Sociopolitical Development, Work Salience, and Vocational Expectations
Among Low-SES African American, Latino/a, and Asian American Youth


Matthew A. Diemer¹, Qiu Wang¹, Traymanesha Moore², Shannon R. Gregory¹,
Keisha M. Hatcher¹, & Adam M. Voight¹
Michigan State University

*Author’s note. Correspondence regarding this paper should be directed to Matthew A. Diemer, Department of Counseling, Educational Psychology and Special Education, 441 Erickson Hall, College of Education, Michigan State University, East Lansing, MI 48824-1034; (517) 355-6684; email: diemerm@msu.edu.

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¹ Department of Counseling, Educational Psychology & Special Education
² Department of Curriculum, Teaching & Educational Policy
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Abstract
Structural barriers constrain marginalized youths’ development of work salience and vocational expectations. Sociopolitical development (SPD), the consciousness of and motivation to reduce sociopolitical inequality, may facilitate the negotiation of structural constraints. A structural model of SPD’s impact on work salience and vocational expectations was proposed and its generalizability tested among samples of low-SES African American, Latino/a and Asian American youth, using Educational Longitudinal Study data. First, measurement and temporal invariance of these constructs was established before testing the proposed model across the samples. Second, across the three samples, 10th grade SPD had significant effects on 10th grade work salience and vocational expectations; 12th grade SPD had a significant effect on 12th grade work salience. Third, 10th grade SPD had significant indirect effects on 12th grade work salience and on 12th grade vocational expectations for all three samples. This suggests that SPD facilitates the agentic negotiation of constraints on the development of work salience and vocational expectations. Given the impact of adolescent career development on adult occupational attainment, SPD may also foster social mobility among youth constrained by an inequitable opportunity structure.
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Critical tasks for adolescents include developing work salience, a salient connection and future orientation to work, and specifying vocational expectations, the occupation(s) one expects to attain in adulthood (Greenhaus, 1971). Work salience and vocational expectations are key components of youths’ occupational self-concept, which guides vocational behavior across the life-span (Super, 1990). The occupational self-concept is also affected by an appraisal of the social environment and the social structure in which one exists (Super, 1990). Low-SES African American, Latino/a, and Asian American youth encounter racial and socioeconomic barriers that may limit occupational self-concept development (Chaves et al., 2004; Constantine et al., 1998). Further, sociopolitical inequality (defined here as macro-level inequities - such as structural racism and the asymmetrical distribution of resources - that limit access to micro-level resources, such as educational/occupational opportunities, supports, and social capital) may constrain marginalized youths’ connection to the world of work and the specification of expected occupations (Diemer & Blustein, 2006; Newman, 1999).

Sociopolitical development (SPD), defined here as a consciousness of and motivation to reduce sociopolitical inequality, may assist low-SES African American, Latino/a, and Asian American youth in negotiating the structural barriers that constrain the occupational self-concept and the resolution of career development tasks. A consciousness of macro-level inequity and feeling empowered to produce social change may serve an agentic function in helping marginalized youth overcome the sociopolitical barriers that threaten the development of work salience and specification of vocational expectations. Past research supports this notion, as SPD
has been found to be predictive of low-SES youth of color’s vocational identity and career commitment (Diemer & Blustein, 2006), vocational expectations (Diemer & Hsieh, 2008) and a longitudinal predictor of occupational attainment in adulthood (Diemer, 2009).

The present study examines whether SPD predicts work salience and vocational expectations among low-SES African American, Latino/a, and Asian American youth. This study extends previous research by (a) examining the direct and indirect effects of SPD on work salience and vocational expectations (b) cross-validating previous findings with a new source of data, the Educational Longitudinal Study (c) examining these relationships by racial/ethnic group, rather than an aggregated sample (d) exploring measurement invariance across three samples and the invariance of these constructs over time (e) and examining the sensitivity of this model across samples of affluent Whites, low-SES Whites, and affluent youth of color.

Although low-SES African American, Latino/a, and Asian American youth share experiences of structural racism and limited access to societal resources, racial/ethnic minority groups have divergent sociopolitical histories and experiences in the opportunity structure (Helms, 1984). This suggests that the SPD and career development constructs may differ across racial/ethnic groups; further, there may be racial/ethnic differences in the relationships between SPD and career development that have not been examined. To make these group comparisons, it is first necessary to establish the measurement invariance of these constructs across these samples (Marsh, 1993). Measurement invariance ensures that the items comprising the constructs and the constructs themselves have the same meaning for each group (Temme, 2006). If measurement invariance is established, then the structural model will then be fit for each sample. Several threats to the validity of the proposed model are addressed by controlling for potential
confounds, examining reverse causality, and using repeated waves of measurement, a longitudinal design, and structural equation modeling (Pearl, 2000; Schneider et al., 2006).

**Career Development: Vocational Expectations and Work Salience**

Specifying the occupation that one expects in adulthood, or one’s vocational expectation, is an important career development task for adolescents (Super, 1980). Vocational exploration and decision-making during adolescence are guided by the occupation that one expects to attain in adulthood (Super, 1990). Occupational self-concept development and progress in resolving career development tasks, such as the specification of vocational expectations, are predictive of adult occupational attainment (Hotchkiss & Borow, 1996; Sewell & Hauser, 1975).

Work salience represents the relative importance of work and career in an individual’s life (Greenhaus, 1971). For adolescents, this is a more affective and prospective commitment, as work and career have a more prominent role in the “life space” of adulthood than adolescence. Work salience is particularly important for adolescents, because this connection to the world of work facilitates the career exploration and decision-making needed to select occupations congruent with the occupational self-concept (Super, 1980).

The vocational expectations and work salience of low-SES African American, Latino/a, and Asian American youth appear to be constrained by sociopolitical barriers (Diemer & Hsieh, 2008). These youth often attend under-resourced schools and live in impoverished communities that provide more limited access to quality vocational guidance (Constantine et al., 1998), vocational role models and community support (Wilson, 1996), and opportunities to explore careers via part-time work (Newman, 1999), which may constrain the occupational self-concept and concomitantly vocational expectations and work salience. Qualitative studies have also suggested that the perceived effects of structural racism on the work lives of family members
(Chaves et al., 2004), structural racism’s effects on one’s occupational dreams (Diemer, Kauffman, Koenig, Trahan & Hsieh, 2006) and the threat of random community violence (Sirin et al., 2004) may lead marginalized youth to disconnect from their vocational futures and reduce their vocational expectations.

Low-SES African American, Latino/a, and Asian American youth share experiences of structural inequality, although the macro-level context may have differential effects on each group’s vocational expectations and work salience, given different experiences in the opportunity structure (Blustein, 2006). However, the few studies in this area suggest that the sociopolitical context has similar effects on African Americans’, Asian Americans’, and Latino/as’ vocational expectations (Arbona, 1990; Brown, 1995; Leong & Chou, 1994) and work salience (Diemer & Blustein, 2006). Micro-level factors, such as deference to parental wishes (Leong & Chou, 1994) and/or a more collectivistic orientation (Naidoo, Bowman & Gerstein, 1998) may uniquely affect the vocational expectations and work salience of youth of color but are less related to macro-level inequity and are therefore not examined. This study examines racial/ethnic group differences in vocational expectations and work salience, as well as in the relationships between SPD and vocational expectations/work salience, to advance this nascent literature.

Sociopolitical Development

SPD scholarship is an outgrowth of Freire’s (1973; 1993) perspective on critical consciousness development and liberation psychology perspectives (e.g., Martín-Baró, 1994). Theoretically, SPD empowers marginalized youth to more fully self-determine their lives and exercise their human agency by “critically reading” and negotiating a context of structural limitations (Diemer, Hsieh & Pan, 2009; Ginwright & James, 2002). SPD is comprised of two components – a consciousness of sociopolitical oppression and the motivation to engage in social
action – through which youth progress in a stagewise manner (Watts et al., 1999). This reflection and action taxonomy was suggested by Freire (1973; 1993) and supported by previous research (e.g., Diemer & Blustein, 2006; Diemer et al., 2006).

The “sociopolitical consciousness” component of SPD describes how marginalized youth move from being objects of oppression to active subjects with a critical reading of and increased capacity to negotiate conditions of oppression (Freire, 1973, 1993). Tatum (1997) argued that this consciousness makes African Americans “better able to resist the negative impact of oppressive messages when we see them coming than when they are invisible to us” (p. 47).

The “motivation to reduce sociopolitical inequality” component describes how marginalized youth become motivated to engage in social action and strive to create a more just society (Ginwright & Cammarota, 2002). A recognition of oppression in one’s own and others’ lives motivates youth to change inequitable social conditions for themselves and for others similarly oppressed in their communities (Ginwright & James, 2002). Because youth lack formal outlets of sociopolitical participation (e.g., voting), their motivation to produce social change is reflected by participation in community centers and/or social action groups (Watts et al., 1999), an orientation toward reducing social and economic inequality (Diemer et al., 2009), and valuing more “traditional” forms of civic engagement, such as helping others similarly oppressed in one’s community and being an informed citizen (Watts & Flanagan, 2007).

