

# Sociopolitical Development, Work Salience, and Vocational Expectations Among Low Socioeconomic Status African American, Latin American, and Asian American Youth

Matthew A. Diemer, Qiu Wang, Traymanesha Moore, Shannon R. Gregory,  
Keisha M. Hatcher, and Adam M. Voight  
Michigan State University

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-socioeconomic-status African American, Latin American, and Asian American youth, with Educational Longitudinal Study data. Measurement and temporal invariance of these constructs was first established before testing the proposed model across the samples. Across the three samples, 10th-grade SPD had significant effects on 10-grade work salience and vocational expectations; 12th-grade SPD had a significant effect on 12th-grade work salience. Tenth-grade SPD had significant indirect effects on 12th-grade work salience and on 12th-grade vocational expectations for all three samples. These results suggest 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.

**Keywords:** sociopolitical development, critical consciousness, racial–ethnic minorities, career development, low socioeconomic status

Critical tasks for adolescents include developing work salience, a salient connection and future orientation to work, and specifying vocational expectations, the occupations 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 socioeconomic status (SES) African American, Latin American, and Asian American youth encounter racial and socioeconomic barriers that may limit occupational self-concept development (Chaves et al., 2004; Constan-

tine, Erickson, Banks, & Timberlake, 1998). Further, sociopolitical inequality (defined here as macrolevel inequities, such as structural racism and the asymmetrical distribution of resources, that limit access to microlevel resources, such as educational and 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, Latin American, 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 macrolevel 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) and 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, Latin American, 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-

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Matthew A. Diemer, Qiu Wang, Shannon R. Gregory, Keisha M. Hatcher, and Adam M. Voight, Department of Counseling, Educational Psychology, and Special Education, Michigan State University; Traymanesha Moore, Department of Curriculum, Teaching, and Educational Policy, Michigan State University.

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Correspondence concerning this article should be addressed to Matthew A. Diemer, Department of Counseling, Educational Psychology, and Special Education, College of Education, Michigan State University, 441 Erickson Hall, East Lansing, MI 48824-1034. E-mail: diemerm@msu.edu

validating previous findings with a new source of data, the Educational Longitudinal Study (ELS); (c) examining these relationships by racial or ethnic group, rather than with aggregated sample; (d) exploring measurement invariance across three samples and the invariance of these constructs over time; and (e) examining the sensitivity of this model across samples of affluent Whites, low-SES Whites, and affluent youth of color.

Although low-SES African American, Latin American, 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. For one 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 composing the constructs and the constructs themselves have the same meaning for each group (Temme, 2006). If measurement invariance is established, 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, Carnoy, Kilpatrick, Schmidt, & Shavelson, 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, Latin American, and Asian American youth appear to be constrained by sociopolitical barriers (Diemer & Hsieh, 2008). These youth often attend underresourced 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. Quali-

tative 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, Diemer, Jackson, Gonsalves, & Howell, 2004) may lead marginalized youth to disconnect from their vocational futures and reduce their vocational expectations.

Low-SES African American, Latin American, and Asian American youth share experiences of structural inequality, although the macrolevel context may have differential effects on each group's vocational expectations and work salience, given different experiences in the opportunity structure (Diemer & Blustein, 2006). However, the few studies in this area suggest that the sociopolitical context has similar effects on African Americans', Asian Americans', and Latin Americans' vocational expectations (Arbona, 1990; Brown, 1995; Leong & Chou, 1994) and work salience (Diemer & Blustein, 2006). Microlevel 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 macrolevel 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 and 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 comprises two components—a consciousness of sociopolitical oppression and the motivation to engage in social action—through which youth progress in a stagewise manner (Watts, Griffith, & Abdul-Adil, 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 commu-

nity 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.

### SPD and Career Development

The prevalence of sociopolitical inequity in low-SES African American, Latin American, 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 Latin American youth with a consciousness of inequality elected not to engage with an inequitable opportunity structure, whereas other, similarly conscious youth became engaged with school and work. Likewise, Conchas (2001) found that low-SES Latin American 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 with 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 macrolevel 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) provided empirical evidence (i.e., African American students had more proschool 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” (pp. 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, Latin American, 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 measurement error). Moreover, it rigorously evaluates how well a proposed theoretical model, as well as plausible alternative models, fits relationships in the data (Bollen, 1989; Martens, 2005). SEM is particularly useful in secondary data analyses, in which 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, Latin American, and Asian American youth. Measurement invariance of these constructs across the three groups and the temporal invariance of these constructs over time are also 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).

ELS contains indicators of SPD, work salience, and vocational expectations at the 10th- and 12th-grade waves. This allows autoregressive relationships, in which 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

