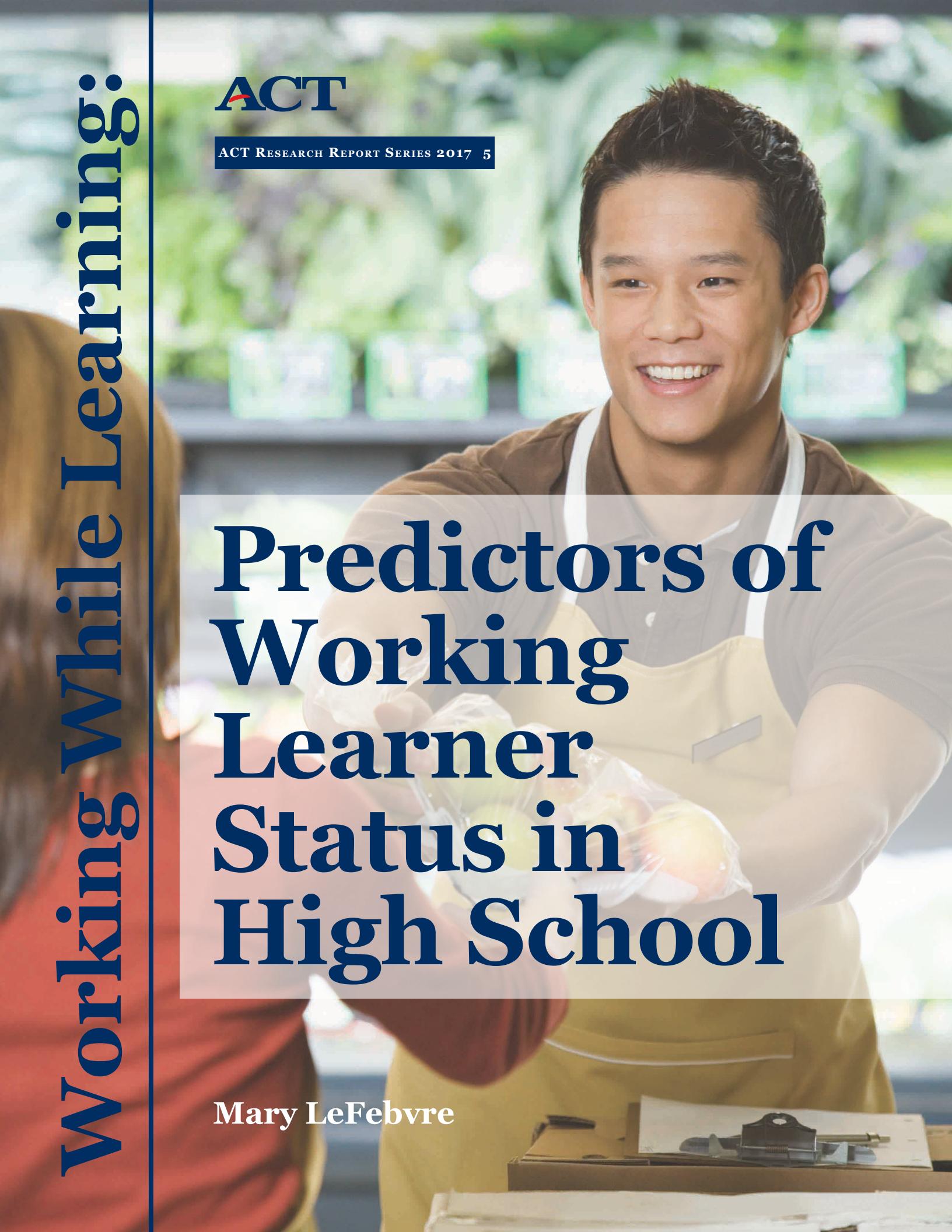

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Working While Learning:

Predictors of Working Learner Status in High School

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Abstract

Employment status in high school has been shown to have a negative relationship with measures of academic achievement which some researchers have attributed to student characteristics such as demographics and socioeconomic status. The current study investigated differences in the demographic and socioeconomic characteristics of “working learners” (high school students working 15 hours or more a week) and non-working learners, and how working learner status is related to a measure of postsecondary readiness as well as career sureness using self-reported data from a national assessment of educational achievement (n = 366,528). High school working learners were more likely to be of lower SES and have lower postsecondary readiness scores compared to non-working learners. Working learners were also more likely to expect to work intensely while in college and to be sure of their career plans compared to non-working learners.

Working While Learning: Predictors of Working Learner Status in High School

Introduction

More and more high school students in the U.S. are choosing to pursue some form of postsecondary education directly after high school and delaying entry into the workforce. The percentage of students enrolling in postsecondary education in the fall after high school graduation in 2013 was 65.9%, which has continually increased since 1980 (49.3%) (U.S. Department of Commerce, 2014). Combined with the lasting effects of the 2008 economic recession which places adolescents in competition with older adults for entry level jobs, it is not surprising that fewer and fewer students are choosing to enter the workforce, albeit even on a part time basis, during high school (Staff et al., 2014). Since 2000, the employment rate for high school students age 16 and over has been steadily decreasing, from 34.1% in 2000 to 17.9% in 2013 (Snyder & Dillow, 2015).

