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Conceptualizing college-going volition in rural Appalachian high school students

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Abstract

Understanding the gap between students' aspirations for postsecondary education and their actual postsecondary attainment is key to understanding and reducing educational and vocational inequities. Just as work volition has emerged as a key factor in understanding access to decent work, students' sense of control over or volition in the college-going process may be a key factor in understanding their access to postsecondary education. In the current study, we adapted a common measure of work volition to create a measure of college-going volition (CGV). In a large sample of rural Appalachian high school students, the measure showed good psychometric properties and strong measurement invariance across gender and prospective college-generation groups. There were no gender differences in CGV, but prospective first-generation college students demonstrated significantly lower CGV than their continuing-generation peers. CGV also accounted for significant unique variance in college-going self-efficacy beyond educational barriers.

Keywords

appalachia; college-going self-efficacy; college-going volition; first-generation college students

INTRODUCTION

Researchers aim to understand factors that contribute to postsecondary aspirations and behaviors, especially when those two outcomes are at odds with one another. For example, there are discrepancies between the number of students indicating plans to attend college after high school (aspirations) and the number of those that actually do (behaviors; Venezia et al., 2003). Furthermore, once students get to college, many do not complete their intended degree. In 2020, the 3-year completion rate for an associate degree was 34% and the 3-year

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CONFLICT OF INTEREST STATEMENT

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completion rate for a bachelor's degree was only 64% (U.S. Department of Education, National Center for Education Statistics, 2020).

The rural Appalachian region of the United States faces particularly disparate rates of educational and vocational attainment, disadvantaged by systemic inequities in the sociocultural environment and geographic landscape (Pollard & Jacobsen, 2021). Fortunately, significant progress has been made. Recent data (Pollard & Jacobsen, 2021; see also https://www.arc.gov/the-chartbook/#education) indicated that in the Appalachian region as a whole, significant gains had been made in educational attainment and employment such that rates on some metrics were comparable to national averages. However, educational disparities still exist: nationwide, 32% of adults aged 25 and higher had at least a bachelor's degree, compared to just over 24% in Appalachia. Moreover, these gains varied widely by county and region. Although 28.2% of adults in Northern Appalachia had earned a bachelor's degree or higher, only 15.2% of adults in Central Appalachia had reached this level of educational attainment. Disparities are more prevalent in rural Appalachia, with lower educational attainment and employment rates compared to rural areas outside Appalachia. Although the situation is improving, students in Central and rural Appalachia appear to continue to have a high number of obstacles to their postsecondary choices.

Much of the research that has attempted to understand career and educational choices among high school students in general, and among rural Appalachian youth in particular, has been grounded in Social Cognitive Career Theory (SCCT; Lent et al., 1994), which posits that perceived supports and barriers, self-efficacy beliefs, and outcome expectations predict interests, goals, and choice actions related to educational and career pursuits. Consistent with other research on SCCT, self-efficacy has emerged as a critical variable in understanding the educational and career pursuits of these students. For example, Ali and Saunders (2006) found that rural Appalachian high school students' self-efficacy was one of two key predictors of their postsecondary education expectations, along with parental support. Other studies with rural Appalachian high school students (Hardin et al., 2021; Rosecrance, et al., 2019) have found significant differences in self-efficacy based on prospective college-generation status and gender, with prospective first-generation students and young men—two groups typically underrepresented in higher education (e.g., Peter & Horn, 2005)—exhibiting lower college-going self-efficacy.

However, self-efficacy beliefs do not tell the whole story. In addition to students feeling *confident* in their abilities to pursue postsecondary education, students also need to feel a sense of *control* over their educational choices. In other words, students need not only a sense of self-efficacy, but also a sense of volition. The current study, therefore, investigates this sense of perceived volition as it pertains to going to college. We propose that *college-going volition* (CGV), an extension of *work volition* (Allan et al., 2014; Duffy et al., 2013; Jadidian & Duffy, 2012), may be an avenue for understanding postsecondary aspirations and behaviors. Moreover, CGV may be especially relevant for students from populations that face significant barriers to education, such as rural Appalachian youth. Based on definitions of work volition (Duffy et al., 2016), we define CGV as the perceived capacity to make postsecondary educational choices, despite constraints and barriers.

Volition and self-efficacy in career and college going

Within the psychology of working framework, Blustein (2006) posited that individuals vary in their degree of choice regarding work-related decisions and conceptualized volition as an individual-level construct with benefits that extend upward into the greater organizational and societal levels. Volition became a centerpiece of the subsequent Psychology of Working Theory (PWT; Duffy et al., 2016), which defined work volition as "the perceived capacity to make occupational choices despite constraints" (p. 128). Work volition has been operationalized and studied among both individuals in the world of work as well as college students as they anticipate entry into the workforce (e.g., Duffy et al., 2016; Duffy, Diemer, Perry, et al., 2012). Just as SCCT predicts that greater contextual barriers lead to reduced self-efficacy, PWT predicts that economic constraints or experiences of marginalization lead to reduced work volition. This prediction has been supported in a variety of samples (e.g., Allan et al, 2020; Duffy et al., 2016; Ma et al., 2021). Thus, both self-efficacy and volition may be critical factors for understanding educational and career choice among groups that face greater barriers due to economic constraints and experiences of marginalization—groups such as rural Appalachian youth.