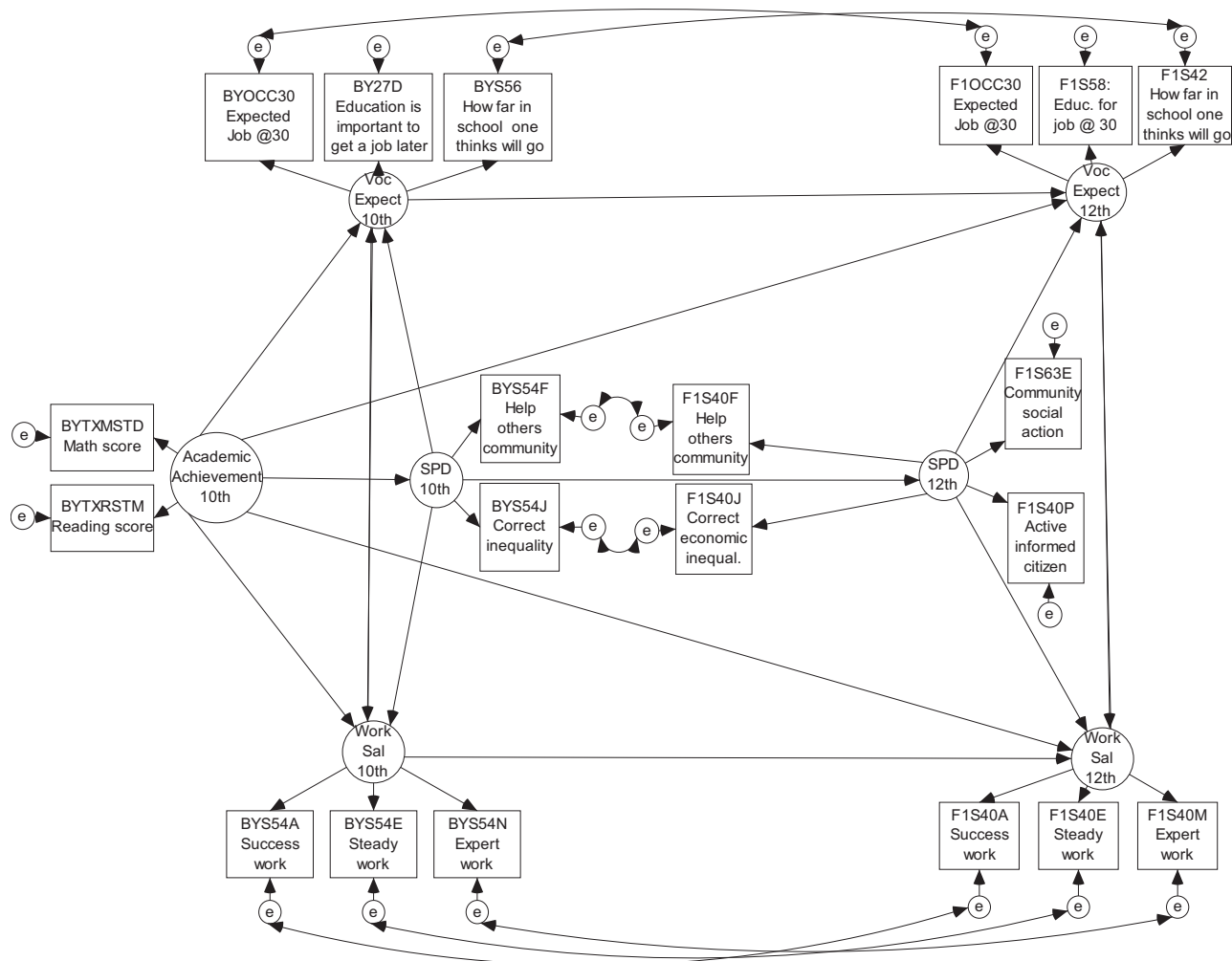


Figure 1. Conceptual model of sociopolitical development (SPD) predicting vocational expectations and work salience. Twelfth-grade sociopolitical development is also regressed on 10th-grade academic achievement, which is not depicted for clarity.

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 ELS of 2002, a nationally representative survey of American high school students conducted by the National Center for Education Statistics (NCES). This panel longitudinal survey collected 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 2 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 with 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 boys (50.0%) and girls (50.0%). Approximately 45% 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, 0.9% as American Indian, and 4.8% as multi-racial). The SES of students was assessed via a standardized composite variable comprising family income, parental educational attainment, and parental occupational attainment. Students' dropout status was also surveyed; approximately 92.7% of ELS 12th-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 or socioeconomic constraints in the opportunity structure (García Coll et al., 1996). This study focused on African American, Latin American, and Asian American 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 (cf. Diemer, 2009; Diemer & Hsieh, 2008). Of these youth, 2,627 matched our selection criteria. The sample contained more female ( $n = 1,345$ ; 51.2%) than male participants ( $n = 1,282$ ; 48.8%). Using the racial-ethnic categories provided by ELS, participants self-identified as “Hispanic” ( $n = 1,197$ ; 45.57%), “Black, not Hispanic” ( $n = 884$ ; 33.6%), and “Asian American/Pacific Islander” ( $n = 546$ ; 20.78%).

### Indicators of Latent Constructs

ELS data were collected via a panel longitudinal design in which 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 with 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 are provided in Table 1.

**SPD.** Tenth-grade SPD was operationalized by the perceived “importance of helping others in community” and the perceived “importance of working to correct social and economic inequality.” Twelfth-grade SPD was operationalized by the perceived “importance of helping others in community” and 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 or 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 “being able to find steady work,” and the perceived importance of “being an expert in my field of work.”

**Vocational expectations.** Tenth-grade vocational expectations were operationalized by the prestige of occupation that 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 16 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 of occupational prestige (cf. 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 were also operationalized by perceptions of whether “education is important to get a job later” and “how far in school you think you will get.”