Historically, long term decreases in the U.S. adolescent employment rate were a reflection of the early 20th century economic transition from an agrarian to an industrialized economy. As occupations became more specialized, the economic value of a secondary education superseded that of adolescent contributions to family income. In the 1970s, the report of The Panel on Youth of the President's Science Advisory Committee (Panel on Youth, 1974) addressed growing concerns about the impact of overemphasis of schooling on adolescent career development (Zimmer-Gembeck & Mortimer, 2006). The panel's recommendations for collaboration between employers and schools to promote youth work experience influenced a national emphasis on the importance of adolescent employment. Following this, the labor participation rates for adolescents increased steadily in the 1970s, 80s, and 90s (Snyder & Dillow, 2015).

A consequence of the more recent decrease in the adolescent labor market participation rates in the early 21st century will be that the majority of current high school students will not be exposed to the tasks and expectations of the workplace until after they have completed their formal education. Concern has been raised about whether such a myopic focus during the high school years impairs a student's ability to effectively plan for career goals and to make appropriate choices of related postsecondary coursework (Schneider & Stevenson, 1999). The importance of effective career and related postsecondary planning cannot be overstated in light of the increasing cost of postsecondary education over the last decade. In 2012–2013, the average undergraduate tuition and fees for full-time students across all degree-granting postsecondary institutions were $10,800 in constant 2013–2014 dollars, a 50% increase over 2000–2001 ($7,200) (U.S. Department of Education, 2014). Since some researchers have suggested that employment during high school could positively impact career development with respect to career indecision and planning (Meeus, Dekovic, and Iedema, 1997), a better understanding of the relationship of adolescent employment to academic and labor market outcomes is needed.

Academics, policymakers, and parents alike wish to better understand the tradeoffs involved in whether or not to encourage high school students to work while attending school versus intentionally delaying their entry into the workforce in order to better prepare them for a postsecondary education. Much of the historic discourse on adolescent employment in high school has been focused on the issue of whether or not students "should" work while

attending school (Zimmer-Gembeck & Mortimer, 2006). The concern largely stems from the assumption that the time a student spends working necessarily detracts from time that could be devoted to school activities such as time spent on homework. Such research utilizes a zero-sum theoretical model to investigate whether increased time spent working (e.g., time, energy) leads to less time and decreased attachment to school and school-related activities (Carr, Wright, & Brody, 1996; Marsh, 1991; Steinberg & Dornbusch, 1991; Warren, 2002). High school employment has been associated with reduced time spent watching TV and socializing but not significantly related to a reduction in time spent on homework, at school or in extracurricular activities (Schoenhals, Tienda, & Schneider, 1998; Warren, 2002).

Empirical evidence about the short and long term relationships of adolescent employment and work intensity, or hours spent working, on different academic and labor market outcomes is mixed. Employment during high school has been found to be negatively related to different student measures of secondary and postsecondary academic achievement such as performance on standardized tests, four-year postsecondary degree attainment, and school engagement and is positively related to secondary and postsecondary education attrition (Apel, et al., 2008; Tyler, 2003; Carr, Wright, & Brody, 1996; Marsh, 1991; Singh, 1998; Vickers, Lamb, & Hinkley, 2003; Steinberg & Dornbusch, 1991). Research conducted by McNeish, Radunzel and Sanchez, (2015) found no direct effect for the number of hours worked during high school and differences on postsecondary academic achievement (as measured by the ACT® college readiness assessments), though there was an indirect effect through its effect on high school GPA after accounting for other academic and non-academic related factors. Other research studies have found that hours worked during high school are positively related to completion of a four-year postsecondary degree (Staff & Mortimer, 2007) and have found no impact of adolescent employment status with high school GPA (Rothstein, 2007; Warren, LePore, & Mare, 2000). The research findings on the relationship between adolescent employment and labor market outcomes are much more consistent. Employment status and work intensity have been found to have a positive effect on both short- and long-term labor force participation, employment status, and income (Carr, Wright, & Brody, 1996; Marsh & Kleitman, 2005; Vickers, Lamb, & Hinkley, 2003).

