

Contents lists available at ScienceDirect

Journal of Applied Developmental Psychology

journal homepage: www.elsevier.com/locate/jappdp





Profiles of civic assets among youth of color: Relations with civic action

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ARTICLE INFO

Keywords:
Critical consciousness
Civic action
Critical reflection
Civic efficacy
Social responsibility
Civic engagement

ABSTRACT

Using latent profile analysis, we investigated how the civic assets of critical reflection (analysis of oppression), civic efficacy (feeling that one's civic action will be effective), and social responsibility (sense of duty to support one's community) manifest within 284 youth of color. Four distinct profiles of civic assets were identified. We examined associations between profiles and involvement in community service, political activities, and social activism. Social responsibility was closely associated with community service, civic efficacy was associated with social activism, and social responsibility and civic efficacy together were linked to political activities. According to critical consciousness theory, youth of color can engage in critical action, or civic action targeting oppression, when they have critical reflection. However, our study showed that high critical reflection alone was related to very low civic action. To support the civic action of youth of color, multiple civic assets must be considered in tandem.

Introduction

Through civic action ranging from social activism (e.g., participating in a protest) to political activities and community service, young people can create positive changes within their communities and society more broadly. Participation in civic action is critical for supporting young people's positive development (Sherrod, 2007) and can set the course for their engagement in civic action as adults as well (Chan, Ou, & Reynolds, 2014).

Young people may draw on multiple internal assets to facilitate their participation in civic action. Understanding the strengths youth bring to civic action—i.e., their civic assets—is important for understanding *how* and *why* youth get involved. Youth may need to draw on unique combinations of assets in order to participate in different categories of civic action. Further, civic action may impact communities in different ways depending on the pattern of strengths youth bring to the activity.

This paper explores the role of three civic assets (critical reflection, civic efficacy, and social responsibility) and their association with three different forms of civic action (social activism, political activities, and community service) among youth of color. Critical reflection considers whether individuals discern the inequities that exist in society (Diemer,

Rapa, Voight, & McWhirter, 2016; Watts, Diemer, & Voight, 2011), civic efficacy refers to feeling able to effectively direct changes in one's community (Kahne & Westheimer, 2006; Schulz, 2005), and social responsibility is about a sense of duty towards making the world a better place (Wray-Lake & Syvertsen, 2011). Using latent profile analyses, we identify different patterns of these three civic assets in youth of color, and we investigate whether and to what extent these patterns are associated with each of the three types of civic action.

Civic action

The civic engagement literature indicates that taking civic action is broadly beneficial for youth (Ballard, Hoyt, & Pachucki, 2019). Specifically for young people of color in the United States who experience marginalization (National Academies of Sciences, Engineering, and Medicine, 2019), civic action can serve both as a protective factor and a way to engage in dismantling systems of oppression affecting communities of color (Hope & Spencer, 2017). Civic action that targets oppression (i.e., critical action; Diemer et al., 2016; Watts et al., 2011) is especially important for youth of color and the communities they belong to (Hope & Spencer, 2017; Watts & Guessous, 2006; Watts, Williams, &

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Jagers, 2003). For example, young people of color's involvement in redressing systemic racial injustice (such as through involvement in the #BlackLivesMatter movement; Hope, Keels, & Durkee, 2016) can be an important site of resistance and resilience against daily realities of discrimination and injustice. Critical action allows youth of color to transform the systems in society that negatively affect their development and well-being (Watts & Flanagan, 2007).

We expect that the civic assets of critical reflection, civic efficacy, and social responsibility may work together in different ways to shape youth of color's civic action, including critical action aimed at creating a more just society. An examination of individual-level factors related to youth of color's civic action can inform those working with youth of color in community organizing spaces, out-of-school settings, and schools on how to better facilitate and support participation in civic action. This engagement is important for youth of color's well-being and thriving as well as for furthering positive community-level changes.

Critical reflection

The frameworks of sociopolitical development (Watts et al., 2003; Watts & Guessous, 2006) and critical consciousness (Diemer et al., 2016; Freire, 2016; Watts et al., 2011) guide our understanding of youth of color's involvement in civic action. According to these frameworks, systems of oppression that constrain opportunities for some groups in society, including for youth of color, can be dismantled through praxes of thinking and doing-a cyclical process of reflection and action. In these praxes of anti-oppression, individuals or groups reflect on the systemic sources of inequity in a process called critical reflection. Critical reflection allows one to engage in behaviors that target systems upholding oppression, and engagement in action facilitates further critical reflection. As such, critical reflection may be a key civic asset supporting civic action among youth of color. Youth of color can draw on critical reflection to engage in civic action that is grounded in an analysis of oppression; in some cases, civic action can be the critical action needed to promote well-being and liberation from oppression for youth of color.

Research suggests that critical reflection on its own has some links to different forms of civic action among youth of color. For instance, among Latino/a/x and African American youth, critical reflection is related to involvement in political protest (Diemer & Rapa, 2016). Diemer and Rapa (2016) propose that involvement in political protest is a civic action that can be considered a critical action because of its extrainstitutional nature (i.e., protest functions outside of established systems), and its alignment with disrupting established systems that may be failing some groups. However, the effect size of the relationship between critical reflection and protest in their study was small (standardized estimates ranging from 0.15 to 0.20), which suggests that critical reflection alone may not be enough to support participating in political protest. Furthermore, in the same study, critical reflection did not predict voting (a political activity) for African American youth and was negatively related to voting for Latino/a/x youth. Thus, the relationship between critical reflection and action-taking may be dependent on what other individual strengths youth possess.

Critical reflection has been operationalized in multiple ways (Jemal, 2017), including cognitive processes that are analytical (e.g., understanding that there are structural causes of inequality) or evaluative (e.g., believing society should be more egalitarian). We measured critical reflection as the endorsement of statements about inequity of opportunities for education and jobs between hierarchically ordered social groups in the U.S. (women vs. men, poor vs. rich, people of color vs. whites). These endorsements show evidence of a structural level interpretation of social disparities and indicate critical reflection. Instead of blaming individuals for the vast disparities between groups (e.g., he is unemployed because he doesn't have any skills) youth with critical reflection make analyses of systems of oppression, examining policies, institutional bigotry throughout history, and so on (Watts et al., 2011).

Nevertheless, youth who engage in critical reflection may never conduct action based on their analyses. Youth can have an understanding of particular structures upholding inequity as well as evaluations that those structures are unjust, and yet not be involved in dismantling those structures. They may need other civic assets to translate their reflections into behaviors. In our study we examine whether two other civic assets—civic efficacy and social responsibility—may be involved in the relationships between critical reflection and civic action.

