

Latent variable and indicators	Standardized estimate	SE	R ²
Factor 3: “Critical Reflection: Egalitarianism” ($\alpha = .76$)			
9. It is a good thing that certain groups are at the top and other groups are at the bottom ^a	0.56*	.05	.32
10. It would be good if groups could be equal	0.66*	.05	.43
11. Group equality should be our ideal	0.62*	.05	.38
12. All groups should be given an equal chance in life	0.93*	.04	.86
13. We would have fewer problems if we treated people more equally	0.88*	.05	.77

Note. The scale’s item numbers correspond to the final 22-item CCS; factors are ordered by the structure implied by the EFA. CCS = Critical Consciousness Scale.

^aIndicates that Item 9 is a reverse-coded item.

* $p < .05$.

The pattern of association among factors in the CFA was similar to the pattern of association in the EFA (see Table 2).

Discussion

Critical consciousness is informed by disparate strands of scholarship that frame how oppressed or marginalized people think about and respond to inequitable sociopolitical conditions (Freire, 1973, 1993; Ginwright & James, 2002; Watts et al., 1999). Since the initial formulations of CC, it has been used in various contexts to understand how oppressed people reflect on and act to change perceived inequities in the world around them. It has also served as the basis for more contemporary theoretical approaches to understanding how oppressed people identify, navigate, and combat the structural constraints that limit human agency and well-being (e.g., Ginwright & James, 2002; Prilleltensky, 2012; Watts et al., 1999). Our findings converge with previous scholarship, suggesting that CC is composed of two components, critical reflection (measured by two distinct sub-factors) and critical action. This provides vital construct validity evidence for seminal (Freire, 1973, 1993) and contemporary arguments as to the composition of CC (Prilleltensky, 2012; Watts et al., 2011).

The CCS has the potential to unite and advance the fragmented conceptualization and indirect measurement of CC. Despite the important advances to CC scholarship, as noted above, CC is currently conceptualized and measured in a variety of ways (Watts et al., 2011), hampering the progression of CC scholarship. Furthermore, fragmented approaches to CC limit scholarly understanding of which component—critical reflection and critical action, working either in concert or in isolation—accounts for associations between CC and desired outcomes. For example, high levels of critical reflection may be more important in the development of academic engagement and motivation by providing students with the capacity and agency to navigate perceived structural barriers that constrain academic success. However, it may be that high levels of critical action (participation in social and political action) engender the agency that leads marginalized young people to feel similarly agentic in academic domains. By providing precise and reliable measures of each component of CC, the CCS measure may help scholars address these and related open questions. By extension, the CCS also has the potential to inform how qualitative researchers conceptualize CC, as the empirical support for the CCS informs how CC could be further explored with disparate qualitative methodologies (i.e., photovoice, in-depth interviews, focus groups).

The divergence of associations among CCS factors from previous theory may be explained in a few ways. The limited association between factors in both Studies 1 and 2 suggest that total scores for the CCS should not be computed. Instead, each of the three CCS subscales should be computed and considered independently, as each factor appears to measure a somewhat distinct aspect of CC. Beyond this scale, these patterns of association have broader implications for CC scholarship, which are addressed in the following paragraphs.

Critical consciousness theory stipulates a “transitive” relationship between critical reflection and critical action, wherein greater reflection leads to greater action and vice versa (Freire, 1973, 1993). That is, CC scholarship posits that critical action presupposes some degree of critical reflection—or that people do not blindly participate to change societal inequalities without first reflecting on what those inequities are (Watts et al., 2011). The *Critical Reflection: Perceived Inequality* factor correlated significantly with the *Critical Action: Sociopolitical Participation* factor (Study 1 $r = .29$; Study 2 $r = .18$). This association is supportive of the central theoretical tenet of CC, that perceptions of inequality motivate marginalized people to act to redress injustice (Freire, 1993).

However, there was some nuance in the associations among the factors of CC. *Critical Reflection: Egalitarianism* had a significant and unexpectedly

negative association with *Critical Action: Sociopolitical Participation* (Study 1 $r = -.27$; Study 2 $r = -.42$) and no significant association with *Critical Reflection: Perceived Inequality* (Study 1 $r = -.04$; Study 2 $r = -.10$). It may be that views of what a just society should be and what ideal relations among groups should be (i.e., egalitarianism) do not motivate taking action to produce social change (i.e., sociopolitical participation) in the same way that perceptions of societal inequalities appear to be associated with taking action to produce social change. It also appears that the two factors that measure critical reflection—as informed by CC scholarship—are distinct. This is a departure from previous CC theory (Freire, 1973) and empirical evidence (Diemer et al., 2006), which collectively suggest that the endorsement of group equality is an aspect of critical reflection.

This divergence may be explained in a few different ways. One interpretation of this discrepancy may simply be that notions of a transitive relationship between critical reflection and action are incorrect. Another interpretation may be that the relations between and within the critical reflection and action components are more complex and nuanced than has been postulated. This has been suggested by related work in the empowerment tradition, which has suggested that a cognitive understanding of how power operates in one's community is not necessarily predictive of participation in community-level action (Speer & Peterson, 2000). However, that work conceptualized critical analysis in a different way—as a critical understanding of how power operates within one's community rather than a critical analysis of societal inequalities or endorsement of egalitarian ideologies, with the latter two notions reflecting how critical reflection was conceptualized in the present research. Moreover, the Speer and Peterson (2000) study was conducted predominantly with White adults. As some have observed a positive correlation between proxy measures of critical reflection and action (Diemer et al., 2006), it is unwarranted to reject this long-standing dimension of CC theory solely on the basis of the factor correlations within one study.