Twelfth-grade vocational expectations were 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.** Tenth-grade academic achievement was operationalized by norm-referenced measures of math and reading achievement, in which 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 comprised 117 items, and the reading test comprised 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

Nonnormal 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 nonnormality. Tenth-grade “importance of education to get a job later” as well as the “importance of being successful in my line of work” and “importance of being able to find steady work” variables at 10th and 12th grade were moderately nonnormal, under the criteria of skewness  $> 2.0$  and kurtosis  $> 7.0$  (Flora & Curran, 2004). A Box-Cox transformation, in which values are raised to the second power and divided by two, was applied (West et al., 1995). This transformation reduced nonnormality, although some variables continued to be skewed and/or kurtotic. Large sample sizes (West et al., 1995) and the robust estimator (weighted least squares with robust standard errors, mean and variance adjusted; WLSMV) used (Flora & Curran, 2004; Muthén & Muthén, 2006) attenuate the problems of nonnormality, 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 African American, Latin American, and Asian American participants via a two-step approach to SEM (Kline, 2005). Because the data included both continuous and categorical outcomes (e.g., a dichotomous indicator of community center or 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 was freed, and theta parameterization was used to identify the model (Muthén & Muthén, 2006).

Fit indices recommended for models with large samples and categorical indicators—root-mean-square error of approximation (RMSEA), weighted root mean residual (WRMR), comparative fit index (CFI), and Tucker-Lewis index (TLI)—were used to assess

Table 1  
Descriptive Data and Possible Responses for Educational Longitudinal Study Variables

Variable	M			SD			Skewness			Kurtosis		
	AA	AF	LA	AA	AF	LA	AA	AF	LA	AA	AF	LA
BY academic achievement												
BYTXMSTD: Standardized math achievement score (continuous, 19.94–84.00)	49.93	42.72	43.38	9.77	7.54	8.84	0.26	0.05	0.15	–0.01	0.01	–0.11
BYTXRTD: Standardized reading achievement score (continuous, 23.55–75.68)	45.94	43.36	43.39	8.70	7.75	8.64	0.48	0.20	0.17	–0.03	0.13	–0.41
BY vocational expectations												
BYOCC30: Expected occupation at age 30 (continuous) <sup>a</sup>	71.27	68.75	67.74	12.57	14.51	15.27	–0.98	–0.87	–0.66	0.87	0.10	–0.55
BYSS27D: Importance of education to get a job later (1–4) <sup>a,b</sup>	1.35	1.28	1.42	0.52	0.52	0.61	1.12	1.94	1.50	0.67	4.61	2.60
BYSS56: How far in school student thinks he or she will get (1–7)	5.20	4.87	4.65	1.42	1.52	1.58	–0.84	–0.56	–0.51	0.54	–0.29	–0.54
BY sociopolitical development												
BYSS4F: Importance of helping others in community (1–3) <sup>c</sup>	2.34	2.44	2.30	0.58	0.60	0.63	–0.22	–0.54	–0.32	–0.67	–0.62	–0.67
BYSS4J: Importance of working to correct social and economic inequality (1–3) <sup>c</sup>	2.09	2.11	2.11	0.64	0.69	0.69	–0.08	–0.15	–0.15	–0.55	–0.88	–0.90
BY work salience												
BYSS4A: Importance of being successful in line of work (1–3) <sup>c</sup>	2.79	2.85	2.78	0.44	0.41	0.45	–1.94	–2.77	–1.96	2.91	7.30	3.07
BYSS4E: Importance of being able to find steady work (1–3) <sup>c,d</sup>	2.75	2.84	2.77	0.46	0.39	0.47	–1.50	–2.38	–1.93	1.11	5.04	2.96
BYSS4N: Importance of being an expert in field of work (1–3) <sup>c</sup>	2.65	2.77	2.67	0.56	0.49	0.55	–1.35	–2.07	–1.43	0.84	3.50	1.09
F1 vocational expectations												
F1OCC30: Expected occupation at age 30 (continuous) <sup>a</sup>	67.68	63.14	61.66	14.40	15.82	15.75	–0.70	–0.47	–0.31	–0.14	–0.80	–0.98
F1S58: How much education student thinks will be needed for job at age 30 (continuous, 1–9)	6.45	5.65	5.50	1.70	1.94	1.90	–0.52	–0.28	–0.19	0.17	–0.40	–0.52
F1S42: How far in school student thinks he or she will get (1–8)	6.31	6.06	5.87	1.66	1.93	2.00	–0.39	–0.16	–0.01	–0.26	–0.71	–0.82
F1 sociopolitical development												
F1S40F: Importance of helping others in community (1–3) <sup>c</sup>	2.44	2.52	2.39	0.56	0.56	0.60	–0.36	–0.63	–0.44	–0.86	–0.63	–0.66
F1S40J: Importance of working to correct social and economic inequality (1–3) <sup>c</sup>	2.10	2.17	2.13	0.65	0.70	0.70	–0.10	–0.25	–0.19	–0.63	–0.94	–0.97
F1S40P: Importance of being an active and informed citizen (1–3) <sup>c</sup>	2.44	2.51	2.52	0.60	0.60	0.60	–0.54	–0.82	–0.81	–0.63	–0.32	–0.33
F1S63E: Volunteered with community center or social action group (0–1) <sup>e</sup>	0.32	0.35	0.34	0.47	0.48	0.47	0.77	0.65	0.68	–1.43	–1.60	–1.54
F1 work salience												
F1S40A: Importance of being successful in line of work (1–3) <sup>c,d</sup>	2.86	2.91	2.88	0.39	0.31	0.36	–2.76	–3.77	–2.98	7.29	14.68	8.66
F1S40E: Importance of being able to find steady work (1–3) <sup>c,d</sup>	2.80	2.89	2.84	0.42	0.34	0.40	–1.78	–3.26	–2.49	1.98	10.64	5.67
F1S40M: Importance of being an expert in field of work (1–3) <sup>c</sup>	2.71	2.84	2.80	0.50	0.41	0.47	–1.39	–2.52	–2.25	0.91	5.86	4.39

Note. AA = Asian American participants; AF = African American participants; LA = Latin American participants; BY = base year (10th grade); F1 = first follow-up (12th grade).