Scholarship has generally examined SPD among aggregated samples of youth of color who reside in urban and/or low-income communities (e.g., Diemer et al., 2009; Ginwright & James, 2002). Structural racism and an asymmetrical distribution of resources are theorized to similarly affect this population. However, minorities’ divergent sociopolitical experiences may entail racial/ethnic differences in SPD (Quintana & Segura-Herrera, 2003; Watts et al., 1999).
This study will examine racial/ethnic group differences in SPD and in the relationships between SPD, vocational expectations and work salience to inform this nascent literature.

_Sociopolitical Development and Career Development_

The prevalence of sociopolitical inequity in low-SES African American, Latino/a, and Asian American youths’ lives (regardless of their consciousness of that inequity) likely affects their orientation to the opportunity structure. There is some debate whether a greater consciousness of sociopolitical inequality leads marginalized youth to become more or less engaged with traditional forms of social mobility, such as school and work. Some scholars have suggested that a consciousness of inequality has no relationship to marginalized youths’ engagement with the opportunity structure. Carter (2006) observed that low-SES African American and Latino/a youth with a consciousness of inequality elected not to engage with an inequitable opportunity structure, while other similarly conscious youth became engaged with school and work. Similarly, Conchas (2001) found that low-SES Latino/a youth with a more limited and more developed consciousness of inequality were similarly engaged.

Participants in these qualitative studies demonstrated a more limited critical consciousness in comparison to SPD models (Ginwright & James, 2002) and youths’ narratives - “I went to a Women of Color conference in Chicago over the weekend which dealt a lot with sexism in our society” - in Diemer et al. (2006, p. 450). Carter (2006), Conchas (2001), and Fine (1991) also did not examine the critical action component. A limited assessment of only one component may not illuminate the relationships of SPD to engagement with school and work.

The “oppositional culture” paradigm has suggested that a greater consciousness of sociopolitical inequity and structural racism leads marginalized youth to develop an oppositional orientation toward and become less engaged with school and work (Fine, 1991; Ogbu, 1989).
Perceptions of macro-level inequity are theorized to negatively affect the internal characteristics (e.g., motivation and engagement) of individual actors. Disengagement and lowered vocational expectations are viewed as a functional response to an opportunity structure that does not provide the same opportunities and rewards as it does for affluent Whites (Fine, 1991; Ogbu, 1989).

Despite its prominence, this paradigm has not received consistent empirical support. Ainsworth-Darnell and Downey (1998) and Harris (2006) provide empirical evidence (i.e., African American students had more pro-school attitudes than Whites and were not negatively sanctioned by peers for strong academic performance) that refutes its central tenets.

The oppositional culture perspective also overlooks the role of agency in relation to perceptions of structural inequality (Lundy, 2003). We argue that the oppositional culture perspective, in its emphasis on “outside-in” constraints, has overlooked “inside-out” resources that help marginalized youth negotiate these constraints. Marginalized youths’ consciousness of inequity may be an important source of agency, in that structural constraints may be more clearly perceived and negotiated. Somewhat paradoxically, a greater consciousness of structural constraints may empower marginalized youth to effectively negotiate these constraints and engage with the normative developmental challenges of school and work – or how to “play the games of school and work on an uneven playing field.” Similarly, Ramos-Zayas (2003) argued that “a politicized understanding of power, inequality and historical processes…actually involves the most disengaged students in a process of critical consciousness that can serve as a catalyst for entry into more mainstream mobility routes” (p. 88-89). We therefore examine the relationships between a more critical perspective of sociopolitical inequity and progress in career development among low-SES African American, Latino/a, and Asian American youth.

Study Purposes
We used structural equation modeling (SEM) to test hypothesized relationships between SPD, work salience, and vocational expectations. SEM tests relationships between latent constructs in one simultaneous analysis while controlling for measurement error (yielding more accurate estimates of effects that are less contaminated by error). Moreover, it rigorously evaluates how well a proposed theoretical model, as well as plausible alternative models, fit relationships in the data (Bollen, 1989; Martens, 2005). SEM is particularly useful in secondary data analyses, where all aspects of a construct may not have been measured – but available indicators can be used to represent a latent construct of interest. First, a measurement model is proposed to examine indicators’ loadings onto latent constructs for samples of low-SES African American, Asian American, and Latino/a youth. Measurement invariance of these constructs across the three racial/ethnic groups and the temporal invariance of these constructs over time will also be examined (Kline, 2005). Ensuring that observed indicators and latent constructs have the same meaning across groups and over time is an important prerequisite to testing the proposed longitudinal structural model for each racial/ethnic group.

Guided by previous scholarship, the conceptual model in Figure 1 depicts hypothesized relationships between constructs. Academic achievement may confound these relationships - high-achieving youth may have a greater cognitive capacity to develop a consciousness of sociopolitical inequality and perceived capacity to produce social change (SPD), be more emotionally connected to the adult world of work (i.e., work salience) and expect higher-status occupations in adulthood (i.e., vocational expectations). Therefore, 10th and 12th grade SPD, work salience, and vocational expectations were regressed on academic achievement to control for this latent variable (Kline, 2005).

---Insert Figure 1 about here---
ELS contains indicators of SPD, work salience, and vocational expectations at the 10th and 12th grade waves. This allows autoregressive relationships, where earlier measurements (10th grade) of a latent construct predict later measurements (12th grade) of the same construct, to be modeled. In addition to the direct effects in Figure 1, the indirect effects of 10th grade SPD on 12th grade work salience and vocational expectations (via 10th grade work salience and 10th grade vocational expectations, respectively) were estimated (Ruspini, 2002).

Method

Sample

Data were derived from the Educational Longitudinal Study of 2002 (ELS), a nationally representative survey of American high school students conducted by the National Center for Educational Statistics (NCES). ELS is a nationally representative panel longitudinal survey that began in 2002, collecting data from a cohort of 15,362 10th graders from 752 schools in the United States (Ingels et al., 2005). These same participants were surveyed two years later, when the ELS cohort was in the 12th grade (15,086 students were sampled at this wave). Participants were surveyed about a variety of topics, such as students’ extracurricular activities, academic performance, community participation, and educational and vocational expectations. The present study examined data collected from ELS participants in the 10th and 12th grade at the 2002 and 2004 waves of data collection. The stratification, clustering, and weighting of ELS were addressed using the MPlus software program (Muthén & Muthén, 2006), which powerfully and accurately analyzed complex sample data in simulation studies (e.g., Stapleton, 2006).

Among the population of 15,086 12th grade students who participated in the 2004 ELS wave, there were equal percentages of males (50.0%) and females (50.0%). Approximately forty-five percent of ELS participants identified as a person of color (13.4% identified as Black, 15.0%
as Hispanic, 10.2% as Asian-American/Pacific Islander, .9% as American Indian, and 4.8% as Multiracial). The socioeconomic status (SES) of students was assessed via a standardized composite variable comprising family income, parental educational attainment, and parental occupational attainment. Student’s dropout status was also surveyed; approximately 92.7% of ELS twelfth grade students had never dropped out of school in or before 2004.

A subpopulation of low-SES youth of color was selected, guided by the assumption that they encounter structural oppression and racial/socioeconomic constraints in the opportunity structure (García Coll et al., 1996). This study focused on African American, Asian American, and Latino/a youth (American Indian and Multiracial samples were too small for SEM analyses) who were members of the lowest one third of the SES distribution of all ELS participants (c.f. Diemer, 2009; Diemer & Hsieh, 2008). 2,627 youth matched our selection criteria. The sample contained more female (1345, 51.2%) than male (1282, 48.8%) participants. Using the racial/ethnic categories used by ELS, participants self-identified as: “Hispanic” (1197, 45.57%), “Black, not Hispanic” (884, 33.6%), and “Asian American/Pacific Islander” (546, 20.78%).

**Indicators of Latent Constructs**

ELS data were collected using a panel longitudinal design, where the same cohort of participants was followed over time. In a panel longitudinal design, the same or similar variables may be used across waves of data collection (Ruspini, 2002). Sequential SEM designs, which emphasize the relationships between latent constructs, rather than observed indicators, provide a rigorous and powerful way to test the relationships between latent constructs using panel longitudinal data (MacCallum & Austin, 2000). Because the emphasis is on testing the relationships between latent constructs (which are defined by multiple observed indicators), the specific observed indicators used to operationalize the latent constructs may actually be
exchanged for similar observed indicators across waves in a sequential SEM design (Ruspini, 2002). In this case, a few of the indicators used to operationalize SPD and vocational expectations were different across waves. Variables used to operationalize latent constructs are discussed below; further detail about each variable and descriptive data is provided in Table 1.