Although many youth in rural Appalachia face these barriers, we conceptualize one's status as a prospective first-generation college student (PFGCS) as an identity that reflects unique experiences of marginalization and economic constraints that are particularly salient in this population. PFGCSs are middle and high school students whose parents have never attended college (Gibbons & Borders, 2010). These students are more likely to be from lower income families and to achieve lower academic attainment. Gibbons and Borders (2010) found that these students perceive more barriers to pursuing a college education and report lower self-efficacy for college going than their non-PFGCS peers. These students are also more likely to indicate plans to enter the workforce after high school, rather than intentions to pursue further education (Gibbons & Borders, 2010). Indeed, in a latent profile analysis of a large sample of college students, first-generation college students were overrepresented in the *Primarily (economically) Constrained* and the *Constrained and Marginalized* groups (Duffy et al., 2021). Moreover, we know that even within the rural Appalachian region, PFGCSs tend to report lower self-efficacy than their continuing-generation peers (Hardin et al., 2021; Rosecrance et al., 2019).

College-going volition

As noted above, the difference between self-efficacy and volition is "about confidence versus control" (Duffy et al., 2015, p. 48). Although the two constructs have been found to be positively correlated in past research (e.g., Duffy et al., 2015; Duffy, Diemer, & Jadidian, 2012; Jadidian & Duffy, 2012), they have also been found to be distinct. We propose that just as self-efficacy is domain specific, volition is also likely to be domain specific. Thus, to understand students' educational aspirations and choices, we propose that understanding both their education-related self-efficacy and their education-related volition is important.

As noted above, we define CGV as an attitude regarding one's degree of choice in making—or one's sense of control over—decisions related to college when considering possible constraints on those decisions. Given that work volition has been found to be associated

with fewer perceived work-related barriers (see Duffy et al., 2016), we hypothesized that higher CGV would be associated with fewer perceived barriers to college going and that PFGCSs would report lower CGV than their continuing-generation peers. Moreover, CGV may moderate the impact of barriers on other outcomes. When someone feels a high degree of choice, barriers may have a lesser impact on self-efficacy. Conversely, when one feels a low degree of choice, barriers may have a greater impact on self-efficacy. To date, no study could be found that considered the role of CGV in general, nor specifically within rural Appalachian students. The specific research questions guiding this study were: 1) What are the differences in CGV by parent education level?; 2) What are the relationships between CGV, perceived barriers, and college-going self-efficacy overall and by parent education level?; and 3) To what extent do CGV, perceived barriers, and parent education level predict college-going self-efficacy?

METHOD

Participants

The sample for the current study included students from three high schools in the South-Central rural Appalachian region of the United States. The data for this study were collected in Spring 2017 as part of a research intervention program being implemented and assessed at these high schools, funded by a Science Education Partnership Award (SEPA) from the National Institutes of Health (NIH). The initial sample from which the subsample for the current study was derived comprised 1231 completed surveys. Of these participants, 228 (18.5%) did not give assent to have their responses used in research, and an additional three students' parents denied consent, resulting in a sample of 1000. To reduce participant fatigue, the participants were randomly assigned one of two question sets, one with measures pertaining to general college going and one pertaining to STEMM (science, technology, engineering, math, and medical) pursuits, with the former (n = 478) being the set used for the current study. Although some of the students in this sample are likely included in data reported elsewhere (Hardin et al., 2021; Rosecrance et al., 2019), the data in this paper were collected at a different time point and thus represent an independent sample. However, some of the data included here were included in Gibbons et al. (2019, Study 2).

We determined that 471 respondents sufficiently completed the general college-going measures (e.g., less than 15% of the items missing from any of the study scales). Last, we screened the sample with four instructed response questions (e.g., "please select *slightly agree*"; see Meade & Craig 2012). After removing data from participants who failed this check for careless responding, the final sample for the current study consisted of 452 participants.

Of the 452 participants, 98.0% identified as White, 2.2% Latino, 2.0% American Indian, 1.1% Black, 0.2% Asian, and 0.2% Pacific Islander (participants could endorse more than one race; therefore, the percentages total to more than 100%). Of the participants, 56.4% were female and 42.3% were male. Six participants endorsed "prefer not to answer" and one did not complete the gender item. Tenth graders made up 35.8% of the sample, 11th 34.5%, and 12th 29.4%. Fifteen percent of the participants were 15 years old, 33.4% were 16, 35.6% were 17, and 15.5% were 18 years of age or older.