<sup>a</sup> See description in text. <sup>b</sup> Recoded and Box–Cox transformed to second power. <sup>c</sup> Response options were 1 = *not important*, 2 = *some importance*, 3 = *very important*. <sup>d</sup> Box–Cox transformed to second power. <sup>e</sup> Response options were 0 = *no*, 1 = *yes*.

model fit (Hu & Bentler, 1999; MacCallum & Austin, 2000; Martens, 2005). The chi-square/degree-of-freedom 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, we conducted tests of measurement invariance to establish that the same construct was being measured across the low-SES African American, Latin American, and Asian 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 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 invariance combines multiple groups into a combined sample to assess whether factor loadings (metric invariance) and intercepts and thresholds (scalar invariance) are invariant (Temme, 2006). Factorial invariance establishes that the scaling of items is perceived similarly across groups and that there is no systematic response bias across groups.

**Configural invariance.** We compared model fit indices and the loading of indicators onto constructs for each racial-ethnic group 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. As shown in 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 Latin American and Asian American participants did not exceed the .95 cutoff proposed by

Hu and Bentler (1999), they did 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; MacCallum & Austin, 2000; Martens, 2005). Accordingly, the configural invariance model was judged to be a good fit to the data.

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 center or social action group participation" indicator of 12th-grade SPD was significant only for the Latin American sample, it was retained. From a theoretical perspective, community center or 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).

**Factorial invariance.** Next, invariance of the factor loadings (metric invariance) and intercepts and thresholds (scalar invariance) were examined in a combined sample of African American, Latin American, and Asian American 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), in which loadings, intercepts, and thresholds are free for each racial-ethnic group, was compared with a highly constrained model (M2), in which loadings, intercepts, and thresholds are fixed as equal across groups. If the highly constrained model fits the data as well as the unconstrained model,

Table 2  
*Fit Indices for Measurement Models*

Model fit index	Measurement invariance configural model			Measurement invariance factorial model (samples combined)		Temporal invariance factorial model (samples combined)	
	AA	AF	LA	M1	M2	M1	M2
CFI	.95	.96	.93	.94	.94	.95	.95
TLI	.94	.96	.94	.95	.94	.96	.96
RMSEA	.01	.01	.01	.03	.03	.03	.03
WRMR	0.87	0.81	1.00	1.55	1.81	1.12	1.17

*Note.* AA = Asian American participants; AF = African American participants; LA = Latin American participants; M1 = loadings, intercepts, and thresholds are freed for all groups; M2 = loadings, intercepts, and thresholds are fixed as equal across groups; CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root-mean-square error of approximation; WRMR = weighted root mean residual.

Table 3  
Measurement Model: Factor Loadings for Latent Variables by Racial–Ethnic Group

Indicator	Unstandardized estimate			SE			Unstandardized estimate SE			Standardized estimate		
	AA	AF	LA	AA	AF	LA	AA	AF	LA	AA	AF	LA
BY academic achievement												
BYTXMSTD: Standardized math achievement score	0.77	0.57	0.73	0.05	0.03	0.04	14.24*	19.29*	19.63*	.82*	.77*	.84*
BYTXTSTD: Standardized reading achievement score	0.64	0.64	0.73	0.05	0.03	0.04	12.21*	20.55*	19.34*	.79*	.85*	.85*
BY vocational expectations												
BYOCC30: Expected occupation at age 30	0.39	0.45	0.58	0.06	0.07	0.08	6.60*	6.25*	7.47*	.46*	.45*	.53*
BYS27D: Importance of education to get a job later	0.37	0.47	0.75	0.12	0.09	0.09	2.97*	5.52*	8.40*	.21*	.29*	.38*
BYS56: How far in school student thinks he or she will get	1.59	1.53	1.11	0.40	0.32	0.16	3.99*	4.75*	7.00*	.85*	.84*	.74*
BY sociopolitical development												
BYS54F: Importance of helping others in community	2.05	1.14	1.10	1.10	0.17	0.14	1.86	6.92*	7.97*	.90*	.75*	.74*
BYS54J: Importance of working to correct social and economic inequality	0.50	0.99	1.11	0.10	0.15	0.15	4.83*	6.53*	7.45*	.44*	.70*	.74*
BY work salience												
BYS54A: Importance of being successful in line of work	0.66	0.59	0.64	0.11	0.07	0.07	5.79*	8.20*	8.94*	.66*	.61*	.60*
BYS54E: Importance of being able to find steady work	0.57	0.41	0.65	0.12	0.06	0.09	4.82*	6.52*	7.59*	.51*	.44*	.59*
BYS54N: Importance of being an expert in field of work	1.05	0.94	1.02	0.21	0.13	0.14	4.98*	7.44*	7.53*	.73*	.68*	.71*
F1 vocational expectations												
F1OCC30: Expected occupation at age 30	0.55	0.63	0.58	0.09	0.07	0.06	6.15*	9.20*	9.65*	.57*	.59*	.55*
F1S58: How much education student thinks will be needed for job at age 30	1.17	1.40	1.43	0.12	0.10	0.12	9.89*	13.54*	12.23*	.71*	.72*	.75*
F1S42: How far in school student thinks he or she will get	1.69	1.71	1.46	0.37	0.35	0.22	4.57*	4.84*	6.64*	.86*	.86*	.82*
F1 sociopolitical development												
F1S40F: Importance of helping others in community	0.97	0.98	0.92	0.13	0.10	0.08	7.56*	9.85*	10.92*	.70*	.70*	.68*
F1S40J: Importance of working to correct social and economic inequality	0.84	0.74	0.76	0.11	0.09	0.08	7.43*	8.54*	10.03*	.64*	.60*	.60*
F1S40P: Importance of being an active and informed citizen	1.00	1.08	1.02	0.16	0.14	0.10	6.39*	7.59*	10.64*	.71*	.73*	.71*
F1S63E: Volunteered with community center or social action group	0.05	0.15	0.39	0.10	0.12	0.14	0.47	1.25	2.88*	.05	.15	.37*
F1 work salience												
F1S40A: Importance of being successful in line of work	0.48	0.36	0.41	0.08	0.04	0.05	6.06*	8.76*	8.42*	.50*	.50*	.47*
F1S40E: Importance of being able to find steady work	0.40	0.40	0.32	0.09	0.05	0.06	4.59*	7.54*	5.79*	.41*	.48*	.34*
F1S40M: Importance of being an expert in field of work	1.42	0.76	0.99	0.38	0.12	0.14	3.73*	6.41*	7.23*	.82*	.60*	.70*