---Insert Table 1 about here---

**Sociopolitical Development**

10th grade SPD was operationalized by the perceived “importance of helping others in my community” and the perceived “importance of working to correct social and economic inequality.” 12th grade SPD was operationalized by the perceived “importance of helping others in my community,” the perceived “importance of working to correct social and economic inequality,” and also included the perceived “importance of being an active and informed citizen,” and voluntary participation at a “community center/social-action group.”

**Work Salience**

Work salience in the 10th and 12th grade was operationalized by the perceived importance of “being successful in my line of work,” the perceived importance of “having steady work,” and the perceived importance of “being an expert in my line of work.”

**Vocational Expectations**

10th grade vocational expectations was operationalized by the prestige of the occupation participants expected to attain age 30. ELS participants responded to an open-ended prompt regarding their expected occupation at age 30, which NCES recoded into one of sixteen nominal categories (Ingels et al., 2005). We recoded this nominal variable into an index of occupational prestige, using the Nakao and Treas (1994) SocioEconomic Index (SEI) of occupational prestige (c.f. Diemer, 2009; Diemer & Hsieh, 2008). This resulted in a continuous measure, with higher
scores representing higher occupational expectations. Given the interpenetration of school and work and the impact of educational attainment on occupational attainment (Eccles, 1994), 10th grade vocational expectations was also operationalized by perceptions of whether “education is important for getting a job later on” and “how far in school you think you will get.”

12th grade vocational expectations was also operationalized by the prestige of expected occupation at age 30. Education needed for this occupation and “how far in school you think you will get” were the second and third indicators of 12th grade vocational expectations.

Academic Achievement

10th grade academic achievement was operationalized by norm-referenced measures of math and reading achievement, where higher scores represent greater achievement. Each achievement variable is based on participants’ performance on math and reading tests developed by NCES (Ingels et al., 2005). The math test was comprised of 117 items and the reading test was comprised of 63 items; items for each test were derived from large-scale assessments. NCES used item response theory to calibrate participants’ scores and then standardized these values. Indicators of 12th grade academic achievement were not available in ELS.

Results

Non-normal indicators may bias estimates of model fit, model parameters, and standard errors in SEM analyses (West, Finch & Curran, 1995). Highly skewed and/or kurtotic indicators were identified and appropriate transformations applied to reduce variable non-normality. 10th grade “importance of education in finding a job later” as well as the “importance of being successful in work” and “importance of being able to find steady work” variables at 10th and 12th grade were moderately non-normal, using the criteria of skewness > 2.0 and kurtosis > 7.0 (Flora & Curran, 2004). A Box-Cox transformation, where values are raised to the second power
and divided by two, was applied (West et al., 1995). This transformation reduced non-normality, although some variables continued to be skewed and/or kurtotic. Large sample sizes (West et al., 1995) and the robust WLSMV (weighted least squares with robust standard errors, mean and variance adjusted) estimator used (Flora & Curran, 2004; Muthén & Muthén, 2006) attenuate the problems of non-normality, so no further transformations were made.

The relationship of indicators to specified latent constructs (measurement model) and the relationships between latent constructs (structural model) were fit for Asian American, Latino/a, and African American participants following a two-step approach to SEM (Kline, 2005). Because the data included both continuous and categorical outcomes (e.g., a dichotomous indicator of community/social-action group participation), the WLSMV estimator was used. The WLSMV estimator uses polychoric correlations to robustly and accurately estimate parameters in SEM models that contain categorical and continuous indicators (Flora & Curran, 2004). The variances of latent constructs were set to one, the first indicator freed, and theta parameterization used to identify the model (Muthén & Muthén, 2006).

Fit indices recommended for models with large samples and categorical indicators, RMSEA (Root Mean Square Residual), WRMR (Weighted Root Mean Residual), CFI (Comparative Fit Index), and TLI (Tucker Lewis Index) were used to assess model fit (Hu & Bentler, 1999; MacCallum & Austin, 2000; Martens, 2005). The chi-square/df statistic was not used to assess model fit because of its oversensitivity to large samples and lack of consensus regarding appropriate cutoffs (Bollen, 1989; Kline, 2005), although chi-square values were used to guide comparisons of models.

*Measurement Model: Testing Invariance*
Before proceeding to the structural model depicted in Figure 1, tests of measurement invariance were conducted to establish that the same construct was being measured across the low-SES African American, Latino/a, and African American samples. Measurement invariance provides evidence of construct validity. In a study that tests multiple groups, establishing that the same construct is being measured in the same way across groups supports the inferences drawn from structural models (Marsh, 1993).

Establishing measurement invariance requires assessing configural invariance and factorial measure invariance. Configural invariance was tested by fitting the same set of indicators to latent constructs for each racial/ethnic group. If this model fits well for each group and similar patterns of loadings are observed across groups, it can be concluded that the same constructs are measured in each group (Marsh, 1993). Factorial measure invariance combines multiple groups into a combined sample to assess whether factor loadings (metric invariance) and intercepts/thresholds (scalar invariance) are invariant (Temme, 2006). Factorial measure invariance establishes that the scaling of items is perceived similarly across groups and that there is no systematic response bias across groups.

**Measurement Model: Configural Invariance**

Model fit indices and the loading of indicators onto constructs for each racial/ethnic group were compared to test the configural invariance of these constructs. Because repeated measures (e.g., work salience and SPD indicators repeated across 10th and 12th grade) may share common sources of error, their error terms were correlated in each racial/ethnic group model.

Model fit indices suggested that the measurement model was a good fit for each racial/ethnic group. Reviewing Table 2, RMSEA values were below the .05 cutoff and WRMR values were at or below the 1.00 cutoff for all groups. CFI and TLI values were above the .95
cutoff for African Americans. Although the obtained CFI and TLI estimates for Latino/a and Asian American participants did not exceed the .95 cutoff proposed by Hu and Bentler (1999), they do exceed the .90 cutoff value for good fit suggested by Kline (2005). Relatedly, Hu and Bentler (1999) argued that “it is difficult to designate a specific cutoff value for each fit index because it does not work equally well with various conditions” (p. 27). The literature lacks simulation studies to suggest appropriate cutoff values for studies that entail longitudinal subpopulation analyses of complex sample data with categorical and continuous variables. Further, the fit index with the greatest amount of support from methodological scholars, RMSEA, clearly suggested very good fit (Hu & Bentler, 1999; Martens, 2005; MacCallum & Austin, 2000). Accordingly, the configural invariance model was judged to a good fit to the data.

---Insert Table 2 about here---

Table 3 depicts the significant loading of all indicators (save one) onto their specified latent construct for all three racial/ethnic groups. Model fit indices and the loading of indicators onto latent constructs suggested configural invariance, which provides psychometric support for the operationalization of these constructs and suggests that the same construct is measured in each group (Bollen, 1989; Marsh, 1993). Although the “community/social action group participation” indicator of 12th grade SPD was significant only for the Latino/a sample, it was retained. From a theoretical perspective, community/social action group participation is an important indicator of SPD; from a methodological perspective, omitting important variables may bias parameter estimates and lead to model misspecification (Kline, 2005).

**Measurement Model: Factorial Invariance**

Next, invariance of the factor loadings (metric invariance) and intercepts/thresholds (scalar invariance) were examined in a combined sample of African American, Asian American,
and Latino/a participants (Marsh, 1993). The presence of categorical and continuous variables entailed that factor loading invariance and intercept/threshold invariance must be tested simultaneously (Temme, 2006). The factorial invariance model was identified by fixing factor variances to 1 for each sample and fixing scale factors to 1 and factor means to 0 in the African American sample – arbitrarily selected as the reference group (Muthén & Muthén, 2006).

An unconstrained model (M1), where loadings, intercepts and thresholds are free for each racial/ethnic group, was compared to a highly constrained model (M2), where loadings, intercepts and thresholds are fixed as equal across groups. If the highly constrained model fits the data as well as the unconstrained model, then the conditions for factorial invariance are met (Temme, 2006). Returning to Table 2, model fit for the unconstrained M1 (CFI = .94, TLI = .95, RMSEA = .03, WRMR = 1.55) and highly constrained M2 models (CFI = .94, TLI = .94, RMSEA = .03, WRMR = 1.81) was nearly equal. (We note that WRMR has received far less support in the methodological literature than RMSEA, CFI and TLI and should be “ignored” when it diverges from other fit indices (L. Muthén, personal communication, January 10, 2005). This suggests factorial invariance – the scaling of factor indicators to latent constructs is the same across groups - and no response bias across groups (Marsh, 1993).

---Insert Table 3 about here---

Temporal Invariance

The invariance of constructs over time was then examined. The samples were pooled to focus on the temporal invariance of constructs, rather than racial/ethnic differences. Temporal invariance could only be tested for the seven indicators (BYOCC30, BYS56, BYS54F, BYS54J, BYS54A, BYS54E, BYS54N) that were repeated across waves (Makikangas et al., 2006).
Because all other indicators were present only at one wave, their loading onto a latent construct were freely estimated as detailed in the measurement model above.