Civic efficacy

Perceived self-efficacy (Bandura, 2010) is an important psychological factor that has been used to explain when people will undertake various activities: people with high feelings of efficacy believe that they have the ability to engage in an activity, and will persevere despite setbacks (Bandura, 2010). Research demonstrates that self-efficacy is important in promoting civic behaviors as well. Young people in general participate more in the civic domain when they believe that they have the necessary skills to produce desired effects (Kahne & Westheimer, 2006; Schulz, 2005); this result appears to extend to youth who experience oppression. For example, Hope and Jagers (2014) found that Black youth who felt efficacious about navigating unexpected issues while working on political or social change were more civically engaged (indexed via 13 questions that covered a broad range of civic action).

Sociopolitical development and critical consciousness theory propose that self-efficacy in the civic domain (i.e., civic efficacy) is necessary for those engaged in analyses of systemic inequity (critical reflection) to carry out action aimed at dismantling inequity (critical action; Watts et al., 2011; Watts & Flanagan, 2007). However, empirical evidence on the role of civic efficacy in critical action, as opposed to civic action more broadly, is lacking. For example, Diemer and Rapa (2016) found that civic efficacy did not link critical reflection to critical action among a nationally representative sample of African American and Latino/a/x youth. The relationship between critical reflection, civic efficacy, and critical action may depend on other civic assets within youth. In this study, we considered the role of social responsibility.

Social responsibility

Research among adolescents shows that a sense of duty to contribute to society, or social responsibility, also plays an important motivating role in civic involvement (Wray-Lake & Syvertsen, 2011). A study by Pancer, Pratt, Hunsberger, and Alisat (2007) with high school youth found that whether civic action is considered an obligation differentiates more active youth from those who are less active. This finding has been replicated among a group of youth who experience marginalization. In analyses of interviews with Latino/a/x immigrant-origin youth, (Suárez-Orozco, Hernández, & Casanova, 2015) identified social responsibility as one of the main reasons they were civically engaged. The importance of social responsibility may be particularly pronounced for social activism behaviors, given that adolescents judge these as being less obligatory compared to community service and political activities (Metzger & Ferris, 2013). Thus, a sense of social responsibility may motivate youth of color to commit to engaging in civic action.

However, like with the other civic assets, social responsibility alone may not be enough to drive youth to civic action—youth may at least need civic efficacy as well. In a study with Black adolescents, Hope (2015) found that social responsibility by itself was not associated with civic action, but that in the presence of high levels of civic efficacy, social responsibility was associated with youth activism. In this paper, we built on that work to investigate the roles of both social responsibility and civic efficacy in motivating civic action, while also considering the role of critical reflection.

Current study and hypotheses

In this study, we examined patterns of three civic assets (critical reflection, civic efficacy, and social responsibility) among a sample of youth of color, and investigated the ways in which patterns were related to their civic behaviors. We addressed these aims using latent profile analysis (Masyn, 2013; Vermunt & Magidson, 2002), an approach that can identify the presence and nature of heterogeneity within a sample. Based on prior research, we predicted that multiple patterns, or profiles, of the three assets would be identified, and we developed several hypotheses about the nature of these profiles.

First, we expected to identify a profile in which youth have moderately high to high levels of all three assets. Given that both civic efficacy and social responsibility are associated with higher civic action (Hope & Jagers, 2014; Kahne & Westheimer, 2006; Pancer et al., 2007; Schulz, 2005; Suárez-Orozco et al., 2015), we expected youth in this profile to report frequent engagement in all three types of civic action. Second, we hypothesized that we would identify a profile in which youth had low scores on all three assets; we expected that youth in this profile would be disengaged from civic action. Third, we expected to identify a profile in which youth have moderately high to high levels of critical reflection and social responsibility, but low civic efficacy. Prior work by Hope (2015) suggests that youth can have high social responsibility in the presence of lower civic efficacy, and that this is associated with low civic action. Furthermore, sociopolitical development and critical consciousness frameworks underscore the importance of civic efficacy in translating critical reflection into critical action (Diemer et al., 2016; Watts & Guessous, 2006). Thus, we expected youth in this profile to report low engagement in civic action.

Fourth, we predicted a profile wherein youth have high social responsibility but low critical reflection and low civic efficacy. We expected that this profile, with low civic efficacy, would also report low action overall. However when comparing the three forms of civic action, we expected political activities and community service will not be as low as social activism. Political activities and community service are considered important social obligations by adolescents (Metzger & Ferris, 2013). Therefore, the high social responsibility in this profile may prevent engagement in political activities and community service from being extremely low, even in the absence of civic efficacy. Finally, we hypothesized that we would identify a profile in which youth have low critical reflection but moderately high to high levels of social responsibility and civic efficacy. We hypothesized that in this profile, youth would be highly engaged in civic action. The identification of such a profile has implications for understanding the civic action of youth of color, as action driven by social responsibility and civic efficacy but without critical reflection may not constitute the critical action that is important to promoting social justice.

Method

Procedure

We used data from the Connecting Adolescents' Beliefs and Behaviors (CABB) Study, (Johnson et al., 2016) a longitudinal study of youth development conducted in the northeastern United States. We used data collected via surveys during Wave 2 (December 2015–April 2016). Participants were recruited from middle and high schools in the area surrounding the researchers' institutions (209 participants), and through the research participant panel maintained by the company Qualtrics (75 participants). For participants recruited from area schools, the research team first contacted schools and then recruited participants from within each school. Schools that agreed to participate in the study received a \$200 gift card. In-person data collection sites included eleven schools: 10 Catholic schools (9 in Massachusetts, 1 in Connecticut) and 1 public school (in Massachusetts). Depending on the school administrators' preferences, the research team distributed consent forms as

physical packets sent home with students, or the administrator emailed parents and guardians the link to an online consent form. After completed consent forms were collected, members of the research team scheduled a data collection time with the schools. Trained members of the research team conducted the data collections, which lasted between 45 to 60 minutes. Students with parent or guardian consent gathered in an available room (e.g., the cafeteria) and completed an assent form before taking the survey on paper. All students who participated in the data collection received a \$20 gift card.

Data collection via Qualtrics included the following stages. First, Qualtrics distributed a brief online survey to their adult research participant panel to assess whether they had children between ages 11 and 17 and were thus eligible for the study. Next, the research team sent eligible parents and guardians a link to the online consent form. Finally, the research team sent a link to the online version of the assent form and survey to the parent or guardian for their child to complete. Participants recruited via Qualtrics also received a \$20 gift card. These participants improved the diversity of the sample with respect to educational setting because the panel included adolescents who were home-schooled as well as those who attended a variety of types of schools (e.g., charter schools, public schools, parochial schools).