We categorized the sample based on PFGCS status using conservative criteria; only those students with no parent who completed any college were categorized as prospective first generation. This meant that a student with a parent who attended any college classes, including technical or vocational training, would be categorized as a continuing-generation student. This resulted in 153 (33.8%) PFGCSs, 265 (58.6%) prospective continuing-generation college students, and 34 students (7.5%) who were unsure of their parents' educational attainment.

Procedure

The selection of these high schools was based on their location in counties that were labeled as economically distressed at the time by the Appalachian Regional Commission (2016). All 10th-, 11th-, and 12th-grade students at these schools had the opportunity to participate in the surveys, which were administered electronically during the school day on iPads distributed by the research team, as part of the program evaluation. At the beginning of each school year, caregivers are given the opportunity to decline consent for their students' program evaluation data to be used for research purposes.

Members of the research team went into classrooms to administer the surveys in the Spring semester following the administration of the 10th-grade intervention for that semester; the data reported here are from the postintervention collection for the 2016–2017 school year. There was no penalty for those who did not choose to participate in research, and it did not impact their participation in the classroom interventions (see Gibbons et al. [2020] for a description of the intervention program).

A priori power analyses using G*Power determined that 210 participants would be the minimum sample size needed to detect a medium main effect ($f = 0.25$) with a statistical power of 0.95 for the analysis of covariance (ANCOVA) to investigate the difference in CGV by PFGCS status, controlling for grade. We determined that a multiple regression model testing the incremental prediction of college-going self-efficacy by CGV and its interaction with educational barriers would require 107 participants to achieve a statistical power of 0.95 with a medium effect size ($f^2 = 0.15$). Thus, our sample of 452 participants was adequate for the analyses used.

Measures

College-going self-efficacy—The College-Going Self-Efficacy Scale (Gibbons, 2005) was used to assess high school students' expectations about their abilities to go to and stay in college, measured by two subscales of attendance and persistence, respectively. Using the prompt "How sure are you about being able to do the following," the Attendance subscale asks students to respond to 15 items pertaining to issues related to finances, ability, family, and decision-making skills, on a 4-point Likert scale ranging from 1 (*not at all sure*) to 4 (*very sure*). An example of an Attendance item is "I can get accepted to a college." The Persistence subscale asks students to use the hypothetical situation that they did go to college and respond to 16 items regarding issues of finances, ability, family, and life skills, using the same Likert scale. The Persistence subscale items include "I could make friends at college." Higher scores on the measure are indicative of greater perceptions of college-going

self-efficacy. The measure has demonstrated a reliability coefficient of 0.94 in a sample of middle school students (Gibbons & Borders, 2010). This measure demonstrated a reliability of 0.96 for the current sample.

Barriers to college going—The Perception of Educational Barriers Scale—Revised (McWhirter, 2000; revised by Gibbons & Borders, 2010) was used to assess possible barriers to continuing education after high school. This measure contains the original 28 items on the Perception of Educational Barriers Scale (McWhirter, 2000), along with 17 additional items. Consistent with Gibbons (2005), we used only the Likelihood subscale, which addresses the occurrence of barriers. The revised scale includes 45 perceived barriers, such as those related to finances and lack of social support. Items include “not enough money” and “having to work while in school.” Students rate the likelihood of each variable being a barrier on a scale of 1 (*not at all likely*) to 4 (*definitely*). When utilized with middle school students, the Cronbach’s alpha of this revised Likelihood scale was 0.93 (Gibbons & Borders, 2010). The revised Likelihood scale demonstrated a reliability of 0.95 in the current sample.

Control variables—At the end of the questionnaire, participants were asked to provide gender, school, and grade. A large number of the participants in the sample had received an intervention aimed at changing perceptions about college going. We were unable to sufficiently assess and control for differences in the study variables between those who received the intervention and those who did not receive it due to the insufficient identification of those who had received it and those who had not.

College-going volition—CGV was measured by modifying the Work Volition Scale—Student Version (WVS- SV; Duffy, Diemer, & Jadidian, 2012), which consists of 16 items that measure students’ general perceptions of their capacities to make future work choices (volition subscale) and to do so despite constraints (constraints subscale). Respondents use a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) to respond to statements. Items on the volition subscale include “I feel total control over my future job choices,” and items on the constraints subscale are reverse coded and include “What I want has little impact on my future job choice.” Duffy, Diemer, and Jadidian (2012) found an internal consistency of 0.92 for the total scale and 0.78 and 0.89 for the volition and constraints subscales, respectively, among a sample of undergraduate students.

For the current study, this measure was modified by rewording each item to refer to college going instead of work. In addition, using feedback obtained from the research team, the last item from the nonstudent version of the Work Volition Scale (WVS; Duffy, Diemer, & Jadidian, 2012) was modified and added to the college-going version within the constraints subscale, “The college I would like to attend doesn’t exist in the area where I live.” Therefore, students were administered a 17-item scale, 16 from the WVS-SV and one from the WVS. Other example items include “I will be able to change my course of study in college if I want to” and “I feel total control of my choices regarding college.” In the current sample, this measure demonstrated a reliability estimate of 0.85; Cronbach’s alphas were 0.86 and 0.84 for the volition and constraints subscales, respectively.