Temporal invariance was tested by comparing an unconstrained model (M1), where loadings, intercepts and thresholds are free over time, to a highly constrained model (M2), where loadings, intercepts and thresholds are fixed as equal over time. If the highly constrained model (M2) fits as well as the unconstrained model (M1), then temporal invariance holds (Muthén & Muthén, 2006). Returning to Table 2, model fit for the unconstrained M1 (CFI = .95, TLI = .96, RMSEA = .03 and WRMR = 1.12) and highly constrained M2 models (CFI = .95, TLI = .96, RMASE = .03, and WRMR = 1.17) was nearly identical. This suggests that the SPD, vocational expectations, and work salience constructs and that the loading of repeated indicators onto these constructs are invariant over time.

In sum, the necessary conditions of configural, metric, and scalar invariance for measurement invariance were met in these analyses – suggesting that the measurement model fits all three groups, that changes in the latent construct lead to the same changes for the corresponding items across these groups, and that grouped tests of structural relationships are warranted (Temme, 2006). Measurement invariance does not suggest that the loading of items onto constructs was an artifact of one sample; rather, these are stable constructs that can be measured across racial/ethnic groups with these indicators (Marsh, 1993). Temporal invariance provides another form of construct validity evidence and further supports the use of these indicators to measure these constructs (Makikangas et al., 2006).

**Structural Model**

After establishing measurement invariance, the relationships between latent constructs in the model proposed in Figure 1 were examined for each racial/ethnic group. Returning to Table
values of the most robust fit index (RMSEA) were below the .05 cutoff for all groups; WRMR values were below the 1.00 cutoff for two groups (just above for Latino/as). CFI/TLI values met or exceeded Hu and Bentler’s (1999) .95 cutoff for the African American group; CFI/TLI values for the Asian American and Latino/a participants fell just short of this cutoff. For the reasons articulated above, the structural model was judged to be a good fit to the data for each sample.

Before settling on the final model, we first investigated substantively plausible competing models and evaluated the sensitivity of this (Figure 1) model across different populations. Reverse causality models change the direction of structural regressions to help unravel whether construct A is a “cause” of construct B or if construct B is a “cause” of construct A, but they do not establish causality (Pearl, 2000). A reverse causality model was fit, rather than a cross-lagged panel model, because of the two year interval between data waves and the disparate measurement of constructs at the 10th grade wave. We were concerned that these effects may dissipate over a two-year span and be undetected in a cross-lagged model; further, vocational expectations were not significant lagged predictors of youths’ SPD two years later in Diemer (2009). A wider set of indicators also measured a fuller range of the 10th grade vocational expectations and work salience constructs than 10th grade SPD, so these may not be equivalent predictors of cross-lagged effects at 12th grade.

A reverse causality model avoids these problems and therefore examined whether work salience and vocational expectations have direct effects on SPD at each wave. All other paths in Figure 1 were specified, save paths going from 12th grade to 10th grade. Reversed indirect effects (10th grade vocational expectations → 10th grade SPD → 12th grade SPD and 10th grade work salience → 10th grade SPD → 12th grade SPD) were estimated to compare equivalent models.
The reverse causality model fit worse for the Asian American (RMSEA = .01, CFI = .93, TLI = .93, WRMR = .92), African American (RMSEA = .01, CFI = .95, TLI = .95, WRMR = .88), and Latino/a samples (RMSEA = .01, CFI = .92, TLI = .93, WRMR = 1.06). The chi-square statistic is a problematic model fit index because of its oversensitivity to sample size (Martens, 2005) but chi-square values are useful in comparing the relative merits of models. For each group, the chi-square value was larger in the reverse- causality model (African Americans $\chi^2 = 79.43$, Asian Americans $\chi^2 = 56.67$, Latino/as $\chi^2 = 107.34$) than the model depicted in Figure 2 (African Americans $\chi^2 = 77.02$, Asian Americans $\chi^2 = 53.08$, Latino/as $\chi^2 = 100.04$), suggesting that Figure 2 is a better fit to the data. Further, there is no substantive basis for work salience and vocational expectations being predictive of SPD – a vital consideration in comparing competing models (Kline, 2005). By contrast, Diemer (2009), Diemer & Blustein (2006), Diemer & Hsieh (2008), and O’Connor (1997) suggest that SPD is predictive of career development. Therefore, the reverse causality model was rejected in favor of the final model presented in Figure 2, although these analyses cannot rule out reciprocal causation (e.g., SPD and work salience or SPD and vocational expectations “cause” each other in a feedback loop).

---Insert Figure 2 about here---

Sensitivity Analyses

This model was then re-fit to examine whether suggested relationships between SPD, vocational expectations, and work salience hold for affluent Whites, low-SES Whites, affluent youth of color, for dropouts versus non-dropouts, and when using different measures of SES and SPD. These analyses tested the generalizability of the proposed model across different subgroups, using model fit indices to delineate how well the model fit a given subgroup. Comparing individual path coefficients across subgroups presupposes measurement invariance –
which could not be established for this many subgroups while conforming to page space constraints – and that the structural model fits well for each subgroup, which (detailed below) was not the case across the sensitivity analyses (Kline, 2005; Martens, 2005).

Table 4 compares the fit of the model between the low-SES African American, Asian American, and Latino/a subgroups and the affluent White, low-SES White, and affluent youth of color subgroups. The model was first fit for an ELS sample of affluent Whites (3,440 White youth from the upper one-third of the composite SES measure’s distribution). Fit indices provided a mixed picture of model fit (CFI = .93, TLI = .94, RMSEA = .02, WRMR = 1.54), so chi-square values were used to compare the fit of this model for affluent Whites and for marginalized youth. The chi-square value for affluent Whites ($\chi^2 = 296.29$) was nearly three to five times larger than for the Asian American ($\chi^2 = 53.08$) African American ($\chi^2 = 77.02$), and Latino/a ($\chi^2 = 100.04$) samples. The magnitude of the chi-square and WRMR values, coupled with a lack of substantive support for SPD helping more privileged youth overcome sociopolitical oppression, led us to conclude that this model did not fit for affluent Whites.

The model was then fit with a sample of low-SES Whites (1,941 White youth from the lowest one-third of the composite SES measure’s distribution). The model fit better for low-SES Whites (CFI = .94, TLI = .95, RMSEA = .01, WRMR = 1.25, $\chi^2 = 187.84$) than for affluent Whites, but fit worse than for low-SES youth of color (see Table 4). This suggests that the model fit better for youth constrained by both racial/ethnic and socioeconomic barriers (García Coll et al., 1996) than for low-SES White youth constrained only by socioeconomic barriers or for affluent White youth who presumably do not experience either set of constraints.

The model was fit for a sample of affluent youth of color (1,292 youth who identified as Asian American, African American or Latino/a from the upper one-third of the SES
distribution). Model fit indices (CFI = .90, TLI = .93, RMSEA = .01, WRMR = 1.02, \(\chi^2 = 114.22\)) again provided a mixed picture. The low CFI value (.90), in concert with WRMR exceeding the 1.00 cutoff, suggests that this model should be rejected. The chi-square value for affluent youth of color was lower than the value for affluent Whites or low-SES Whites; however, this value was larger than the values for the low-SES Asian American (\(\chi^2 = 53.08\)), African American (\(\chi^2 = 77.02\)), and Latino/a (\(\chi^2 = 100.04\)) samples.

In sum, sensitivity analyses indicate that the model fit best for low-SES youth of color, suggesting that SPD’s effects on career development may be most salient for youth constrained by both racial/ethnic and socioeconomic oppression. Although fit indices indicate that this model should be rejected for affluent Whites, low-SES Whites, and affluent youth of color, comparing their chi-square values suggests that SPD may facilitate the negotiation of racial/ethnic barriers more than socioeconomic barriers. We should note that this last point is more speculative thinking that is not fully supported by the model fit indices.

Sensitivity analyses also suggested that this model was not affected by dropout status. When the sample was restricted to the overwhelming majority of students (93%) who had not dropped out (dropouts-only would not provide adequate sample size), the measurement and structural models had very comparable fit for each racial/ethnic group (results available by contacting the first author). In an alternative model, dropout status was added as an outcome of 10th grade and 12th grade SPD to the Figure 2 model, which resulted in very poor-fitting models for each racial/ethnic group. These analyses suggest that SPD’s effects on career development are invariant across dropout and non-dropout marginalized youth.

The use of aggregated SES measures may obfuscate relationships between the components of SES and developmental outcomes (Duncan & Magnuson, 2003). ELS also
contains indicators of parental income, educational and occupational attainment. Using total household income and highest (either maternal or paternal) educational and occupational attainment, we selected low-SES participants (the lowest one-third of the distribution) from each racial/ethnic group. This entailed fitting the structural model with nine subpopulations (three racial/ethnic groups by parental income, education, and occupation), summarized below. More detailed results are available by contacting the first author.