Participants

From the 666 students who participated in Wave 2 of the CABB study, we selected a subsample of 284 for these analyses. We excluded from the subsample students who did not provide information about their race and/or ethnicity (6 students) and students who identified as "White, Caucasian, European American" (376 students). Of the students in the present analyses, 25.70% identified as "Black, African American, or of African descent," 20.77% as "Hispanic or Latino/a," 17.96% as "Asian," 1.76% as "Arab or Middle Eastern," 0.35% as "Pacific Islander" and 2.82% specified a nationality under "Other (please specify)." A total of 30.63% of the students selected more than one of the response options given for race and/or ethnic background or responded under "Other (please specify)" that they were of mixed background. The mean age was 14.45 years (SD = 2.03); 163 identified as girls, 117 identified as boys, and 2 as another gender. Two students did not disclose gender. In terms of socioeconomic status, 80 participants had at least one parent with a 4year degree or a higher level of education (e.g., Master's degree). Fifty four participants had at least one parent with a different level of education (e.g., GED, community college, vocational school, less than high school). For the other 150 participants, we do not know either parents' level of education because their parents did not complete a questionnaire. In terms of household income, 8 participants had a household income under \$14,999; 12 participants had \$15,000 - \$32,999; 24 participants had \$33,000 - \$42,999; 14 participants had \$43,000 -\$52,999; 28 participants had \$53,000 - \$62,999; and 34 participants had \$63,000 - \$72,999. We do not know the household income for 164 participants as the parent did not disclose it or did not complete a parent questionnaire.

Participants lived primarily in Massachusetts (n=240; 84.51%); 28 (11.27%) were from Connecticut, 7 (2.46%) from Rhode Island, 2 (0.007%) from Maine, and one participant each from California, Florida, and Texas.

Planned missingness approach

In order to shorten the survey length and reduce the burden on participants, the CABB study research team used a three-form planned missingness design (Graham, Taylor, Olchowski, & Cumsille, 2006). Surveys with a planned missingness design intentionally incorporate missing data (i.e., each participant only receives a subset of the full survey). Some items were given to all participants, whereas other items were split across the three forms of the survey. During data collection, we randomly distributed or assigned participants to a form; as such,

planned missing data can be assumed to be missing at random (Little, Jorgensen, Lang, & Moore, 2014). Below we indicate items with planned missingness where applicable.

Measures

Critical reflection

We measured critical reflection using three items from the Critical Consciousness Scale (Diemer, Rapa, Park, & Perry, 2017): "In the U.S., certain racial or ethnic groups have fewer chances to get a good high school education," "In the U.S., poor children have fewer chances to get a good high school education," and, "In the U.S., women have fewer chances to get good jobs." The CABB study team adapted the items to start with the stem "In the U.S." so that students were prompted to the same national context. Response options were on a five-point scale from 1 = Almost Never Trueto 5 = Almost Always True. Participants could also select I don't know/I'm not sure and this was coded as missing data. All three items had planned missing data. Unplanned missing data ranged from 7.75% ("In the U.S., certain racial or ethnic groups...") to 8.80% ("In the U.S., women..." and "In the U.S., poor children..."). Scores on this set of items had good internal consistency in the analytical sample, with a coefficient alpha of 0.83. We used scale scores, which were computed for all participants who had answered at least two of the items (n = 241), so 43 participants (15.14%) did not have a critical reflection

Civic efficacy

To assess students' self-perceived civic efficacy, the CABB study used three items. One item was adapted from the California Civic Index (Kahne, Middaugh, & Schutjer-Mance, 2005): "I believe I can make a difference in my community." Response options were 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral (Don't have a strong opinion), 4 = Agree, 5 = Strongly Agree, and I don't know/I'm not sure (coded as missing). This item had 8.80% missing data. The other two items came from the Positive Youth Development measure (Geldhof et al., 2014) and had planned missingness: "I feel like an important member of my local community" (0.70% unplanned missing data) and "Adults in my town or city listen to what I have to say" (0.70% unplanned missing data). The response scales for these items were 1 = Not at all like me, 2 = NotA little like me, 3 = Kind of like me, 4 = A lot like me, and 5 = Just like me. Scores had tolerable internal consistency reliability in our study (coefficient alpha = 0.63). We did not compute scale scores for the 6 individuals who only responded to one of the three items. For the other 278 participants, we calculated their civic efficacy score as the mean of two or three items, depending on how many they answered.

Social responsibility

Youth reported about their social responsibility using three items from the Youth Purpose Survey—Revised. Participants rated how important the goals of "help others," "make the world a better place," and "improve my community" were to them (Bundick et al., 2006) on a five-point scale anchored at $1=Not\ Important$ and $5=Extremely\ Important$. Scores on the items had a coefficient alpha of 0.76 in this sample. These items did not have planned missingness, but "Help others" had 2.82% unplanned missing data, "make the world a better place" had 2.11% unplanned missing data, and "improve my community" had 2.82% unplanned missing data. Social responsibility scale scores were computed as the average of at least two items. Thirteen participants (4.58%) did not receive a score, as they answered fewer than two items.

Civic action

To assess student participation in civic action, we used three items that the CABB study research team developed. These items captured adolescents' levels of participation in three broad categories of civic action. Youth read summaries of each category and rated how often they took part during the past year on a five-point scale: 0 = Never, 1 = Rarely(1 or 2 times), 2 = Sometimes (every few months), 3 = Often (a few times a month), and 4 = All the time (at least once a week). The three types of action were political ("Political activities are things like voting for or supporting a leader, candidate, or issue you believe in. These activities could be in your school, your city, or your state), community service ("Community service activities are things like helping organize a neighborhood or community event, volunteering with an organization to do things like tutor younger children or help out an animal shelter, or doing things to help improve your neighborhood"), and social activism ("Social activism includes things like going to a demonstration about an issue you care about, trying to get others to recycle, or sharing your opinions or beliefs through messages on your clothing or buttons"). We included each item separately in the analyses (i.e., we did not compute a scale score). These items did not have planned missingness. Rates of missing data were 1.76%, 2.11%, and 2.46% for political activities, community service, and social activism, respectively.