Data analysis

Missing item analysis indicated that no item was missing from more than 1.5% of the participants. We therefore used available case analysis, which is preferred over mean substitution, which can create inflated correlations between items (Parent, 2013).

Factor structure of the College-Going Volition Scale—We based the College-Going Volition Scale (CGVS) on the student version of the WVS, which has demonstrated a two-factor structure: volition and constraints (Duffy, Diemer, & Jadidian, 2012). We first attempted to confirm the same two-factor structure for the CGVS. All skewness and kurtosis values were less than three times the respective standard errors, thus we concluded these would not make a "substantive difference in the analysis" given the large sample sizes (Tabachnick & Fidell, 2013, p. 80). We randomly split our sample in half to create two independent samples (ns = 226) and used maximum likelihood (ML) confirmatory factor analysis (CFA) in MPlus 8 to test the fit of the two-factor model to the data from the first sample. We used the latent standardization method of model identification (see Little et al., 2007), in which all factor loadings were freely estimated and the variances of the two factors were fixed to 1.0. Results showed mixed fit indices with some indicating adequate fit to the data (e.g., root mean square error of approximation [RMSEA] = 0.088, 90% confidence interval [CI] [0.077, 0.100]; standardized root mean square residual [SRMR] = 0.068), but others indicating mediocre fit (comparative fit index [CFI] = 0.883, Tucker–Lewis index [TLI] = 0.865). These fit indices are quite similar to those obtained by Duffy, Diemer, and Jadidian (2012) in their original validation of the student version (i.e., RMSEA = 0.08, 90% CI [0.07 0.09]; CFI = 0.88, TLI = 0.87, SRMR = 0.06; p. 303). They were able to obtain better fit indices by including pairs of error covariance in their model that were suggested by model modification indices. However, they did not use an independent sample to confirm the model with these error covariances.

Consistent with the possibility that their improved model fit may have capitalized on chance within their specific sample, modification indices in our own sample did not support including the same pairs of error covariances, but suggested that adding two different pairs (Items 3 and 4, and Items 9 and 10) might improve model fit. However, Items 9 and 10 do not appear conceptually similar, so there did not seem to be a justification for including this error covariance. In addition, examination of the residuals and standardized factor loadings suggested that Item 8 ("What I want has little impact on my college choices") may be problematic, as it had relatively high residuals and its loading was only 0.27 on the second constraints factor. As shown in Table 1, all other loadings were above 0.49. The two factors were modestly correlated (r = 0.275). We therefore ran another ML CFA on the data from our second independent sample that did not include Item 8 but that did include the error covariance between Items 3 and 4. Fit indices were similar to the previous: RMSEA = 0.082, 90% CI [0.069, 0.094]; SRMR = 0.062, CFI = 0.886, TLI = 0.866. The two factors were more highly correlated in this second analysis (r = 0.56), and all factor loadings were above 0.33 (see Table 1). The error covariance term was also significant. Modification indices did not suggest any other changes to improve model fit.

Tests of multigroup invariance—Although the CFA results do not suggest ideal fit to the data, our results are similar enough to those obtained by Duffy et al. in their original examination of the WVS-SV, and the loadings on the two factors are consistently strong enough that we proceeded with tests of multigroup invariance, using our combined sample (n = 446 for gender, n = 418 for prospective generation status). Following recommendations (see Little et al., 2007; Widaman & Reise, 1997), we first tested for configural invariance by allowing all parameters to be freely estimated to determine whether the underlying two-factor structure provided a good fit to the data. As shown in Table 2, the baseline configural models fit the data for both the gender and PFGCS groups similarly to the analyses for the total sample.

We next constrained all factor loadings to be equal across groups to test for metric or "weak factorial" invariance (Little et al., 2007, p. 123). To aid in model identification, we fixed the latent means and factor variances to zero. Supporting metric invariance for both gender and prospective college-generation status, the RMSEA point estimates from the constrained models fall within the confidence intervals from the unconstrained configural models and the change in CFI across the two models is less than or equal to 0.01 (see Little et al., 2007). We next conducted a stronger test of invariance by constraining the item intercepts to be equivalent across groups (see Little et al., 2007), freeing the latent variances in the second groups. Using the same indices of relative model fit, results also supported strong invariance between groups. Finally, we tested for equivalence of latent means by constraining them to zero in all groups. For gender, a traditional χ^2 difference test for nested models (as recommended for tests of latent constructs; Little et al., 2007) was nonsignificant ($\Delta\chi^2$ = 0.434 (2), $p > 0.80$), supporting invariance of latent means for gender; however, for prospective college student generation status, the test was significant ($\Delta\chi^2$ = 9.83 (2), $p < 0.01$), indicating the latent means are *not* invariant between prospective continuing and first-generation college students, as might be expected.