Note. Unstandardized and standardized estimates represent the loading of an indicator on a latent construct. Estimates that are significant at the .05 level are indicated with an asterisk. AA = Asian American participants; AF = African American participants; LA = Latin American participants; BY = base year (10th grade); F1 = first follow-up (12th grade).



then the conditions for factorial invariance are met (Temme, 2006). As shown in Table 2, model fit for the unconstrained (CFI = .94, TLI = .95, RMSEA = .03, WRMR = 1.55) and highly constrained 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).

**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 be tested only for the seven indicators (BYOCC30, BYS56, BYS54F, BYS54J, BYS54A, BYS54E, BYS54N) that were repeated across waves (Mäkikangas et al., 2006). Because all other indicators were present only at one wave, their loading onto a latent construct was freely estimated, as detailed in the measurement model above.

Temporal invariance was tested by comparing an unconstrained model (M1), in which loadings, intercepts, and thresholds are free over time, with a highly constrained model (M2), in which loadings, intercepts, and thresholds are fixed as equal over time. If the highly constrained model fits as well as the unconstrained model, then temporal invariance holds (Muthén & Muthén, 2006). As shown in Table 2, model fit for the unconstrained (CFI = .95, TLI = .96, RMSEA = .03, WRMR = 1.12) and highly constrained models (CFI = .95, TLI = .96, RMSEA = .03, WRMR = 1.17) was nearly identical. This suggests that the SPD, vocational expectations, and work salience constructs and 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 (Mäkikangas et al., 2006).

## Structural Model

After establishing measurement invariance, we examined the relationships between latent constructs in the model proposed in Figure 1 for each racial–ethnic group. As shown in Table 2, 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 Latin Americans). CFI and TLI values met or exceeded Hu and Bentler’s (1999) .95 cutoff for the African American group; CFI and TLI values for the Asian American and Latin American 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 model (see Figure 1) 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 whether 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 2-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 2-year span and be undetected in a cross-lagged model; further, vocational expectations were not significant lagged predictors of youths’ SPD 2 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 we 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. We estimated reversed indirect effects (10th-grade vocational expectations → 10th-grade SPD → 12th-grade SPD and 10th-grade work salience → 10th-grade SPD → 12th-grade SPD) to compare equivalent models.

The reverse causality model fit worse for the Asian American (CFI = .93, TLI = .93, RMSEA = .01, WRMR = 0.92), African American (CFI = .95, TLI = .95, RMSEA = .01, WRMR = 0.88), and Latin American samples (CFI = .92, TLI = .93, RMSEA = .01, 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,  $\chi^2 = 56.67$ ; Latin Americans,  $\chi^2 = 107.34$ ) than the model depicted in Figure 2 (African Americans,  $\chi^2 = 77.02$ ; Asian Americans,  $\chi^2 = 53.08$ ; Latin Americans,  $\chi^2 = 100.04$ ), 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 and Blustein (2006), Diemer and Hsieh (2008), and O’Connor (1997) suggested 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).