Psychometric properties of indicator variables

In addition to examining the internal consistency of scores on these sets of items using coefficient alpha, we conducted a confirmatory factor analysis to assess the psychometric properties of these three scales. The root mean square error of approximation (RMSEA) was 0.069 (test of RMSEA less than or equal to 0.05: p=.081), and the comparative fit index (CFI) was 0.924. The standardized root mean square residual (SRMR) was 0.064. All of these indices indicate acceptable fit under the criteria listed in Kline (2015).

Data analysis plan

We examined variations in how three civic assets manifested among a sample of U.S. youth of color, and investigated links between resulting patterns and the youths' civic action. To achieve this aim, we took a two-step approach: we first investigated the potential for subgroups within our sample based on responses to the civic assets questions, and then compared the average level of participation in the three categories of civic action within each subgroup.

To identify subgroups with distinct patterns of civic assets, we conducted a latent profile analysis (LPA; Vermunt & Magidson, 2002) in Mplus version 8 (L. K. Muthén & Muthén, 1998–2017). LPA is a type of mixture modeling, which allows for exploring heterogeneity within a sample. In mixture modeling, latent (unobserved) subgroups are identified based on individuals' responses to a set of indicator variables. Each subgroup includes individuals with response patterns on the indicator variables that are similar to each other, and different from those in the other subgroups. LPA is the variety of mixture modeling used when the indicator variables are continuous, and the resulting subgroups are referred to as profiles. In our analysis, scale scores for critical reflection, social responsibility, and civic efficacy were the indicator variables. Missing data in one or more of the indicator variables were accounted for using full information maximum likelihood estimation (Enders & Bandalos, 2001). To account for the nesting of the data within schools, we conducted analyses with a robust maximum likelihood estimator through the Mplus setting TYPE = COMPLEX. This procedure adjusts standard errors with a Huber-White sandwich estimator and gives a χ^2 test statistic that is asymptomatically equivalent to the Yuan-Bentler T_2^* test statistic (B. O. Muthén & Satorra, 1995; Yuan & Bentler, 2000).

We estimated models with an increasing number of profiles (i.e., starting at 1 and adding profiles) within multiple specifications of the

model's variance-covariance structure. Within each variance-covariance structure, we compared models based on model fit statistics, classification diagnostics, and model interpretability (separation and homogeneity; Masyn, 2013). Once we identified the best-fitting number of profiles within each variance-covariance structure, we compared that final set of models, using the same criteria, to choose the final model that provides the overall best fit to the data.

Throughout the aforementioned process, we consulted the following model fit statistics: the Akaike information criterion (AIC; Akaike, 1974), the consistent Akaike information criterion (cAIC; Bozdogan, 1987), the Bayesian information criterion (BIC; Schwarz, 1978), the sample size adjusted Bayesian information criterion (sBIC; Schwarz, 1978), the approximate weight of evidence criterion (AWE; Banfield & Raftery, 1993), the adjusted Lo-Mendell-Rubin likelihood ratio test (LMR; Lo, Mendell, & Rubin, 2001), the approximate Bayes factor (aBF; Nagin, 1999), and the approximate correct model probability (CMP; Kass & Wasserman, 1995). The bootstrapped likelihood ratio test (McLachlan & Peel, 2000) could not be used because it is not available when using TYPE = COMPLEX. We also examined residuals to assess model fit. Classification diagnostics considered include the relative entropy (Ramaswamy, Desarbo, Reibstein, & Robinson, 1993), average posterior class probability (Nagin, 2005), and the odds of correct classification (Nagin, 2005). For the odds of correct classification, we examined whether the ratio was larger than a recommended cutoff of 5 (Nagin, 2005). In summary, our enumeration process was driven by empirical information; we did not use a priori assumptions to decide between models.

After we identified the model that provided the best fit to the data, we used the automated Bolck-Croon-Hagenaars (BCH) procedure in Mplus (Asparouhov & Muthén, 2021) to examine between-profile differences in levels of participation in political activities, community service, and social activism. The BCH method estimates the mean of a continuous outcome variable (here, frequency of participation in each of the three categories of civic action) for each profile using a weighting procedure that avoids the classification shifts that may occur from introducing the outcome variable. As part of the BCH procedure, Mplus computes pairwise Wald chi-square tests to test the statistical significance of mean differences across pairs of profiles (Asparouhov & Muthén, 2021). Because multiple comparisons were made within each profile, we adjusted the family-wise error rate using the Holm-Bonferroni method. This technique is a variation of the Bonferroni correction that has more statistical power. It adjusts the Type I error rate sequentially, instead of applying the same correction to all the tests, such that the set of the statistical tests performed are ordered according to their p-values and compared to increasingly less stringent values instead of the same value.

Results

Preliminary analyses

Table 1 shows means, standard deviations, and bivariate Pearson correlations for the civic asset and civic action variables. Scores on the civic assets ranged from 1 to 5, whereas the civic action scores ranged from 0 to 4. Of the civic assets, social responsibility had the highest mean and lowest variation, whereas critical reflection had the lowest mean and highest variation. Critical reflection was not correlated with the other civic assets, but civic efficacy and social responsibility were correlated. The three civic action variables were all correlated. Both social responsibility and civic efficacy were correlated with all three civic action variables, but critical reflection was only correlated weakly with community service.

Latent profile analyses of civic assets

Table 2 shows the fit statistics for all models that we considered

Table 1Means, Standard Deviations, and Bivariate Pearson Correlations for the Three Civic Assets and Three Categories of Civic Action.

| | 1. | 2. | 3. | 4. | 5. |
|---|-------|--------|--------|--------|--------|
| 1. Critical reflection ($M = 3.04$, $SD = 1.12$) | - | | | | |
| 2. Social responsibility ($M = 4.04$, $SD = 0.82$) | -0.06 | - | | | |
| 3. Civic efficacy ($M = 3.38$, $SD = 0.96$) | 0.06 | 0.38** | - | | |
| 4. Political activities ($M = 1.00$, $SD = 1.10$) | 0.02 | 0.21** | 0.24** | - | |
| 5. Community service ($M = 1.54$, $SD = 1.26$) | 0.16* | 0.24** | 0.23** | 0.47** | - |
| 6. Social activism ($M = 1.16$, $SD = 1.16$) | 0.09 | 0.22** | 0.27** | 0.47** | 0.49** |

^{*} p < .05, two-tailed. ** p < .01, two-tailed.

during the LPA. Models with more than one profile for the class-varying diagonal and class-varying non-diagonal variance-covariance structures did not converge. We therefore explored models with a class-invariant diagonal structure, in which variables' covariances within profiles are fixed at 0, and the variances are constrained to be equal across profiles, and a class-invariant non-diagonal structure, in which variables are allowed to covary within profiles, and the variances and covariances are estimated but constrained to be the same across profiles. The four-profile and six-profile model in the class-invariant diagonal specification had CMP values above 0.10, which suggested that these two models were good candidates within the set of models with class-invariant diagonal specification (Masyn, 2013). However, the smallest profile in the sixprofile model had only two individuals, so we did not consider this model further. The situation was similar in the class-invariant non-diagonal specification, where the four-profile and six-profile models had CMP values above 0.10. However, the smallest profile in the six-profile model here also only had two individuals, so this model was not considered further.