RESULTS

Tests of hypotheses

Past research with the WVS has typically used total scores, despite the underlying two-factor structure. We therefore also used total scores for the CGVS in our tests of hypotheses. Based on the results of our factor analyses, we computed total scale scores omitting Item 8; Cronbach's alpha for this 16-item scale was 0.87. The data were assessed for any potential univariate outliers for the CGVS scores using histograms and box plots (Aggarwal, 2013; Aguinis et al., 2013); none were identified. Thus, we retained all 417 participants that could be categorized as PFGCSs or non-PFGCSs for the between-groups analyses. We identified five multivariate outliers using the Mahalanobis Distance. However, excluding these cases did not change the findings, so we retained all 452 participants for the regression analyses.

The means and correlations between the study variables are presented in Table 3. As expected per past research within the domain of career (Duffy et al., 2016; Duffy et al., 2012; Jadidian & Duffy, 2012), CGV was positively correlated with college-going self-efficacy (r = 0.70). Although this correlation is quite high, it still suggests more than 50% unshared variance, indicating these constructs are unique. As would be expected, perceived

educational barriers were negatively correlated with CGV ($r = -0.56$) and college-going self-efficacy ($r = -0.55$).

Before running the analysis, we investigated possible demographic variables that may affect volition: gender, school, and grade. Consistent with our tests of multigroup invariance, there was no significant difference in CGV by gender, $t(444) = -0.79$, $p = 0.86$. There were no differences in volition scores across the three schools from which the sample was obtained, $F(2, 414) = 2.09$, $p = 0.13$. We did observe a significant effect of grade on CGV, $F(2, 415) = 5.51$, $p < 0.01$. Post hoc comparisons using the Tukey HSD test indicated that 12th graders ($M = 5.36$, $SD = 0.95$) reported significantly higher volition scores than 10th graders ($M = 4.98$, $SD = 0.89$); however, 11th graders ($M = 5.18$, $SD = 0.98$) did not differ significantly from either of the groups. We therefore included grade level as a covariate in subsequent analyses.

To test the first research question, we conducted a one-way ANCOVA to assess for differences in reported CGV between PFGCSs and non-PFGCS, controlling for grade level. The ANCOVA provided a significant main effect for PFGCS status, $F(1, 414) = 10.01$, $p < 0.01$, $\eta_p^2 = 0.024$, indicating that there was an effect of PFCGS status on CGV when controlling for the effect of grade. PFGCSs reported lower levels of CGV ($M = 4.99$, $SD = 0.95$) than their non-PFGCS peers ($M = 5.26$, $SD = 0.94$). The results were statistically significant, but the corresponding effect size for the main effect of PFGCS status was small as indicated by the η_p^2 value.

Our next research question was about the relations between volition, barriers, and self-efficacy. We ran a hierarchical regression, shown in Table 4, in which perception of educational barriers (centered; Step 1) and CGV (centered; Step 2) were regressed on college-going self-efficacy, which provided a measurement of additional variance accounted for (ΔR^2) by CGV. In Step 1, perceived educational barriers explained 29.4% of the variance in college-going self-efficacy. The addition of CGV in Step 2 accounted for an additional 23.2% of the variance in college-going self-efficacy, $R^2 = 0.53$, $\Delta R^2 = 0.23$, $\Delta F(1, 422) = 206.80$, $p < 0.001$. Together, perception of educational barriers and CGV accounted for 53% of the variance in college-going self-efficacy, $F(2, 422) = 234.17$, $p < 0.001$. These results support the hypothesis that CGV is a significant unique predictor of college-going self-efficacy, even after accounting for the effect of perceived educational barriers.

Finally, we investigated the interaction of perceived educational barriers and CGV on college-going self-efficacy. The total model accounted for 52.9% of the variance in college-going self-efficacy, $F(3, 421) = 157.65$, $p < 0.001$. However, the interaction between perceived barriers and CGV did not add to the predictive capacity of the model, $\Delta R^2 = 0.003$, $\Delta F(1, 421) = 2.71$, $p > 0.10$, thus not supporting our hypothesis.

DISCUSSION

In this study with high school students in rural Appalachia, we proposed that CGV, the perception of the capacity to make postsecondary educational choices despite constraints, may be an important variable in understanding students' educational pursuits; moreover,

we sought to determine the extent to which understanding this sense of control might complement an understanding of students' confidence (self-efficacy). We found support for the application of a modified version of the work volition scale to measure CGV in this population. This measure demonstrated good reliability ($r = 0.85$) and relationships with barriers and self-efficacy consistent with the theoretical assumptions and past findings of the original work volition scales (Duffy et al., 2016; Jadidian & Duffy, 2012). Additionally, this study investigated volition relative to students' status as PFGCSs. To our knowledge, this was the first to investigate CGV among high school students and alongside one's status as a PFGCS.