Using parental occupational attainment and income yielded nearly identical assessments of model fit and structural relationships to using composite SES, for each racial/ethnic group. When parental education was used, the model remained a good fit to the data for each sample, although the model fit slightly worse for the Asian American sample. The significance of SPD’s direct effects on vocational expectations and work salience when income, prestige, and education were used was identical to when the composite SES measure was used, for each group.

The indirect effects obtained using parental income and the composite SES measure were nearly identical, although some of the indirect effects of SPD on work salience became non-significant when occupational prestige and education were used. These indirect effects were sensitive to the type of SES indicator used (Magnuson & Duncan, 2006). Because the magnitude of indirect effects was smaller, they may have been more sensitive to different SES indicators than the direct effects. Overall, the stability of model fit and pattern of structural relationships using four different SES criteria with three different racial/ethnic groups suggests that this is a robust model, despite the sensitivity of some indirect effects.

Because the “community/social action group participation” indicator of 12th grade SPD was significant only for Latino/as, sensitivity analyses examined the structural model without this indicator (F1S63E) of SPD. Model fit indices and the magnitude of direct/indirect effects in
this more parsimonious model were nearly identical to the model depicted in Figure 2, for each racial/ethnic group (results available by contacting the first author). This suggests that SPD is a stable construct that can be measured using different indicators, that these indicators effectively measure this construct, and that the structural model is robust when different variables are used—further evidence of SPD’s construct validity (Jarvis, MacKenzie & Podsakoff, 2003).

*Structural Relationships*

Table 5 provides estimates of the statistical significance (unstandardized coefficients divided by standard error) and strength (standardized coefficients) for structural relationships depicted in Figure 2. Standardized coefficients (β) can be interpreted as estimates of effect size, although SEM effect sizes are generally smaller than effect sizes in multiple regression because they are less inflated by measurement error. Standardized coefficients (β) less than .10 can be considered “small” effects, larger than .30 “medium” effects, and larger than .50 “large” effects (Kline, 2005). The 95% confidence interval (CI) around each β is also presented below.

For all groups, 10th grade SPD was a significant autoregressive predictor of 12th grade SPD (Asian Americans β = .41 (CI = .26 to .57); African Americans β = .46 (CI = .32 to .60); Latino/as β = .63 (CI = .53 to .72), 10th grade vocational expectations a significant autoregressive predictor of 12th grade vocational expectations (Asian Americans β = .78 (CI = .58 to .98); African Americans β = .57 (CI = .42 to .73); Latino/as β = .62 (CI = .50 to .75), and 10th grade work salience a significant autoregressive predictor of 12th grade work salience (Asian Americans β = .32 (CI = .11 to .52); African Americans β = .20 (CI = .02 to .41); Latino/as β = .16 (CI = .02 to .29). Significant autoregressive relationships provide construct validity evidence and support operationalizing constructs with these indicators (MacCallum & Austin, 2000). At 10th grade, the vocational expectations and work salience constructs were
significantly correlated for African Americans ($\beta = .30$, $CI = .09$ to .51) and Latino/as ($\beta = .18$, $CI = .05$ to .31) but not for Asian Americans ($\beta = .10$, $CI = -.12$ to .32). At 12th grade, these constructs were significantly correlated for African Americans ($\beta = .25$, $CI = .06$ to .44) and Latino/as ($\beta = .21$, $CI = .03$ to .40) but not for Asian Americans ($\beta = .27$, $CI = -.09$ to .62).

10th grade academic achievement had significant “medium to large” direct effects on 10th grade work salience for all groups (Asian Americans $\beta = .29$ ($CI = .14$ to .43); African Americans $\beta = .50$ ($CI = .38$ to .63); Latino/as $\beta = .44$ ($CI = .33$ to .56) and significant “small” longitudinal effects on 12th grade work salience for all groups (Asian Americans $\beta = .23$ ($CI = .06$ to .41); African Americans $\beta = .19$ ($CI = .03$ to .36); Latino/as $\beta = .15$ ($CI = .05$ to .26). Unexpectedly, 10th grade academic achievement had significant negative and “small” direct effects on 10th grade SPD for African Americans ($\beta = -.12$ ($CI = -.22$ to -.02) and Latino/as ($\beta = -.27$ ($CI = -.36$ to -.18), but non-significant effects for Asian Americans ($\beta = .10$ ($CI = -.04$ to .23). 10th grade academic achievement also had a significant negative “medium” effect on 12th grade SPD for Asian Americans ($\beta = -.32$ ($CI = -.45$ to -.18), but had non-significant effects for African Americans ($\beta = -.08$, ($CI = -.19$ to .03) and Latino/as ($\beta = .08$ ($CI = -.02$ to .19).

10th grade SPD had significant “medium to large” direct effects on 10th grade work salience for all groups (Asian Americans $\beta = .48$ ($CI = .32$ to .63); African Americans $\beta = .59$ ($CI = .47$ to .70); Latino/as $\beta = .53$ ($CI = .41$ to .65). 12th grade SPD also had significant “medium to large” direct effects on 12th grade work salience for all groups (Asian Americans $\beta = .50$ ($CI = .34$ to .66); African Americans $\beta = .49$ ($CI = .37$ to .62); Latino/as $\beta = .66$ ($CI = .54$ to .78). 10th grade SPD had significant “small” indirect effects on 12th grade work salience (via 10th grade work salience) for all groups (Asian Americans $\beta = .15$ ($CI = .04$ to .27); African Americans $\beta = .12$ ($CI = .01$ to .24); Latino/as $\beta = .08$ ($CI = .01$ to .16).
10th grade SPD had significant “small to medium” direct effects on 10th grade vocational expectations for all groups (Asian Americans $\beta = .18$ ($CI = .04$ to .32); African Americans $\beta = .24$ ($CI = .09$ to .38); Latino/as $\beta = .49$ ($CI = .37$ to .60). However, 12th grade SPD had non-significant effects on 12th grade vocational expectations for all groups (Asian Americans $\beta = .10$ ($CI = -.04$ to .24); African Americans $\beta = .12$ ($CI = .00$ to .24); Latino/as $\beta = .06$ ($CI = -.05$ to .16). 10th grade SPD had significant “small to medium” indirect effects on 12th grade vocational expectations (via 10th grade vocational expectations) for all groups (Asian Americans $\beta = .14$ ($CI = .02$ to .26); African Americans $\beta = .14$ ($CI = .04$ to .23); Latino/as $\beta = .30$ ($CI = .21$ to .40).

---Insert Table 5 about here---

Discussion

Previous research suggests that SPD may help low-SES African American, Latino/a, and Asian American youth negotiate sociopolitical barriers that constrain occupational self-concept development and the resolution of career development tasks. However, this research has predominantly been cross-sectional (Diemer & Blustein, 2006; Diemer & Hsieh, 2008; O’Connor, 1997), has examined aggregated samples (Diemer, 2009), has not explored measurement and temporal invariance, has not examined model sensitivity, and has not fully attended to reverse causality and unobserved variables (Pearl, 2000). The present study suggests these constructs are invariant across low-SES African American, Latino/a, and Asian American youth and over time and that SPD may have direct and indirect effects on work salience and vocational expectations (while partially addressing confounding variables, reverse causality, and model sensitivity).

The necessary conditions for measurement and temporal invariance were met, which supports the operationalization of latent constructs and provides evidence of construct validity.
(Temme, 2006). This suggests that SPD, vocational expectations, work salience and academic achievement have the same meaning and can be measured the same way for African American, Asian American and Latino/a youth and over time. Measurement and temporal invariance are particularly important sources of construct validity evidence for SPD (Makikangas et al., 1996; Marsh, 1993), which has received far less empirical scrutiny than these other constructs.

Shared experiences of structural racism and socioeconomic inequality (García Coll et al., 1996) may explain these constructs’ similarity for low-SES racial/ethnic minorities. These results diverge from Watts et al. (1999) and Quintana and Segura-Herrera (2003), who argued that SPD may differ by racial/ethnic group. They converge with Brown (1995), Leong and Chou (1994), and Arbona (1990), who asserted that African Americans’, Asian Americans’, and Latino/as’ occupational expectations are similarly affected by structural racism. Although these constructs were invariant across these three racial/ethnic groups, they may differ from Whites or other racial/ethnic groups, a fruitful avenue for future research.