Thus, the two models we considered for the final profile model were the four-profile class-invariant diagonal model and the four-profile class-invariant non-diagonal model. The main difference between a class-invariant diagonal model and a class-invariant non-diagonal model is whether indicators are allowed to covary within a profile. When we examined the estimated covariances within profiles, we found that they were very close to 0. Therefore, for parsimony, we chose the class-invariant diagonal model that constrains covariances to 0.

The four-profile class-invariant diagonal model had good classification diagnostics. The relative entropy was 0.84 and the average posterior class probability ranged between 0.89 and 0.93. The odds of correct classification ranged between 17.37 and 346.73, which are all larger than the recommended cutoff of 5 (Nagin, 2005).

Table 3 contains the mean scores on the civic assets in each of the four profiles in the final chosen model. See Fig. 1 (top half) for a graphical representation of the mean civic asset scores in each profile. The first profile was small (3.52% of the sample) with scores on critical reflection that were significantly higher than the scores on civic efficacy and social responsibility. Further, only scores on critical reflection were above the scale midpoint. We named this profile critical reflection emphasis due to the higher critical reflection scores in combination with lower civic efficacy and social responsibility scores. The second profile (23.94%) had scores on the civic assets that were all around the scale midpoint and not significantly different from each other. We named this profile the civic assets at midpoint profile. The third profile (35.21%) was characterized by scores on social responsibility that were significantly higher than the scores for critical reflection and civic efficacy. We named this profile social responsibility emphasis. The fourth and largest profile (37.32%) included scores on social responsibility that were very high, and scores on civic efficacy that were moderately high. In this profile, social responsibility was significantly higher than both critical reflection

 Table 2

 Model Fit Statistics from Latent Profile Analyses of the Civic Assets of Critical Reflection, Social Responsibility, and Civic Efficacy.

| # Profiles | s (# Free Par | rameters) | Size of Smallest Pro | file Log-lil | kelihood | AIC | cAIC | BIC | sBIC | AWE | LMR | aBF | CMP |
|---|---|-----------|----------------------|--------------|----------|---------|---------|---------|---------|---------|------|--------|--------|
| Class-invariant diagonal (Variables' covariances within profiles fixed at 0, and variances constrained to equality across profiles) | | | | | | | | | | | | | |
| | 1 (6) | | 284 | -10 | 79.03 | 2170.06 | 2197.95 | 2191.95 | 2172.93 | 2243.85 | _ | < 0.01 | < 0.01 |
| | 2(10) | | 107 | -10 | 147.96 | 2115.91 | 2162.40 | 2152.40 | 2120.69 | 2238.89 | 0.36 | 0.63 | 0.01 |
| | 3 (14) | | 10 | -10 | 36.20 | 2100.40 | 2165.48 | 2151.48 | 2107.09 | 2272.57 | 0.39 | 0.04 | 0.02 |
| | 4 (18) | | 10 | -10 | 21.70 | 2079.40 | 2163.08 | 2145.08 | 2088.00 | 2300.76 | 0.38 | 20.59 | 0.58 |
| | 5 (22) | | 10 | -10 | 13.43 | 2070.85 | 2173.13 | 2151.13 | 2081.37 | 2341.41 | 0.71 | 0.08 | 0.03 |
| | 6 (26) | | 2 | -9 | 99.58 | 2051.16 | 2172.04 | 2146.04 | 2063.59 | 2370.91 | 0.30 | 597.05 | 0.36 |
| | 7 (30) | | 2 | -9 | 94.68 | 2049.35 | 2188.82 | 2158.82 | 2063.69 | 2418.29 | 0.53 | 42.63 | < 0.01 |
| | 8 (34) | | 2 | -98 | 87.13 | 2042.26 | 2200.33 | 2166.32 | 2058.51 | 2460.39 | 0.67 | 512.09 | < 0.01 |
| | 9 (38) | | 2 | -98 | 82.07 | 2040.14 | 2216.80 | 2178.80 | 2058.30 | 2507.46 | 0.52 | - | < 0.01 |
| | Class-invariant non-diagonal (Variables allowed to covary within profiles, and variances and covariances constrained to equality across profiles) | | | | | | | | | | | | |
| 1 (9) | 284 | -1057.1 | 1 2132.22 | 2174.06 | 2165.06 | 21 | 36.52 | 2242.90 | _ | 0.37 | | 0.01 | |
| 2 (13) | 108 | -1044.8 | 31 2115.63 | 2176.06 | 2163.06 | 21: | 21.84 | 2275.50 | 0.70 | 0.58 | | 0.03 | |
| 3 (17) | 12 | -1032.9 | 7 2099.94 | 2178.97 | 2161.98 | 21 | 08.07 | 2309.01 | 0.53 | 0.10 | | 0.06 | |
| 4(21) | 10 | -1019.3 | 3 2080.66 | 2178.28 | 2157.28 | 20 | 90.69 | 2338.91 | 0.23 | 19.83 | | 0.57 | |
| 5 (25) | 5 | -1011.0 | 2072.03 | 2188.26 | 2163.26 | 20 | 83.98 | 2379.48 | 0.63 | 0.10 | | 0.03 | |
| 6 (29) | 2 | -997.4 | 1 2052.81 | 2187.63 | 2158.63 | 20 | 66.67 | 2409.45 | 0.26 | 67.56 | | 0.29 | |
| 7 (33) | 2 | -990.3 | 2 2046.64 | 2200.06 | 2167.06 | 20 | 62.41 | 2452.47 | 0.52 | 273.55 | | < 0.01 | |
| 8 (37) | 2 | -984.63 | 3 2043.27 | 2215.28 | 2178.28 | 200 | 60.95 | 2498.29 | 0.70 | 684.37 | | < 0.01 | |
| 9 (41) | 2 | -979.80 | 6 2041.73 | 2232.34 | 2191.34 | 20 | 61.32 | 2545.94 | 0.53 | _ | | < 0.01 | |

Note. AIC = Akaike's information criterion; cAIC = consistent Akaike's information criterion; BIC = Bayesian information criterion; sBIC = sample size adjusted Bayesian information criterion; AWE = approximate weight of evidence criterion; LMR = p-value for adjusted Lo-Mendell-Rubin likelihood ratio test; aBF = approximate Bayes factor; CMP = approximate correct model probability. The CMP was calculated within each variance-covariance specification. Numbers in bold indicate the lowest values of each information criterion, within each variance-covariance specification.