**Sensitivity analyses.** This model was then refit to examine whether suggested relationships between SPD, vocational expectations, and work salience hold for affluent Whites, low-SES Whites, affluent youth of color, and dropouts versus nondropouts 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 given page space constraints, and that the structural model fits well for each

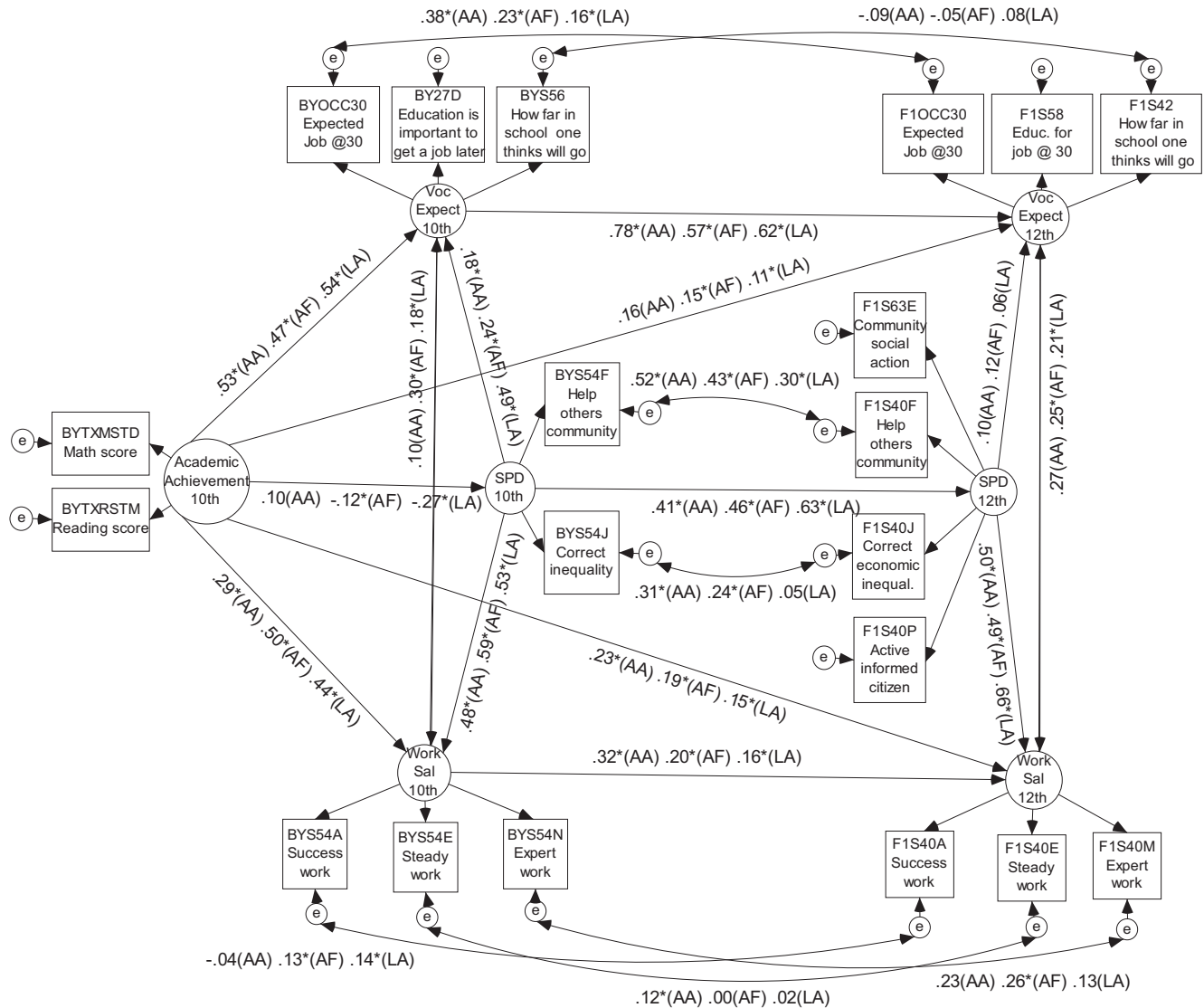


Figure 2. Structural model of sociopolitical development (SPD) predicting vocational expectations and work salience.  $N = 2,828$ . Standardized regression coefficients are noted for each path. Coefficients significant at  $p < .05$  are indicated with an asterisk. Twelfth-grade sociopolitical development is also regressed on 10th-grade academic achievement (Asian American [AA] =  $-.32^*$ , African American [AF] =  $-.08$ , Latin American [LA] =  $.08$ ), not depicted for clarity.

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, Latin American, and Asian American 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 Latin American samples ( $\chi^2 = 100.04$ ). 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

Table 4  
Fit Indices for Final Structural Model and Sensitivity Analyses

Model fit index	Final structural model			Sensitivity analyses		
	AA ( <i>N</i> = 546)	AF ( <i>N</i> = 884)	LA ( <i>N</i> = 1,197)	Low-SES Whites ( <i>N</i> = 1,941)	Affluent youth of color ( <i>N</i> = 1,292)	Affluent Whites ( <i>N</i> = 3,440)
CFI	.94	.95	.93	.94	.90	.93
TLI	.94	.96	.94	.95	.93	.94
RMSEA	.01	.01	.01	.01	.01	.02
WRMR	0.89	0.87	1.03	1.25	1.02	1.54
$\chi^2$	53.08	77.02	100.04	187.84	114.22	296.29

Note. AA = Asian American participants; AF = African American participants; LA = Latin American participants; CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root-mean-square error of approximation; WRMR = weighted root mean residual.

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 African American, Latin American, or Asian American 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 Latin American samples ( $\chi^2$  = 100.04).

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 suggest 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 Matthew A. Diemer). 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 nondropout 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 and 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 Matthew A. Diemer.

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 with parental income and the composite SES measure were nearly identical, although some of the indirect effects of SPD on work salience became nonsignificant 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 when using four SES criteria with three racial–ethnic groups suggests that this is a robust model, despite the sensitivity of some indirect effects.