Across the three samples, 10th grade SPD had significant large direct effects on 10th grade work salience and small to medium effects on 10th grade vocational expectations; 12th grade SPD had significant large direct effects on 12th grade work salience. 10th grade SPD had significant small indirect effects on 12th grade work salience (via 10th grade work salience) and small indirect effects on 12th grade vocational expectations (via 10th grade vocational expectations) for all three samples. SPD generally had stronger direct and indirect effects on work salience than vocational expectations. Despite racial/ethnic groups’ divergent sociopolitical histories and experiences in the opportunity structure (Helms, 1984), SPD had similar effects on the negotiation of sociopolitical barriers among low-SES African American, Latino/a, and Asian American youth. We posit that SPD may facilitate the agentic negotiation of sociopolitical
constraints on the occupational self-concept and career development shared by low-SES youth of color. Given the impact of adolescent career development on adult occupational attainment (Super, 1990), SPD may also facilitate the negotiation of structural constraints on social mobility via occupational attainment (Diemer, 2009; Ramos-Zayas, 2003).

Theoretical Implications

There is some debate whether a greater consciousness of sociopolitical inequality reduces low-SES African American, Latino/a, and Asian American youths’ engagement (e.g., Fine, 1991; Ogbu, 1989; Ogbu 1991), has no relationship with engagement (Carter, 2006; Conchas, 2001) or facilitates engagement with the opportunity structure (Diemer, 2009; Diemer & Blustein, 2006; Diemer & Hsieh, 2008; O’Connor, 1997; Ramos-Zayas, 2003). This study suggests that a greater consciousness of and motivation to transform sociopolitical inequality may facilitate the development of an emotional connection to work and the formation of expectations for higher-status occupations in adulthood. These findings also call into question the oppositional culture paradigm as a widespread phenomenon among marginalized youth (e.g., Ainsworth-Darnell & Downey, 1998; Harris, 2006; Lundy, 2003).

Analyses also suggested that the relationship between SPD and academic achievement is more complex than anticipated. 10th grade academic achievement and 10th grade SPD were both significant predictors of 10th grade vocational expectations and work salience. However, 10th grade academic achievement had a negative effect on 10th grade SPD for the African American and Latino/a samples (and a non-significant positive effect for the Asian American sample). These relationships between academic achievement and SPD are unexpected, as academic achievement is widely recognized (Johnson & Mortimer, 2002; Super, 1990) and SPD suggested (Diemer & Blustein, 2006; O’Connor, 1997) as a precursor to adolescent career development.
This finding diverges from Diemer (2009), which found positive relationships between marginalized youths’ SPD, grade point average, and vocational expectations.

Academic achievement (measured with standardized assessments) and academic performance (measured with GPA) may have different relationships with SPD, vocational expectations, and work salience. The NCES used rigorous methods to develop these reading and math achievement tests, but they served as an imperfect confound in this study. Standardized achievement tests may have cultural bias that equally and negatively affects low-SES youth of color (Suzuki, Ponterotto, & Meller, 2001). Systematic bias between Whites and youth of color was not examined, although measurement invariance analyses suggest no bias in academic achievement across Asian American, African American, and Latino/a youth. Alternatively, more critically conscious marginalized youth may be less invested in performing well on standardized assessments perceived as culturally biased. Future research could disentangle whether this divergence reflects a measurement or theoretical issue, examining the relationships between SPD, academic achievement, academic performance, and career development. This may suggest a shift in focus on standardized testing to a broader perspective of multiple pathways to career development and (presumably) social mobility for marginalized youth.

In the present study, reading/math achievement had stronger effects on vocational expectations while SPD had stronger effects on the development of work salience. Further research could examine whether academic achievement and SPD have differential effects on the tasks of youth career development or explore the possibility that academic achievement (as operationalized via standardized tests) and academic performance (as operationalized via school grades) have differential effects on SPD and career development.

Limitations and Future Directions
Inherent limitations to secondary analyses include having limited variables to operationalize constructs and being unable to closely examine the meaning of items to participants. The limited number of SPD indicators in ELS circumscribed the operationalization of this construct. SPD connotes a consciousness of sociopolitical inequality and the motivation to produce social change. The “importance of working to correct social/economic inequality” indicator most clearly measures this aspect of the SPD construct. Three of the other four SPD indicators (“importance of being an active and informed citizen,” “importance of helping others in my community,” and “volunteered at community center or social action group”) may have measured this aspect of SPD as well as more traditional civic attitudes and behaviors.

It is also unclear how participants interpreted and responded to these items, given how they were worded and administered. Whether participants volunteered at a community center (Boys & Girls Club) vs. a social action group (young women’s feminist organization) was not measured, only if they had volunteered at either. “Helping others in one’s community” may refer to actions as diverse as volunteering at a soup kitchen to participation in community organizing. Being an “active and informed citizen” may refer to traditional voting behavior or may refer to being active in local social protest movements.

The mixed assessment of model fit for affluent Whites can be interpreted to illustrate this concern. More traditional civic attitudes and behaviors that may have been measured with these indicators may have related to affluent Whites’ traditional engagement with the opportunity structure. However, extant scholarship does not lead us to believe that SPD similarly helps more privileged youth negotiate sociopolitical barriers to their career development, as we assume that affluent Whites encounter fewer structural constraints than marginalized youth. Further, SPD is
conceptualized as a response to one’s own oppression, rather than to the oppression of others (Freire, 1973; Watts et al., 1999).

SPD theory suggests this distinction between critical and traditional attitudes and behavior may be irrelevant for marginalized youth. SPD encompasses critical consciousness and motivation as well as more traditional civic attitudes and participation (Ginwright & James, 2002; Watts & Flanagan, 2007). Further, and as argued above, helping others in one’s community that are similarly oppressed (assuming low-SES youth of color live in communities where others are similarly constrained by racial and socioeconomic inequity) is consonant with critical consciousness (Freire, 1973, 1993) and SPD scholarship (Watts et al., 1999).

The construct validity of this operationalization of SPD is also supported by the loadings of these indicators onto the SPD latent construct (Bollen, 1989), the invariance of this construct and lack of response bias across the Asian American, Asian American, and Latino/a samples (Temme, 2006), temporal invariance of constructs (Makikangas et al., 1996) the robustness of the structural model when one SPD indicator was removed (Jarvis et al., 2003), and the significant autoregressive relationships from 10th to 12th grade SPD (Kline, 2005). Finally, Diemer (2009), Diemer & Hsieh (2008), and Diemer et al. (2009) used similar indicators from the National Educational Longitudinal Study to operationalize SPD.

Future research could examine these questions with richer measurement of SPD, perhaps by also assessing a consciousness of structural racism or participation in social action. However, these limitations were largely offset by the capacity to follow a large and diverse panel over a two year period by using nationally representative data from the ELS survey.

Constructs’ measurement invariance was not established for the more privileged subgroups (low-SES Whites, affluent Whites, affluent youth of color) examined in the sensitivity
analyses. We instead devoted page space to our central question – the relationship of SPD to
career development among marginalized youth. Failing to establish measurement invariance for
the more privileged subgroups obfuscated whether SPD has the same meaning and can be
measured in the same way for more privileged youth before examining the structural model’s fit
in the sensitivity analyses.

If measurement invariance had been established and the structural model had fit well for
the more privileged subgroups, then comparisons of SPD’s direct and indirect effects on career
development between the more marginalized and privileged subgroups could be made (Kline,
2005). This would entail arbitrarily selecting one reference group (from the marginalized
subgroups) and conducting eighteen separate chi-square difference tests – comparing four direct
effects and two indirect effects across the reference group and each of the three more privileged
subgroups (Muthén & Muthén, 2006). Reporting eighteen chi-square difference tests would
require significant page space and entail a considerable Type I error rate (.90). Moreover, there is
a paucity of scholarship and simulation studies supporting chi-square difference testing with the
WLSMV estimator, complex sample design features, and Theta parameterization required for
these analyses (Muthén & Muthén, 2006).

All of the above led us to instead examine differences in the effects of SPD on vocational
expectations and work salience by comparing model fit in the sensitivity analyses, rather than
establishing measurement invariance and directly comparing the effects of SPD on career
development across groups. Future research would complement this paper by examining the
meaning and measurement of SPD and (provided the model was a good fit to the data)
comparing the suggested effects of SPD on career development with more affluent groups.
The complementary strengths of qualitative research could also illuminate more subtle racial/ethnic differences in these constructs and/or in SPD’s effects on career development. This study’s between-group comparisons could also be complemented by within-group comparisons, such as comparing the suggested effects of SPD on vocational expectations between low-SES Mexican-American and Cuban-American youth. The samples of American Indian and Multiracial youth were too small for SEM analyses, which could be examined in future research. Young men and women were examined together in this study, although Diemer (2009) found that SPD had stronger effects on vocational expectations for combined and female samples than male samples. Future research could examine gender differences in the relationships between SPD, work salience and vocational expectations, considering gender’s powerful influence on career development (Eccles, 1994).