Table 3Mean Scores on Civic Assets in Each Profile (Standard Errors in Parentheses).

| | Critical Reflection Emphasis [3.52%; $n = 10$] | Civic Assets at Midpoint [23.94%; $n = 68$] | Social Responsibility Emphasis [35.21%; $n = 100$] | High Social Responsibility – Moderately High Civic Efficacy [37.32%; $n=106$] |
|--------------------------|---|--|---|--|
| Critical reflection | 3.81 (0.33) ^{ABa} | 3.05 (0.15) ^a | 2.94 (0.16) ^C | 3.08 (0.17) ^{EF} |
| Social responsibility | 2.04 (0.22) ^{Abcd} | 3.14 (0.10) ^{bef} | 3.99 (0.07) ^{CDceg} | 4.83 (0.03) ^{EGdfg} |
| Civic efficacy | 2.63 (0.09) ^{Bhi} | 2.97 (0.13) ^j | 3.21 (0.10) ^{Dhk} | 3.87 (0.06) ^{FGijk} |

Note. Percentages in brackets represent proportions of youth classified into each profile based on modal assignment. Pairs of uppercase letters indicate Wald χ^2 tests within profiles that were statistically significant at p < .05 after Holm-Bonferroni adjustments. Pairs of lowercase letters indicate Wald χ^2 tests across profiles that were statistically significant at p < .05 after Holm-Bonferroni adjustments.

and civic efficacy, and civic efficacy was significantly higher than critical reflection. Therefore, we named this profile the *high social responsibility – moderately high civic efficacy* profile.

Profile differences in mean levels of civic action

The bottom portion of Fig. 1 shows mean levels on the three categories of civic action for each profile. Several pairwise comparisons were statistically significant at p<.05 taking into account Holm-Bonferroni adjustments. Table 4 shows the full results of the BCH procedure.

The *critical reflection emphasis* profile had the lowest levels of participation in all three forms of civic action: political activities, community service, and social activism. The level of political activities in the *critical reflection emphasis* profile was significantly lower than in the *high social responsibility – moderately high civic efficacy* profile. The levels of community service and social activism were significantly lower than all other profiles.

All activities in the *civic assets at midpoint* profile were lower than in the *high social responsibility – moderately high civic efficacy* profile. Additionally, the level of community service was less than in the *social responsibility emphasis* profile. Community service and social activism in the *civic assets at midpoint* profile were significantly higher than in the *critical reflection emphasis* profile.

The social responsibility emphasis profile had levels of political activities and levels of community service that were significantly lower than the high social responsibility – moderately high civic efficacy profile. Compared to the critical reflection emphasis profile, the levels of

community service and social activism in the *social responsibility emphasis* profile were significantly higher. The only difference in civic action between the *social responsibility emphasis* profile and the *civic assets at midpoint* profile was that community service was significantly higher in the *social responsibility emphasis* profile.

The high social responsibility – moderately high civic efficacy profile had the highest levels of all three forms of civic action. Average levels of political activities and community service were significantly higher than all other profiles. Average levels of social activism were significantly higher than the critical reflection emphasis and civic assets at midpoint profile, but not the social responsibility emphasis profile.

Discussion

We investigated whether multiple profiles of civic assets could be identified in a sample of U.S. youth of color and explored how profiles may relate to civic action. We found four distinct profiles of civic assets. Contrary to hypotheses, we did not identify profiles with high scores on all assets or with low scores on all assets, and we also did not identify a profile with high social responsibility and low critical reflection and civic efficacy. In line with our hypotheses, we identified a profile, which included a third of the sample, with high levels of social responsibility and civic efficacy along with a low level of critical reflection. Additionally, we identified three unexpected profiles. In one, critical reflection scores were high, but scores on social responsibility and civic efficacy were low (critical reflection emphasis). A second unpredicted profile had scores for all three civic assets at the midpoint, and the third

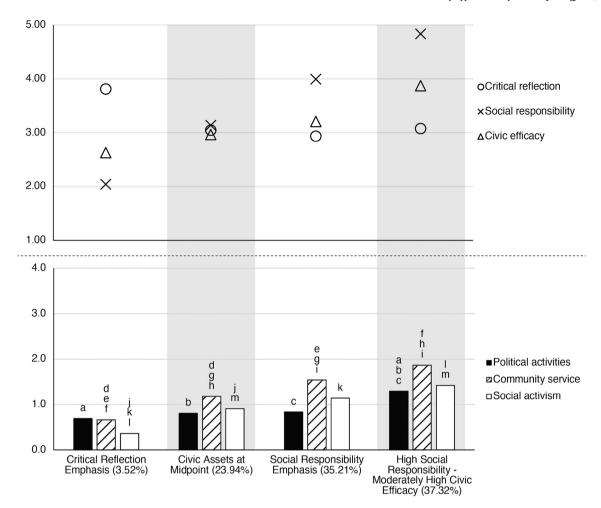


Fig. 1. Mean Scores on Civic Assets and Mean Frequency of Political Activities, Community Service, and Social Activism in the Four Profiles. *Note.* Top panel represents mean scores on scale variables used in classification for the four-profile solution with variables' covariances within profiles fixed at 0, and variances constrained to equality across profiles (class-invariant diagonal). Bottom panel represents mean scores on outcome variables from BCH procedure, with pairs of letters indicating pairwise comparisons that were statistically significant at p < .05 after Holm-Bonferroni adjustments.

had critical reflection and civic efficacy scores at the midpoint with moderately high social responsibility. Levels of civic action significantly differed between profiles, with patterns emerging that linked community service to social responsibility, social activism to civic efficacy, and political activities to both social responsibility and civic efficacy. Importantly, the *critical reflection emphasis* profile was related to low levels on all three civic activities. The patterns of civic assets that were found among youth of color in this study, and the relationships of the profiles to different levels of civic action, can further our understanding of how and why youth of color engage in different forms of civic action.