Because the “community center or social action group participation” indicator of 12th-grade SPD was significant only for Latin Americans, sensitivity analyses examined the structural model without this indicator (F1S63E) of SPD. Model fit indices and the magnitude of direct and indirect effects in this more parsimonious model were nearly identical to those of the model depicted in Figure 2, for each racial–ethnic group (results available by contacting Matthew A. Diemer). This suggests that SPD is a stable construct that can be measured with 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 ( $\beta$ ) can be interpreted as estimates of effect size, although SEM effect sizes are generally smaller than effect sizes in multiple

Table 5

*Structural Model: Direct and Indirect Effects of Sociopolitical Development on Work Salience and Vocational Expectations*

Latent variable	Unstandardized estimate			SE			Unstandardized estimate SE			Standardized estimate		
	AA	AF	LA	AA	AF	LA	AA	AF	LA	AA	AF	LA
<b>Direct effects</b>												
Sociopolitical development BY ON												
Academic achievement BY	0.10	-0.12	-0.28	0.07	0.05	0.05	1.41	-2.29*	-5.46*	.10	-.12*	-.27*
Vocational expectations BY ON												
Academic achievement BY	0.65	0.55	0.69	0.12	0.07	0.08	5.54*	7.68*	8.38*	.53*	.47*	.54*
Sociopolitical development BY	0.22	0.27	0.60	0.09	0.09	0.09	2.45*	3.00*	6.45*	.18*	.24*	.49*
Work salience BY ON												
Academic achievement BY	0.35	0.73	0.55	0.11	0.15	0.10	3.36*	4.98*	5.64*	.29*	.50*	.44*
Sociopolitical development BY	0.58	0.84	0.63	0.13	0.15	0.10	4.42*	5.78*	6.31*	.48*	.59*	.53*
Sociopolitical development F1 ON												
Academic achievement BY	-0.36	-0.09	0.11	0.09	0.06	0.07	-4.16*	-1.48	1.53	-.32*	-.08	.08
Sociopolitical development BY	0.47	0.52	0.76	0.11	0.10	0.09	4.22*	5.17*	8.39*	.41*	.46*	.63*
Vocational expectations F1 ON												
Academic achievement BY	0.33	0.20	0.14	0.20	0.08	0.07	1.66	2.50*	2.02*	.16	.15*	.11*
Vocational expectations BY	1.30	0.67	0.67	0.39	0.12	0.13	3.33*	5.32*	6.84*	.78*	.57*	.62*
Sociopolitical development F1	0.17	0.14	0.06	0.13	0.07	0.07	1.29	1.90	0.99	.10	.12	.06
Work salience F1 ON												
Academic achievement BY	0.30	0.25	0.23	0.12	0.11	0.08	2.52*	2.31*	2.75*	.23*	.18*	.15*
Work salience BY	0.34	0.19	0.19	0.12	0.09	0.08	2.78*	1.97*	2.52*	.32*	.20*	.16*
Sociopolitical development F1	0.57	0.55	0.77	0.11	0.09	0.12	5.10*	5.91*	6.35*	.50*	.47*	.66*
<b>Indirect effects</b>												
Sociopolitical development BY → work salience BY → work salience F1	0.20	0.16	0.12	0.08	0.06	0.08	2.41*	1.98*	2.13*	.15*	.12*	.08*
Sociopolitical development BY → vocational expectations BY → vocational expectations F1	0.29	0.18	0.40	0.16	0.07	0.08	1.79 <sup>a</sup>	2.62*	5.01*	.14 <sup>a</sup>	.14*	.30*

Note. Estimates that are significant at the .05 level are indicated with an asterisk. AA = Asian American participants; AF = African American participants; LA = Latin American participants; BY = base year (10th grade); F1 = first follow-up (12th grade).

<sup>a</sup> This indirect effect was significant when estimated using standardized values.

regression because they are less inflated by measurement error. Standardized coefficients less than .10 can be considered “small” effects, larger than .30 “medium” effects, and larger than .50 “large” effects (Kline, 2005).

For all groups, 10th-grade SPD was a significant autoregressive predictor of 12th-grade SPD (Asian Americans,  $\beta = .41$ , 95% CI [.26, .57]; African Americans,  $\beta = .46$ , 95% CI [.32, .60]; Latin Americans,  $\beta = .63$ , 95% CI [.53, .72]), 10th-grade vocational expectations were a significant autoregressive predictor of 12th-grade vocational expectations (Asian Americans,  $\beta = .78$ , 95% CI [.58, .98]; African Americans,  $\beta = .57$ , 95% CI [.42, .73]; Latin Americans,  $\beta = .62$ , 95% CI [.50, .75]), and 10th-grade work salience was a significant autoregressive predictor of 12th-grade work salience (Asian Americans,  $\beta = .32$ , 95% CI [.11, .52]; African Americans,  $\beta = .20$ , 95% CI [.02, .41]; Latin Americans,  $\beta = .16$ , 95% CI [.02, .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 ( $\beta = .30$ , 95% CI [.09, .51]) and Latin Americans ( $\beta = .18$ , 95% CI [.05, .31]) but not for Asian Americans ( $\beta = .10$ , 95% CI [-.12, .32]). At 12th grade, these constructs were significantly correlated for African Americans ( $\beta = .25$ , 95% CI [.06, .44]) and Latin Americans ( $\beta = .21$ , 95% CI [.03, .40]) but not for Asian Americans ( $\beta = .27$ , 95% CI [-.09, .62]).