This study rules out some alternative explanations, but cannot rule out non-recursive relationships between constructs (i.e., feedback loops between SPD and indices of career development) or other unobserved variables, such as a generalized sense of self-efficacy, that may explain these relationships (Pearl, 2000). A generalized sense of self-efficacy may empower youth to both negotiate sociopolitical obstacles and engage with career development tasks; unfortunately, this and related constructs (e.g., locus of control) were not measured in the ELS survey. The ELS dataset contains many variables, but does not contain other strong confounding variables supported by extant theory. Including and controlling extraneous variables can artificially inflate model fit in SEM and yield less parsimonious models (Kline, 2005).

Future research could explore non-recursive relationships or control for additional substantively-informed confounds, although a longitudinal design, significant autoregressive relationships, the use of SEM, establishing measurement and temporal invariance, testing the
sensitivity of the structural model across different groups, and controlling for academic achievement do enhance the robustness of this study’s inferences (Schneider et al., 2006).

Summary and Conclusions

The present study builds on previous inquiry by illuminating SPD’s direct and indirect effects on work salience and vocational expectations, examining these relationships across samples of African American, Latino/a, and Asian American youth, establishing the measurement and temporal invariance of these constructs, examining the sensitivity of this model across racial/ethnic groups, SES selection criteria, and dropout statuses, as well as partially addressing unobserved variables and reverse causality. 10th grade SPD had significant direct effects on 10th grade work salience and vocational expectations and 12th grade SPD had significant direct effects on 12th grade work salience for all groups. 10th grade SPD had significant indirect effects on 12th grade work salience and significant indirect effects on 12th grade vocational expectations for all groups.

These results and past research (Diemer, 2009; Diemer & Blustein, 2006; Diemer & Hsieh, 2008; O’Connor, 1997) suggest that SPD may facilitate low-SES African American, Latino/a, and Asian American youths’ agentic negotiation of sociopolitical barriers to occupational self-concept formation and career development. Given the impact of adolescent career development on adult occupational attainment (Hotchkiss & Borow, 1996; Johnson & Mortimer, 2002; Super, 1990), SPD may also facilitate the negotiation of structural constraints on social mobility via occupational attainment (Diemer, 2009). In sum, SPD may be an overlooked resource in facilitating engagement with the opportunity structure and social mobility among youth oppressed by their sociopolitical context.
References


### Table 1: Variables List & Descriptive Data

<table>
<thead>
<tr>
<th>Latent constructs, ELS variables, and possible responses</th>
<th>M</th>
<th>SD</th>
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<th>Kurtosis</th>
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<td></td>
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<td>AF</td>
<td>LA</td>
<td>AA</td>
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<td>BYTXMSTD: Standardized math achievement score</td>
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<td>BYOCC30: Expected occupation at 30</td>
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<td>68.75</td>
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</tr>
<tr>
<td><em>F1 Vocational Expectations</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIOCC30: Expected occupation at 30</td>
<td>67.68</td>
<td>63.14</td>
<td>61.66</td>
<td>14.40</td>
</tr>
<tr>
<td>FIS8: “How much education student thinks will be needed</td>
<td>6.45</td>
<td>5.65</td>
<td>5.50</td>
<td>1.70</td>
</tr>
<tr>
<td>for job at age 30”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIS42: “How far in school student thinks will get”</td>
<td>6.31</td>
<td>6.06</td>
<td>5.87</td>
<td>1.66</td>
</tr>
<tr>
<td><em>F1 Sociopolitical Development</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIS40F: “Importance of helping others in community”</td>
<td>2.44</td>
<td>2.52</td>
<td>2.39</td>
<td>.56</td>
</tr>
<tr>
<td>FIS40J: “Importance of working to correct social and</td>
<td>2.10</td>
<td>2.17</td>
<td>2.13</td>
<td>.65</td>
</tr>
<tr>
<td>economic inequality”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIS40P: “Importance of being an active and informed</td>
<td>2.44</td>
<td>2.51</td>
<td>2.52</td>
<td>.60</td>
</tr>
<tr>
<td>citizen”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIS63E: “Volunteered with community center or social-</td>
<td>.32</td>
<td>.35</td>
<td>.34</td>
<td>.47</td>
</tr>
<tr>
<td>action group”</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>F1 Work Salience</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIS40A: Importance of being successful in work</td>
<td>2.86</td>
<td>2.91</td>
<td>2.88</td>
<td>.39</td>
</tr>
<tr>
<td>° Box-Cox transformed to second power</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>° Box-Cox transformed to second power</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
F1S40E: Importance of being able to find steady work (1,2,3)*, Box-Cox transformed to second power

<table>
<thead>
<tr>
<th>AF</th>
<th>LA</th>
<th>AA</th>
<th>F1S40E</th>
<th>F1S40M</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.80</td>
<td>2.89</td>
<td>2.84</td>
<td>0.42</td>
<td>0.40</td>
</tr>
<tr>
<td>2.84</td>
<td>2.80</td>
<td>0.50</td>
<td>0.41</td>
<td>0.47</td>
</tr>
<tr>
<td>1.78</td>
<td>3.26</td>
<td>2.49</td>
<td>1.98</td>
<td>10.64</td>
</tr>
<tr>
<td>-1.8</td>
<td>-3.26</td>
<td>-2.49</td>
<td>1.98</td>
<td>10.64</td>
</tr>
<tr>
<td>-1.8</td>
<td>-3.26</td>
<td>-2.49</td>
<td>1.98</td>
<td>10.64</td>
</tr>
<tr>
<td>-1.8</td>
<td>-3.26</td>
<td>-2.49</td>
<td>1.98</td>
<td>10.64</td>
</tr>
</tbody>
</table>

F1S40M: Importance of being expert in field of work (1,2,3)*

<table>
<thead>
<tr>
<th>AF</th>
<th>LA</th>
<th>AA</th>
<th>F1S40E</th>
<th>F1S40M</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.71</td>
<td>2.84</td>
<td>2.80</td>
<td>0.50</td>
<td>0.41</td>
</tr>
<tr>
<td>2.80</td>
<td>2.84</td>
<td>0.50</td>
<td>0.41</td>
<td>0.47</td>
</tr>
<tr>
<td>1.39</td>
<td>2.52</td>
<td>2.25</td>
<td>0.91</td>
<td>5.86</td>
</tr>
<tr>
<td>-1.39</td>
<td>-2.52</td>
<td>-2.25</td>
<td>0.91</td>
<td>5.86</td>
</tr>
<tr>
<td>-1.39</td>
<td>-2.52</td>
<td>-2.25</td>
<td>0.91</td>
<td>5.86</td>
</tr>
<tr>
<td>-1.39</td>
<td>-2.52</td>
<td>-2.25</td>
<td>0.91</td>
<td>5.86</td>
</tr>
</tbody>
</table>

* indicates that response options were 1= not important, 2 = some importance, 3 = very important

Note. AF = African American participants, LA = Latino/a participants, AA = Asian American participants
Table 2: Fit Indices for Measurement Models

<table>
<thead>
<tr>
<th>Model Fit Index</th>
<th>Measurement Invariance (Configural Model)</th>
<th>Measurement Invariance (Factorial Model) (Samples Combined)</th>
<th>Temporal Invariance (Factorial Model) (Samples Combined)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AA</td>
<td>AF</td>
<td>LA</td>
</tr>
<tr>
<td>CFI</td>
<td>.95</td>
<td>.96</td>
<td>.93</td>
</tr>
<tr>
<td>TLI</td>
<td>.94</td>
<td>.96</td>
<td>.94</td>
</tr>
<tr>
<td>RMSEA</td>
<td>.01</td>
<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td>WRMR</td>
<td>.87</td>
<td>.81</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note. AA = Asian American participants, AF = African American participants, LA = Latino/a participants. M1 = Loadings, intercepts and thresholds are freed for all groups; M2 = Loadings, intercepts and thresholds are fixed as equal across groups.
### Table 3: Measurement Model: Factor Loadings for Latent Variables by Racial/Ethnic Group