Patterns of youth civic assets

Social responsibility was significantly different among all four identified profiles, which suggests that youth can be differentiated based on their sense of responsibility for taking civic action. Indeed, social responsibility was the only indicator which showed wide variation in scores among the profiles: the largest profile had average reports of social responsibility at 4.83 on a five-point scale, whereas the smallest profile had average reports as low as 2.04. Past research with a predominantly white youth sample found that social responsibility declined from age 9 to 16 (Wray-Lake, Syvertsen, & Flanagan, 2016). The researchers commented that "adolescents feel less connected and respected in their contexts over time and declines in these ecological assets predict corresponding declines in social responsibility values" (p. 137;

Wray-Lake et al., 2016). Although the youth of color in our sample had high social responsibility scores (and were 14.45 years old on average), environmental supports such as strong social connections need to be sustained to prevent any possible future declines in social responsibility.

In contrast to social responsibility, critical reflection did not show much variation across the profiles. The smallest profile identified had youth reporting moderately high levels of critical reflection, but in all other profiles the scores were at the scale mid-point of 3.00. The overall moderate-to-high scores of critical reflection among youth of color may be due to experiences of racism in their everyday lives. In one nationally representative sample of African American and Afro Caribbean teens, over 86% had at least one experience of racism (Pachter, Caldwell, Jackson, & Bernstein, 2018), and other non-representative samples of youth of color have also documented very high rates of experiences of racism (Seaton & Iida, 2019; Zeiders et al., 2021). Research has shown that experiences of racism predict critical reflection (Hope, Smith, Cryer-Coupet, & Briggs, 2020), which may explain the moderate-to-high scores in our sample. Furthermore, our analyses suggest that a simple positive relationship between critical reflection and civic action may be apparent when looking only at critical reflection as the internal asset (e. g., Bañales, Mathews, Hayat, Anyiwo, & Diemer, 2019), but looking at the relationship between critical reflection and civic action in the presence of other assets paints a more complex picture. The implication is that young people of color are different from each other not based on how much they engage in analyses of systems of oppression (because

Table 4Comparisons Among Profiles of Mean of Political Activities, Community Service, and Social Activism Using the BCH Procedure.

| Political activities (Overall test: χ^2 = 27.89, $p < .001$) | 1 vs. | 2 vs. | 3 vs. |
|--|---|-----------------------------------|-------------------------------------|
| 1. Critical reflection emphasis (M = 0.69, SE = 0.16) 2. Civic assets at midpoint (M = 0.81, SE = 0.10) 3. Social responsibility emphasis | $- \chi^2 = 0.26, p$ = .609 $\chi^2 = 0.68, p$ | | _ |
| (<i>M</i> = 0.83, <i>SE</i> = 0.13) 4. High social responsibility – moderately high civic efficacy (<i>M</i> = 1.30, <i>SE</i> = 0.09) | = .411 $\chi^2 = 14.53$, p < .001, H-B | | $\chi^2 = 6.53, p$ = .011, H-B |
| Community service (Overall test: $\chi^2 = 39.64$, $p < .001$) 1. Critical reflection emphasis ($M = 0.66$, $SE = 0.17$) | 1 vs. | 2 vs. | 3 vs. |
| 2. Civic assets at midpoint (M = 1.18, SE = 0.16) 3. Social responsibility emphasis (M = 1.54, SE = 0.09) 4. High social responsibility – moderately high civic efficacy (M = 1.87, SE = 0.14) | | ,, | $ \chi^2 = 17.16,$ $p < .001, H-$ B |
| Social activism (Overall test: $\chi^2 = 27.86$, $p < .001$) 1. Critical reflection emphasis ($M = 0.36$, $SE = 0.10$) | 1 vs. | 2 vs. | 3 vs. |
| Civic assets at midpoint (M = 0.91, SE = 0.12) Social responsibility emphasis (M = 1.14, SE = 0.24) High social responsibility – | $\chi^2 = 7.28, p$ = .007, H-B $\chi^2 = 8.02, p$ = .005, H-B $\chi^2 = 26.74,$ | $- \chi^2 = 1.25, p$ = .264 | 2 115 |
| moderately high civic efficacy $(M = 1.43, SE = 0.16)$ | <i>p</i> < .001, H-B | $\chi^2 = 7.50, p$ = .006, H-B | $\chi = 1.15, p$ = .284 |

Note: H-B indicates pairwise comparisons that were statistically significant at p < .05 after Holm-Bonferroni adjustments.

most youth show only moderate scores on that asset), but on how much they demonstrate other important civic assets.

Civic efficacy showed moderate variation among profiles, although the *civic assets at midpoint* profile and the *social responsibility emphasis* profile did not differ significantly in levels of civic efficacy. In general, the levels of civic efficacy in each profile followed the levels of social responsibility: when social responsibility was high, civic efficacy was also high, when social responsibility was low, civic efficacy was low. This pattern suggests that these assets may have similar developmental roots (i.e., the same processes may bring about these civic assets), or that the same ecological supports produce both of these assets. Zaff et al. (2011) for example found that as youth proceeded from Grade 8 to Grade 11, gaps between social responsibility and civic efficacy narrowed (i.e., the scores became more similar). It will be important to examine whether both civic efficacy and social responsibility can be supported at once through similar mechanisms.

Relations between civic assets and civic action

Civic assets related differentially to the three types of civic action. Profiles that differed significantly in average levels of social responsibility had corresponding significant differences in average levels of community service. However, social activism only differed between profiles when civic efficacy was significantly different between profiles—for example, between civic assets at midpoint and high social responsibility – moderately high civic efficacy. These findings add nuance to our understanding of the role of civic assets in engendering civic action. Prior research by Pancer et al. (2007) and Suárez-Orozco et al. (2015) highlighted the importance of social responsibility for civic action, but our results suggest that for youth of color, social responsibility is primarily associated with community service. It may be that youth who feel

a strong obligation towards contributing to their communities engage in service activities, or it may be that the engagement in community service enhances feelings of responsibility towards society.

Our results indicated, however, that social activism is mainly associated with civic efficacy. These findings extend the literature on youth taking civic action (Hope & Jagers, 2014; Kahne & Westheimer, 2006; Schulz, 2005) by showing that self-efficacy is particularly important for social activism. Youth may get involved in social activism only when they feel that their participation will be effective. Additionally, young people may develop civic efficacy through engaging in social activism. Social activism, in comparison to other forms of civic action, may incorporate more opportunities for young people to develop skills and relationships that build a sense of efficacy.

Political activities typically did not differ between profiles, with one exception. Participation in political activities was significantly higher in the high social responsibility – moderately high civic efficacy profile compared to the three other profiles. These results suggest that participation in political activities occurs when youth have multiple civic assets—in this case, when young people report high levels of both social responsibility and civic efficacy. For young people (the average age of our participants was 14), political activity likely takes place in settings with adults present (e.g., teachers, mentors, caregivers). For example, volunteering at a local election as a young person likely includes interactions with adult leaders. Wray-Lake and Abrams (2020) found that youth of color reported the presence of supportive adults as a critical asset for civic action, thus the adults present during youth's involvement in political activities should examine ways to foster multiple civic assets within youth.