We found support for the hypothesis that PFGCSs would report lower levels of CGV than prospective continuing-generation students. This suggests that students who have a parent with some college experience feel more able to freely make choices about going to college. This finding is consistent with tenets of PWT (Duffy et al., 2016) that people vary in their degree of volition based upon certain demographic variables—such as experiences of marginalization and economic constraints—and related findings that support social class as a predictor of work volition (Duffy et al., 2016), especially considering the tendency for PFGCSs to be from lower income households (Gibbons & Borders, 2010). However, also consistent with past research, we did not find any differences in CGV by gender (Duffy et al., 2013, 2016; Jadidian & Duffy, 2012).

The significantly lower CGV reported by PFGCSs, compared to their non-PFGCS peers, supports previous findings that PFGCS status is an important characteristic when investigating career and educational development. Researchers have recommended that PFGCS status needs to be considered as a person variable beyond socioeconomic status, gender, and race/ethnicity because of its impact on theoretically relevant variables, such as self-efficacy and outcome expectations (Gibbons & Borders, 2010; Rosecrance et al., 2019). The current study also supports PFGCS status as a nexus of marginalization and economic constraints within the PWT. Although statistically significant, the difference in CGV between PFGCSs and non-PFGCSs was small. It is important to remember, however, that the students in the current sample were exposed to an intervention focusing (in part) on reducing barriers to and increasing supports for postsecondary education. The intervention may have thus indirectly affected volition, which may have reduced differences between these groups. It will be important to further investigate CGV without the impact of an intervention to more accurately assess the size of the effect.

Although the effect was small, the measured differences in CGV between PFGCSs and non-PFGCSs support the validity of the measure. Finding that PFGCSs demonstrated lower levels of volition supports the measure's ability to discriminate between individuals that would be expected to experience less power in the college decision-making process based on parent education. As previous research indicates, students whose parents did not attend college are more likely to go straight into the workforce after high school, are likely to perceive more barriers to education, and endorse lower college-going self-efficacy (Gibbons & Borders, 2010; Rosecrance, et al., 2019); the current results add to our understanding of this population, demonstrating that PFGCSs also report lower levels of CGV. Considering the lower prevalence of postsecondary education among adults in Appalachia (Pollard

& Jacobsen, 2021), the differences in volition based upon parent education level are particularly relevant to this population.

Per previous literature, we aimed to find support for CGV as a construct both related to and distinct from perceptions of educational barriers (Duffy et al., 2016; Duffy et al., 2012). The moderate correlation between the two constructs in the current study provided preliminary support for this idea, with more than two thirds of unshared variance. Moreover, CGV and perceptions of educational barriers both accounted for unique variance in college-going self-efficacy, which provides further support for the notion that these two variables are related but separate constructs (Duffy et al., 2016; Duffy et al., 2012). Students may perceive similar barriers but feel differently about their abilities in the face of such constraints. In the same vein, people may perceive different constellations of barriers alongside differing perceptions of power over the decision-making process. Thus, we conclude that volition is not just another way of measuring perceived (lack of) barriers, but an additional influence on how students feel about the prospect of going to college.

We did not find an interaction between barriers and volition when predicting college-going self-efficacy, suggesting that the negative effect of barriers on self-efficacy is not mitigated by volition. In other words, these results suggest an additive effect of CGV and perception of barriers when predicting self-efficacy. The significant main effect of volition on self-efficacy suggests that efforts to address volition should be effective even among populations of students facing high levels of barriers. In a region with widespread economic disparities and geographic barriers, additional points of influence for educational attainment are warranted as added education and training may provide means of reducing those disparities.

Indeed, volition is theorized to be malleable and, being an individual-level variable, might be a viable point of change for interventions (Duffy et al., 2016), especially when certain barriers (e.g., financial constraints) cannot easily be reduced. In such cases, it may be useful to target students' volition and address the way they see themselves in relation to existing barriers, empowering them with information and resources not only to overcome the barriers (e.g., concrete information about applying for financial aid), but also with information and resources to reinterpret those barriers (e.g., reframing low rates of postsecondary education or high rates of economic constraints as the product of decades of exploitation from the mining industry and other government policies). This possibility aligns with critical consciousness theory in relation to sociopolitical barriers. Critical consciousness is an internal and individual-level variable that can be a resource for coping with sociopolitical barriers (Watts et al., 1999). Diemer and Blustein (2006) found that components of critical consciousness positively relate to students' progress in career development (e.g., vocational identity, commitment to future careers, and view of work as a larger part of their future lives).