<table>
<thead>
<tr>
<th>Latent Variable and Indicators</th>
<th>Unstandardized Estimate</th>
<th>SE</th>
<th>Unstandardized Estimate/SE</th>
<th>Standardized Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AA AF LA AA AF LA AA AF LA AA AF LA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BY Academic Achievement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BYTXMSTD: Standardized math achievement score</td>
<td>.77 .57 .73 .05 .03 .04</td>
<td>14.24*</td>
<td>19.29*</td>
<td>.82*.77*.84*</td>
</tr>
<tr>
<td>BYTXTSTD: Standardized reading achievement score</td>
<td>.64 .64 .73 .05 .03 .04</td>
<td>12.21*</td>
<td>20.55*</td>
<td>.79*.85*.85*</td>
</tr>
<tr>
<td><strong>BY Vocational Expectations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BYOCC30: Expected occupation at 30</td>
<td>.39 .45 .58 .06 .07 .08</td>
<td>6.60*</td>
<td>6.25*</td>
<td>.46*.45*.53*</td>
</tr>
<tr>
<td>BYS27D: Importance of education in finding a job later</td>
<td>.37 .47 .75 .12 .09 .09</td>
<td>2.97*</td>
<td>5.52*</td>
<td>.21*.29*.38*</td>
</tr>
<tr>
<td>BYS56: How far in school student thinks they will get</td>
<td>1.59 1.53 1.11 .40 .32 .16</td>
<td>3.99*</td>
<td>4.75*</td>
<td>.85*.84*.74*</td>
</tr>
<tr>
<td><strong>BY Sociopolitical Development</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BYS54F: Importance of helping others in community</td>
<td>2.05 1.14 1.10 1.10 .17 .14</td>
<td>1.86</td>
<td>6.92*</td>
<td>.90*.75*.74*</td>
</tr>
<tr>
<td>BYS54J: Importance of working to correct social and economic inequality</td>
<td>.50 .99 1.11 .10 .15 .15</td>
<td>4.83*</td>
<td>6.53*</td>
<td>.44*.70*.74*</td>
</tr>
<tr>
<td><strong>BY Work Salience</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BYS54A: Importance of being successful in line of work</td>
<td>.66 .59 .64 .11 .07 .07</td>
<td>5.79*</td>
<td>8.20*</td>
<td>.66*.61*.60*</td>
</tr>
<tr>
<td>BYS54E: Importance of being able to find steady work</td>
<td>.57 .41 .65 .12 .06 .09</td>
<td>4.82*</td>
<td>6.52*</td>
<td>.51*.44*.59*</td>
</tr>
<tr>
<td>BYS54N: Importance of being expert in field of work</td>
<td>1.05 .94 1.02 .21 .13 .14</td>
<td>4.98*</td>
<td>7.44*</td>
<td>.73*.68*.71*</td>
</tr>
<tr>
<td><strong>F1 Vocational Expectations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F1OCC30: Expected occupation at 30</td>
<td>.55 .63 .58 .09 .07 .06</td>
<td>6.15*</td>
<td>9.20*</td>
<td>.57*.59*.55*</td>
</tr>
<tr>
<td>F1S58: How much education student thinks will be needed for their job at age 30</td>
<td>1.17 1.40 1.43 .12 .10 .12</td>
<td>9.89*</td>
<td>13.54*</td>
<td>.71*.72*.75*</td>
</tr>
<tr>
<td>F1S42: How far in school student thinks they will get</td>
<td>1.69 1.71 1.46 .37 .35 .22</td>
<td>4.57*</td>
<td>4.84*</td>
<td>.86*.86*.82*</td>
</tr>
<tr>
<td><strong>F1 Sociopolitical Development</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F1S40F: Importance of helping others in community</td>
<td>.97 .98 .92 .13 .10 .08</td>
<td>7.56*</td>
<td>9.85*</td>
<td>.70*.70*.68*</td>
</tr>
<tr>
<td>F1S40J: Importance of working to correct social and economic inequality</td>
<td>.84 .74 .76 .11 .09 .08</td>
<td>7.43*</td>
<td>8.54*</td>
<td>.64*.60*.60*</td>
</tr>
<tr>
<td>F1S40P: Importance of being an active and informed citizen</td>
<td>1.00 1.08 1.02 .16 .14 .10</td>
<td>6.39*</td>
<td>7.59*</td>
<td>.71*.73*.71*</td>
</tr>
<tr>
<td>F1S63E: Volunteered with community center or social-action group</td>
<td>.05 .15 .39 .10 .12 .14</td>
<td>.47</td>
<td>1.25</td>
<td>.05 .15 .37*</td>
</tr>
<tr>
<td><strong>F1 Work Salience</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F1S40A: Importance of being successful in line of work</td>
<td>.48 .36 .41 .08 .04 .05</td>
<td>6.06*</td>
<td>8.76*</td>
<td>.50*.50*.47*</td>
</tr>
<tr>
<td>F1S40E: Importance of being able to find steady work</td>
<td>.40 .40 .32 .09 .05 .06</td>
<td>4.59*</td>
<td>7.54*</td>
<td>.41*.48*.34*</td>
</tr>
<tr>
<td>F1S40M: Importance of being expert in field of work</td>
<td>1.42 .76 .99 .38 .12 .14</td>
<td>3.73</td>
<td>6.41*</td>
<td>.82*.60*.70*</td>
</tr>
</tbody>
</table>
Table 4: Fit Indices for Final Structural Model and Sensitivity Analyses

<table>
<thead>
<tr>
<th>Model Fit Index</th>
<th>Final Structural Model</th>
<th>Sensitivity Analyses</th>
<th>Affluent Whites</th>
<th>Affluent youth of color</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AA (N=546)</td>
<td>AF (N=884)</td>
<td>LA (N=1197)</td>
<td>Low-SES Whites (N=1941)</td>
</tr>
<tr>
<td>CFI</td>
<td>.94</td>
<td>.95</td>
<td>.93</td>
<td>.94</td>
</tr>
<tr>
<td>TLI</td>
<td>.94</td>
<td>.96</td>
<td>.94</td>
<td>.95</td>
</tr>
<tr>
<td>RMSEA</td>
<td>.01</td>
<td>.01</td>
<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td>WRMR</td>
<td>.89</td>
<td>.87</td>
<td>1.03</td>
<td>1.25</td>
</tr>
<tr>
<td>Chi-square value</td>
<td>53.08</td>
<td>77.02</td>
<td>100.04</td>
<td>187.84</td>
</tr>
</tbody>
</table>

Note. AA = Asian American participants, AF = African American participants, LA = Latino/a participants.
Table 5: Structural Model: Direct and Indirect Effects of Sociopolitical Development on Work Salience and Vocational Expectations

<table>
<thead>
<tr>
<th>Latent Variables</th>
<th>Unstandardized Estimate</th>
<th>SE</th>
<th>Unstandardized Estimate/SE</th>
<th>Standardized Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AA</td>
<td>AF</td>
<td>LA</td>
<td>AA</td>
</tr>
</tbody>
</table>

**Direct Effects:**

Sociopolitical Development BY ON Academic Achievement BY

- .10 .12 -.28 .07 .05 .05 1.41 -2.29* -5.46* .10 -.12* -.27*

Sociopolitical Development BY Vocational Expectations BY

- .65 .55 .69 .12 .07 .08 5.54* 7.68* 8.38* .53* .47* .54*

Academic Achievement BY

- .22 .27 .60 .09 .09 .09 2.45* 3.00* 6.45* .18* .24* .49*

**Work Salience BY ON**

Academic Achievement BY

- .35 .73 .55 .11 .15 .10 3.36* 4.98* 5.64* .29* .50* .44*

Sociopolitical Development BY

- .58 .84 .63 .13 .15 .10 4.42* 5.78* 6.31* .48* .59* .53*

Sociopolitical Development F1 BY

Academic Achievement BY

- .36 .09 .11 .09 .06 .07 -4.16* -1.48 1.53 -.32* -.08 .08

Sociopolitical Development BY

- .47 .52 .76 .11 .10 .09 4.22* 5.17* 8.39* .41* .46* .63*

Vocational Expectations F1 BY

Academic Achievement BY

- .33 .20 .14 .20 .08 .07 1.66 2.50* 2.02* .16 .15* .11*

Vocational Expectations BY

- 1.30 .67 .67 .39 .12 .13 3.33* 5.32* 6.84* .78* .57* .62*

Sociopolitical Development F1

- .17 .14 .06 .13 .07 .07 1.29 1.90 .99 .10 .12 .06

**Indirect Effects:**

Sociopolitical Development BY → Work Salience BY → Work Salience F1

- .20 .16 .12 .08 .06 .08 2.41* 1.98* 2.13* .15* .12* .08*

Sociopolitical Development BY → Vocational Expectations BY → Vocational Expectations F1

- .29 .18 .40 .16 .07 .08 1.79 2.62* 5.01* .14* .14* .30*

**Note.** Unstandardized and standardized estimates represent the loading of an indicator on latent constructs. Values larger than 1.96 in the fourth column are significant at the .05 level and are indicated with an asterisk (*).

¹ This indirect effect was significant when estimated using standardized values.

AF = African American participants, LA = Latino/a participants, AA = Asian American participants
Figure Captions

*Figure 1: Conceptual Model of Sociopolitical Development Predicting Vocational Expectations and Work Salience*

Note. 12\textsuperscript{th} grade sociopolitical development is also regressed on 10\textsuperscript{th} grade academic achievement, not depicted for clarity.

*Figure 2: Structural Model of Sociopolitical Development Predicting Vocational Expectations and Work Salience*

Note. N = 2828. Standardized regression coefficients are noted for each path. Coefficients significant at $p < .05$ are in bold and indicated with an asterisk (*).

12\textsuperscript{th} grade sociopolitical development is also regressed on 10\textsuperscript{th} grade academic achievement (AA = -.32*, AF = -.08, LA = .08), not depicted for clarity.