Because our analyses focused only on youth of color, future research should examine whether there are differences between youth of color and white youth in the relationships between civic assets and civic action. Overall, our results suggest that youth of color draw on social responsibility when doing community service; civic efficacy when doing social activism; and both assets when doing political activities. The notion that a sense of duty can support young people to engage in service activities seems consistent with literature among white youth (Metzger, Alvis, & Oosterhoff, 2020). For people of color especially, social activism can come with many burdens and risks (Gorski, 2019a, 2019b). Burnout is a real concern for those engaged in activist work, and there is also the potential for backlash from institutions as well as interpersonal conflict. Thus, youth of color may need to draw on a strong foundation of civic efficacy to engage in this type of civic work. Furthermore, given the significant attacks on people of color's right to political participation in the United States (Hajnal, Lajevardi, & Nielson, 2017) it is not surprising that a duo of assets are needed for political participation.

Critical reflection and critical action

Critical reflection is an important civic asset to consider when examining the civic action of youth of color (Watts & Flanagan, 2007). In our analyses, critical reflection scores were only significantly different between the *critical reflection emphasis* and *civic assets at midpoint* profile. Thus, the lower critical reflection levels were associated with higher scores on both social responsibility and efficacy. Given the overall patterns across the sample, where these two assets were highly associated with civic action, it is more difficult to tease apart the specific role of critical reflection. Nevertheless, these results make sense within the frameworks of sociopolitical development (Watts et al., 2003; Watts & Guessous, 2006) and critical consciousness (Diemer et al., 2016; Freire, 2016; Watts et al., 2011).

These frameworks posit that youth who experience oppression, including youth of color, engage in critical action—action aimed at dismantling systems of oppression—when they have critical reflection and when feelings of self-efficacy translate their critical reflection into critical action. Our findings support this proposition in part: young people who reported high levels of critical reflection but had low levels

of civic efficacy were the least engaged in all three forms of civic action. However, there was high variation in critical reflection levels within profiles where youth reported frequent engagement in action. This variation means that in these profiles (where youth were highly engaged) there were some youth who reported higher critical reflection (relative to the mean score in the profile) and others who reported lower levels (relative to the mean score in the profile). If we interpret action plus critical reflection as being critical action, then in each profile, some youth could be considered as engaging in critical action, whereas others would not be (depending on whether their critical reflection score is higher or lower than the profile mean). In future work, it will be important to develop measures of civic action that allow for a more accurate identification of whether young people are taking part in critical action. In other words, future research could infuse the presence/absence of critical reflection into the measure of civic actiontaking. This would help clarify when young people need to draw on other civic assets like civic efficacy and social responsibility in order to engage in the critical action needed to transform society.

Overall, our results highlight the need for research on sociopolitical development and critical consciousness to take into account what other civic assets youth bring to their engagement, and to consider that young people with the same average levels of civic action may still differ in their critical analysis of social inequity and injustice. Youth of color do not simply become more aware of systems of oppression as they participate more, and vice versa, but rather there are complex interrelationships that depend on youths' feelings of social responsibility and civic efficacy (and likely other individual characteristics as well).

Limitations and future directions

There are limitations to our present analyses which we outline below, along with directions for future research. First, our analyses are cross-sectional. This precludes conclusions about whether the civic assets are contributing to civic action or whether the involvement generated the civic assets within youth. Future research may examine how different assets emerge from young people's involvement in civic action, as well as how assets youth have gained in other ways (e.g., through parental socialization) contribute to civic action.

In our current model, we examined the analytical component of critical reflection, which is referred to as "perceptions of inequity." Prior research has found that perceptions of inequity can be uncorrelated to the evaluative component of critical reflection—called egalitarian beliefs (Diemer et al., 2017). In other words, it is possible that among young people who perceive inequity, they may differ in their evaluations of it. Some youth may feel that a hierarchical society where some social groups are dominant over others is justified, whereas others may believe that a more equitable society is more just. As young people may only engage in critical action when they feel that there is a need to address injustice in society, future research should include both the analytical and evaluative components of critical reflection. In addition, our measure of perception of inequity focused on inequity within the specific contexts of educational and vocational opportunities. Future research should consider youth perceptions of inequity in other contexts, such as health, legal, and political systems.

The generalizability of these analyses to all youth of color in the U.S. is limited, as our sample is not representative of this population. Participants in the CABB study primarily attended parochial schools; these schools tend to emphasize service in their education (Walsh & Spells, 2020), which may account for the sample's high levels of social responsibility along with high levels of participation in community service (as compared to political activities and social activism). Further research could extend these findings to a sample that is representative of youth of color in the U.S. Future analyses could also consider a direct examination of the influence of contextual variables' on civic assets and civic action. For example, how do opportunities at school for engaging in various types of civic action impact youths' actual participation, and

thereby their civic asset development?

Conclusion

Young people's involvement in civic action is a critical component of the overall development of young people, as well as an important element of healthy communities and a thriving democracy (Sherrod, 2015). It is critical to examine the civic action of youth of color in particular, as they face systemic injustice and inequity in their developmental contexts (National Academies of Sciences, Engineering, and Medicine, 2019). Civic action may be a powerful way for youth to dismantle structures of oppression and, in doing so, support their own development as well as that of communities they belong to (Hope & Spencer, 2017).

We identified distinct subgroups based on levels of critical reflection, social responsibility, and civic efficacy for youth of color, and these patterns of assets were differentially associated with three forms of civic action. Social responsibility was closely linked to community service, yet social activism was associated with levels of civic efficacy. Political activities were associated with levels of both social responsibility and civic efficacy. Thus, different forms of civic action may be supported by—and perhaps in turn support the development of —different civic assets. In addition, our analyses supported to some extent the notion that youth engage in critical action when they reflect on inequities and also feel efficacious about their ability to enact change in their communities. Young people with the highest amounts of critical reflection were involved infrequently in civic action, which may be due to low levels of social responsibility and civic efficacy. This pattern of results point to the need to examine the role of multiple other assets, including social responsibility and civic efficacy, when considering how youth translate critical reflections into civic action that may be aimed at redressing systems of oppression.

Funding

This work was supported by the Templeton Religious Trust [grant number 29151].

Declaration of Competing Interest

None.

Data availability

Data will be made available on request.

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