Limitations and future studies

The data used were correlational and cross-sectional, which limits the ability to make causal claims. Longitudinal investigations would help clarify the direction of these relationships and the role of CGV in students' perceptions about college going. The current study included high school students in rural Appalachia, a unique population that is generally

underrepresented in research. These students may also be underrepresented by the scope of traditional career and educational theories. While the composition of the sample was intentional for the overall aim of the grant-funded project, it limits the generalizability to populations beyond rural Appalachia, as well as to more diverse populations within Appalachia. Students in this region face unique sociocultural and geographic factors, including values of self-reliance and familism, and long travel times to school (deMarrais, 1998; Seal & Harmon, 1995), and thus volition may look different for students from other regions. For example, values of family ties and self-reliance might affect the valence of volition items (e.g., prioritizing one's interests may be counter to the important role of the family); self-reliance might limit endorsement of negatively valenced items due to the implication that one would need external assistance. Further investigation of CGV, as well as those variations of work volition from which it was modified, with additional student populations would be useful to determine the extent to which the CGV scale itself, as well as our other findings, generalizes.

As noted above, many of the students in the current study had received an intervention aimed to increase postsecondary education. However, we were not able to identify which students had received the intervention and so were not able to control for possible intervention effects. We cannot be certain about the extent to which the intervention might have had an effect on the relationships between the study variables, although we would expect that it would decrease barriers and increase CGV and self-efficacy. As such, the intervention might have attenuated between-groups differences. As noted above, future research should examine CGV in populations without any intervention and over time with interventions to better understand the potential differences between PFGCSs and non-PFGCSs.

Furthermore, this was the first time that the work volition scale has been modified to be specific to college going. Although the measure demonstrated good reliability and related in expected ways to college-going self-efficacy and perceptions of educational barriers in this population, the underlying factor structure provided an adequate fit, at best. It is possible that the items from the work volition scale do not adequately capture CGV. While career and academics are often conceptualized similarly, there may be items that do not translate directly from work to college going. It is important to continue investigations with this variable to better determine what it looks like with other populations across different contexts, and whether a revised version of the scale might provide a better operationalization of the construct.

The current study aimed to incorporate CGV as an added factor in the decision-making process surrounding postsecondary educational choices. Although recent research (Masdonati et al., 2021) has proposed that volition and self-efficacy may be one and the same, our results suggest otherwise. CGV appeared directly related to college-going self-efficacy beliefs, but was also distinct from both self-efficacy and perceived barriers. These results suggest that these are not redundant constructs, and future research should not use them interchangeably. More research is also needed to better understand the nuances between volition, self-efficacy, and perceived barriers. For example, longitudinal studies could investigate the extent to which self-efficacy is a precursor or outcome of volition.

Studies looking at work volition suggest that when people perceive higher volition over career decisions, they report higher levels of academic, job, and life satisfaction (Allan et al., 2014; Duffy et al., 2013; Jadidian & Duffy, 2012). This reflects the tenets of PWT that volition increases the likelihood of meeting higher level needs of work beyond survival needs, such as social connection and self-determination (Duffy et al., 2016). If one considers education as a parallel domain, higher levels of CGV are likely to lead to increased satisfaction with educational pursuits. Education may be seen as more than the associated financial tolls and rewards; making a volitional choice to go to college may place students in better positions to face the possibility of education not securing future job success.

It would be informative to investigate CGV with behavioral outcomes to better understand the relationship of this variable on the actual choice to attend college. This would allow us to better understand the impact that volition has on the actual decision to attend college. As volition is theorized to be a malleable variable, it would be helpful to look at changes over time, and specifically in response to interventions, such as the one many of the students in the current study underwent. It might also be beneficial to look at these changes in relation to barriers and self-efficacy. One might answer whether volition or barriers change more and whether changes in volition predict changes in self-efficacy. Taken together, these results would inform the targeting of future interventions and better inform the predictive capacity of this variable as well as the direction of relationships with related variables.

Implications for practice

As noted above, CGV, alongside perceptions of educational barriers, predicted college-going self-efficacy. Considering the importance of self-efficacy beliefs, it might be valuable for career development practitioners (e.g., school counselors in high school or K-12) working with PFGCSs to consider volition when addressing college going. For example, in addition to discussing students' confidence about their ability to pursue postsecondary education (self-efficacy), counselors and teachers might also discuss students' sense of control over those decisions (volition). For example, conversations might explore who else college-going decisions might impact, such as parents or siblings. Intentionally opening dialogue about how individual college going impacts or is impacted by important others may help students feel accepted and heard. Other important topics might be about perceived discrimination and how capable the student feels to handle this issue. Students may be unsure what they can do to address potential discrimination or concerned that broaching this topic may be inappropriate. By having the counselor or teacher broach this topic, they can create a safe space for students.

This could be an empowering process for students and improve their ability to pursue satisfying educational paths. The possibility for such empowerment coincides with previous findings that suggest higher levels of critical consciousness relate to improvements in students' career progress (Diemer & Blustein, 2006). Previous literature also suggests an increased general sense of control as another possible avenue for increasing perceived work volition (Duffy et al., 2016). Therefore, it may be important for interventions to emphasize education and awareness geared toward empowerment beyond the specific domains of interest (e.g., college going or work) to increase volition over those processes.