The divergence between extant theory and this study's empirical findings may also be explained by developmental considerations. Adolescence entails developmental inconsistencies and different rates of growth across disparate developmental domains. It may be that study participants similarly have "silos" of critical consciousness, in that they may have more advanced thinking about perceived societal inequalities for racial/ethnic minorities, for example, but may have less sophisticated thinking about societal equality—or they may have been less participatory, despite being more critically reflective. In particular, because youth less than age 18 encounter a variety of age-based barriers to sociopolitical participation (Watts & Flanagan, 2007), study participants aged 18 and above may be expected to be more participatory.

We examined this possibility by comparing mean scores on the CCS subscales among “younger” (those less than or equaling the median participant age of 15) and “older” (above 15) participants. Non-significant differences between younger and older participants were observed for the Critical Action: Sociopolitical Participation subscale, $t(232) = 1.06, p = .29$, as well as Critical Reflection: Egalitarianism subscale, $t(252) = -1.45, p = .15$. Older participants had significantly higher scores on the Critical Reflection: Perceived Inequality subscale, $t(244) = -4.06, p < .001$. Overall, this pattern suggests that younger and older participants similarly endorsed equality and were similarly participatory; however, older participants were more critically reflective regarding societal inequalities. Although these age-related differences are interesting and warrant further consideration in subsequent research, these comparisons do not support the notion that age differences may explain unexpected negative associations between the Egalitarianism and Sociopolitical Participation factors. Future inquiry should further attend to this issue by administering the CCS to youth over the age of 18 and closely scrutinizing the associations among its subscales.

Limitations and Future Directions

Splitting the 326 participants into two independent subsamples provided sufficient participants for the EFA and CFA and allowed a rigorous test of whether the same factor structure could be replicated across two independent samples (Worthington & Whittaker, 2006). An even stronger sampling strategy would have been to carry out the CFA with a distinct second sample, as participants across the subsamples may share some similarities. Future inquiry should further examine the reliability and validity of the CCS with more heterogeneous groups, such as older adolescents, emerging adults, and adults. Future research should also investigate CC among more affluent youth, including White youth and youth of color.

The Critical Reflection: Perceived Inequality subscale was designed to measure consciousness of racial/ethnic, class, and gender inequalities and does not directly measure perceived inequalities related to disability status or sexual orientation. In this way, the CCS is somewhat domain specific and does not capture consciousness of all aspects of marginalization. Future inquiry could also examine consciousness of perceived inequality related to disability or sexual orientation, and whether these domain-specific forms of consciousness converge with scores on the Perceived Inequality subscale.

Future inquiry could also build on these validation studies to examine the relations between the components of CC over time. For example, the CCS could be administered longitudinally to a panel of participants, which would

help us better understand how critical reflection and critical action develop, relate, and operate over time. Such a study would also help us continue to tease out whether and how critical reflection and action reciprocally influence each other over time—something initially suggested by Freire (1973, 1993) but partially disputed by the nuanced patterns of association in this study.

Recent reviews (Watts et al., 2011), SPD scholarship (Watts & Flanagan, 2007), and empirical evidence (Berg et al., 2009; Diemer & Li, 2011; Zimmerman & Zahniser, 1991) suggest that *critical motivation*, or the expressed commitment to address societal inequalities and produce social change, may also be a component of CC. That is, the motivation or perceived capacity to effect sociopolitical change may precede behaviors taken to produce sociopolitical change, as is consistent with social cognitive theories. Future scholarship could empirically examine whether critical motivation represents a third component of CC or whether simply measuring critical action is sufficient, in that action measures the behavioral consequences of cognitive motivation.

The CCS should also be used alongside qualitative research, perhaps as part of mixed-methods inquiry, as this would give scholars a way to understand the subjective experiences and meanings that marginalized or oppressed people attach to critical reflection and action. In so doing, additional insight would be gained about how, why, when, and under what conditions critical reflection may—or may not—inform critical action.

Future research could further validate the CCS by examining the scale's convergence and divergence with related measures. For example, researchers may be interested in examining how the critical action subscale may associate with the Activism Orientation Scale (Corning & Myers, 2002), which measures individuals' conventional and high-risk activism. Likewise, researchers may be interested in exploring how results on the critical reflection subscales may diverge from the Social Dominance Orientation scale (Pratto, Sidanius, Stallworth, & Malle, 1994) or Jost and Thompson's (2000) economic system justification scale.

Summary and Conclusion

This study developed and validated an instrument designed to measure critical consciousness, motivated by the conflicting and fragmented conceptualization and measurement of this construct. Study 1 used an EFA to test the factor structure of the CCS and obtained three internally consistent factors: (a) *Critical Reflection: Perceived Inequality*, (b) *Critical Reflection: Egalitarianism*, and (c) *Critical Action: Sociopolitical Participation*. Study 2

utilized a CFA with a new sample, rigorously confirming the factor structure of Study 1 and providing key construct validity evidence for the use of these items to measure these factors (Kline, 2010). These procedures resulted in a final 22-item scale with strong model fit and high estimates of internal consistency.

The CCS will ultimately provide insight into how CC—including its critical reflection and critical action components—develops and operates in marginalized or oppressed people. Moreover, the CCS scale has the potential to unify CC and advance scholarship by providing a common way to quantify and measure CC in future research. Future research should further validate this measure across disparate populations and in relation to similar measures, perhaps using the CCS to better understand how oppressed or marginalized people develop human agency and self-determine their lives despite inequitable social conditions and structural constraints.

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