Tenth-grade academic achievement had significant medium to large direct effects on 10th-grade work salience for all groups (Asian Americans,  $\beta = .29$ , 95% CI [.14, .43]; African Americans,  $\beta = .50$ , 95% CI [.38, .63]; Latin Americans,  $\beta = .44$ , 95% CI [.33, .56]) and significant small longitudinal effects on 12th-grade work salience for all groups (Asian Americans,  $\beta = .23$ , 95% CI [.06, .41]; African Americans,  $\beta = .19$ , 95% CI [.03, .36]; Latin Americans,  $\beta = .15$ , 95% CI [.05, .26]). Unexpectedly, 10th-grade academic achievement had significant negative and small direct effects on 10th-grade SPD for African Americans ( $\beta = -.12$ , 95% CI [-.22, -.02]) and Latin Americans ( $\beta = -.27$ , 95% CI [-.36, -.18]) but had nonsignificant effects for Asian Americans ( $\beta = .10$ , 95% CI [-.04, .23]). Tenth-grade academic achievement also had a significant negative medium effect on 12th-grade SPD for Asian Americans ( $\beta = -.32$ , 95% CI [-.45, -.18]) but had nonsignificant effects for African Americans ( $\beta = -.08$ , 95% CI [-.19, .03]) and Latin Americans ( $\beta = .08$ , 95% CI [-.02, .19]).

Tenth-grade SPD had significant medium to large direct effects on 10th-grade work salience for all groups (Asian Americans,  $\beta = .48$ , 95% CI [.32, .63]; African Americans,  $\beta = .59$ , 95% CI [.47, .70]; Latin Americans,  $\beta = .53$ , 95% CI [.41, .65]). Twelfth-grade SPD also had significant medium to large direct effects on 12th-grade work salience for all groups (Asian Americans,  $\beta = .50$ , 95% CI [.34, .66]; African Americans,  $\beta = .49$ , 95% CI [.37, .62]; Latin Americans,  $\beta = .66$ , 95% CI [.54, .78]). Tenth-grade SPD had significant small indirect effects on 12th-grade work salience



(via 10th-grade work salience) for all groups (Asian Americans,  $\beta = .15$ , 95% CI [.04, .27]; African Americans,  $\beta = .12$ , 95% CI [.01, .24]; Latin Americans,  $\beta = .08$ , 95% CI [.01, .16]).

Tenth-grade SPD had significant small to medium direct effects on 10th-grade vocational expectations for all groups (Asian Americans,  $\beta = .18$ , 95% CI [.04, .32]; African Americans,  $\beta = .24$ , 95% CI [.09, .38]; Latin Americans,  $\beta = .49$ , 95% CI [.37, .60]). However, 12th-grade SPD had nonsignificant effects on 12th-grade vocational expectations for all groups (Asian Americans,  $\beta = .10$ , 95% CI [−.04, .24]; African Americans,  $\beta = .12$ , 95% CI [.00, .24]; Latin Americans,  $\beta = .06$ , 95% CI [−.05, .16]). Tenth-grade SPD had significant small to medium indirect effects on 12th-grade vocational expectations (via 10th-grade vocational expectations) for all groups (Asian Americans,  $\beta = .14$ , 95% CI [.02, .26]; African Americans,  $\beta = .14$ , 95% CI [.04, .23]; Latin Americans,  $\beta = .30$ , 95% CI [.21, .40]).

## Discussion

Previous research suggests that SPD may help low-SES African American, Latin American, 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 that these constructs are invariant across low-SES African American, Latin American, 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, Latin American, and Asian American youth and over time. Measurement and temporal invariance are particularly important sources of construct validity evidence for SPD (Mäkikangas 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 and 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 Arbona (1990), Brown (1995), and Leong and Chou (1994), who asserted that African Americans', Asian Americans', and Latin Americans' occupational expectations are similarly affected by structural racism. Although these constructs were invariant across these three 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. Tenth-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 on 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, Latin American, 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, Latin American, and Asian American youths' engagement (e.g., Fine, 1991; Ogbu, 1989, 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 suggest that the relationship between SPD and academic achievement is more complex than anticipated. Tenth-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 Latin American samples (and a nonsignificant positive effect for the Asian American sample). These relationships between academic achievement and SPD were unexpected, as academic achievement is widely recognized (Johnson & Mortimer, 2002; Super, 1990) and SPD is suggested (Diemer & Blustein, 2006; O'Connor, 1997) as a precursor to adolescent career development. This finding diverges from Diemer (2009), who found positive relationships between marginalized youths' SPD, grade point average, and vocational expectations.

Academic achievement (measured with standardized assessments) and academic performance (measured with grade point average) 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 African American, Latin American, and Asian American 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 and math achievement had stronger effects on vocational expectations, whereas 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 and 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 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) versus a social action group (young women's feminist organization) was not measured, only if they had volunteered at one of these organizations. "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 that 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 who 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 African American, Latin American, and Asian American samples (Temme, 2006); the temporal invariance of this construct (Mäkikangas et al., 2006); 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 and 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 2-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 18 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 18 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 instead to 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 article 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-groups 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 nonrecursive 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 negotiate sociopolitical obstacles as well as engage with career development tasks; unfortunately, this and related constructs (e.g., locus of control) were not measured in the ELS survey. The ELS data set 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 nonrecursive 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, Latin American, 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; and partially addressing unobserved variables and reverse causality. Tenth-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. Tenth-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, Latin American,

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.

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