CONCLUSION

The current study provided preliminary support for the utility of a measure of CGV. The CGVS distinguished between prospective first-generation and continuing-generation college students, was statistically distinct from perceived educational barriers, and accounted for significant unique variance in college-going self-efficacy. In efforts to ameliorate the educational and economic inequities prevalent in rural Appalachia—as well as in many other communities—volition may be one more critical piece of empowering individuals and increasing access to not only decent work, but also meaningful education.

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TABLE 1

Standardized factor loadings from confirmatory factor analyses.

	Sample 1 (n = 226)		Sample 2 (n = 226)	
Item	**Volition**	**Constraints**	**Volition C**	**onstraints**
I will be able to change my course of study in college if I want to.	0.637	–	0.431	–
Discrimination will not affect my ability to choose what college I go to.	0.498	–	0.490	–
I will easily find a college to go to if I want to.	0.879	–	0.764	–
I will be able to choose the college that I want.	0.824	–	0.710	–
I will learn to find my own way in college.	0.730	–	0.701	–
I feel total control over my choices regarding college.	0.673	–	0.737	–
I will be able to go to the college I want, despite external barriers.	0.790	–	0.758	–
(What I want has little impact on my college choices.)	–	0.271	–	–
In order to provide for my family, I will have to pursue college options I do not enjoy.	–	0.554	–	0.338
Due to discrimination, I do not feel I have complete control over going to a college.	–	0.557	–	0.390
Due to my financial situation, once I start college, I couldn’t change programs even if I wanted to.	–	0.757	–	0.721
I feel that my family situation limits the types of college options I might follow.	–	0.728	–	0.679
I worry that my life circumstances will prevent me from achieving my long-term educational goals.	–	0.777	–	0.765
Due to my financial situation, I will need to pursue any college option I can find.	–	0.737	–	0.815
The only thing that matters when choosing a college is to make ends meet.	–	0.647	–	0.589
I know I won’t like my future college, but it will be impossible for me to find a new one.	–	0.769	–	0.690
The college I would like to attend doesn’t exist in the area where I live.	–	0.550	–	0.354

Note: In sample 2, the errors for Items 3 and 4 were allowed to correlate and Item 8 was dropped.

TABLE 2

Fit indices from tests of multigroup invariance.

Groups	Model tested	RMSEA [90% CI]	SRMR	CFI	TLI	χ^2 (*df*)
Gender	Configural	0.085 [0.076, 0.093]	0.065	0.886	0.874	566.814 (218)
	Weak	0.082 [0.074, 0.091]	0.069	0.892	0.881	547.884 (218)
	Strong	0.083 [0.075, 0.091]	0.074	0.884	0.880	586.889 (232)
	Latent Means	0.082 [0.074, 0.091]	0.074	0.884	0.881	587.323 (234)
Prospective college student generation status	Configural	0.084 [0.075, 0.093]	0.063	0.887	0.976	539.921 (218)
	Weak	0.085 [0.076, 0.094]	0.068	0.884	0.872	547.827 (218)
	Strong	0.081 [0.073,0.090]	0.069	0.887	0.883	553.319 (232)
	Latent Means	0.082 [0.073, 0.091]	0.074	0.884	0.881	563.153 (234)

Abbreviations: CFI, comparative fit index; CI, confidence interval; RMSEA, root mean square error of approximation; SRMR, standardized root mean square residual; TLI, Tucker–Lewis index.

TABLE 3

Means, standard deviations, and intercorrelations among study variables.

	PFGCS (*n* = 153)	Non-PFGCS (*n* = 264)			
Variable	***M* (*SD*)**	***M* (*SD*)**	**1**	**2**	**3**
1. CG volition	4.99 (0.95)	5.26 (0.94)	0.86 (0.85)	−0.59	0.73
2. Educational barriers	1.70 (0.52)	1.58 (0.46)	−0.49	0.96 (0.95)	−0.57
3. CG self-efficacy	2.95 (0.60)	3.16(0.53)	0.65	−0.50	0.96 (0.96)

Note: All correlations significant at the $p < 0.01$ level. Internal consistency reliability statistics are included on the diagonal; those for non-PFGCS are in parentheses. Correlation coefficients for PFGCS are below the diagonal and those for non-PFGCS are above the diagonal.

Abbreviations: CG, college-going; PFGCS, prospective first-generation college students.

TABLE 4

Hierarchical regression results for the prediction of college-going self-efficacy.

Step/predictor		*B*	*SE*	*β*	ΔR^2
1	(Constant)	3.072	0.023	–	0.294***
	Educational barriers	−0.654	0.049	−0.542***	–
2	(Constant)	3.066	0.019	–	0.232***
	Educational barriers	−0.265	0.049	−0.219***	–
	College-going volition	0.354	0.025	0.580***	–
3	(Constant)	3.083	0.022	–	0.003
	Educational barriers	−0.247	0.050	−0.205***	–
	College-going volition	0.357	0.025	0.585***	–
	Barriers × College-going volition	0.069	0.042	0.056	–

*** $p < 0.001$.