The negative relationship between adolescent employment and academic outcomes may be attributed to other differences that exist between working and non-working learners, including some characteristics known to directly impact both secondary and postsecondary education outcomes. For example, labor force participation rates for students with low family income household status (9.7%) are much lower than the rates for their high family income counterparts (25.4%) (Snyder & Dillow, 2015). However, for those students who do work during high school, the level or intensity of work varies significantly by socioeconomic status (SES). Warren, LePore, and Mare (2000) found that students who worked at high intensity (more than 15 hours per week) were more likely to be of low SES than students who did not work or worked at low intensity (between 1–15 hours per week). This result has important implications as students from lower SES backgrounds are less likely to complete high school and have lower postsecondary educational attainment aspirations (Kena et al., 2015). With regards to postsecondary outcomes, students from lower SES families are less likely than their peers to be academically prepared for college, enroll in postsecondary education, persist in college, and to complete a postsecondary degree (Engle & Tinto, 2008; McNeish, Radunzel, & Sanchez, 2015; Snyder & Dillow, 2015; Kena et al., 2015; Walpole, 2003). Warren, LePore, and Mare (2000) also found that differences in the demographic composition (such as gender,

SES, and race/ethnicity) between more and less intensively employed students fully accounted for the relationship between employment intensity and academic outcomes—a finding which is supported by other research studies (Schoenhals, Tienda, & Schneider, 1998; Staff, Schulenberg, & Bachman, 2010; Warren, LePore, & Mare, 2000).

Other factors such as orientation toward work and school have been found to play a role in a student's decision to work intensively during high school and impact education outcomes. Warren (2002) analyzed data from a longitudinal survey of Seattle area high school students that tracked detailed student employment activities, school performance, and life activities. The study investigated whether student employment intensity is an indicator of the extent to which students are work oriented. Specifically, the researchers were interested in whether a student's social psychological orientation toward work affects academic outcomes and whether employment intensity matters only if it is accompanied by disinterest in school. Warren (2002) found that students who were work oriented were 60% more likely to be employed during high school and that students who were school oriented were less likely to be employed intensively. Additionally, work oriented students were found to have lower academic outcomes compared to school oriented students (Warren, 2002).

The current study seeks to add to the body of research on the relationship of adolescent employment with academic outcomes based on a large national sample of high school students. Of interest are differences in the demographic characteristics of "working learners," students who are intensively employed in high school as compared to students who are not working intensively. Additionally, the current study seeks to better understand how working learner status is related to a student's postsecondary readiness and career sureness. The two main objectives of the study are to: 1) compare working learners to non-working learners on demographic characteristics, achievement measures, intentions to work while in college, and career sureness and 2) build a multiple-predictor model of working learner status to identify the characteristics associated with who is likely to be working while in high school.

Methods

Data and Sample

Data for analysis were collected from the assessment records of U.S. high school students from the October 2014 ACT national testing date (n = 566,974). The ACT is a curriculum-based educational achievement test consisting of four academic tests in English, mathematics, reading, and science and an optional writing test. The tests are designed to measure skills acquired in high school that are important for postsecondary success. The ACT Composite score is the average of the scores for the four academic tests (English, mathematics, reading, and science). Scores are reported on a scale of 1 to 36. At the time of test registration, students are asked to complete a Student Profile Section that includes questions about students' demographic and background characteristics, vocational interests, and career plans. Employment or "working learner" status was defined by a question added to the Student Profile Section of the 2014–2015 ACT national test: "Do you work at a job more than 15 hours per week?" Response options for the question were "yes" or "no"; denoting a combination of both working status and work intensity. Responses were dummy coded as 0—not working more than 15 hours per week and 1—working more than 15 hours per week. This variable was used as the outcome in a multiple-predictor model.

Of interest were possible differences in adolescent employment by gender (0 - female; 1 - male), as well as parental education (0 - high school degree or less, including those who attended college but did not graduate; 1 - college degree or higher) and total annual parental income (0 - more than $36,000, 1 - $36,000 or less) as measures of socioeconomic status. Other student characteristics such as race/ethnicity (0 - Minority, 1 - White/Asian) and age were also included as variables of interest. The Minority group included students who indicated that they were either: Black/African American, American Indian/Alaska Native, Hispanic/Latino, Native Hawaiian/Other Pacific Islander, or two or more races. Differences in postsecondary education readiness were investigated using the ACT Composite score (1–36). Also included was a dummy coded measure of postsecondary education work expectations "About how many hours per week do you plan to work during your first year of college?" (0 - none up to 10 hours, 1 - 11 hours or more) as well as a dummy coded measure of occupational sureness "How sure are you about your first occupational choice?" (0 - I am fairly sure or I am not sure, 1 - I am very sure).

The original dataset included 566,974 high school students who took the ACT during the October 2014 national testing date. The data were filtered to include only students aged 14 to 21 to ensure that examinees were old enough to work significant hours and young enough to still be considered in adolescence. Using similar logic, the dataset was filtered to only include students in 10th grade or higher. These restrictions in addition to a filter for national testing forms that included the working learner question reduced the dataset to 558,446. Lastly, listwise deletion of cases with missing data on variables of interest yielded a final analytic sample of 366,528 adolescents. The two variables that caused the largest reduction in cases due to missing data were parental income (26.4% missing) and planned work hours per week in college (21.4% missing). Methods of analysis used to compare working learners to non-working learners on demographic characteristics, achievement measures, intentions to work while in college, and career sureness included t-tests for unpooled standard deviations for age and ACT Composite score and chi-square tests for all of the other categorical variables. Logistic regression using a significance tests of $p < .01$ was used to build a multiple-predictor model of working learner status to identify the characteristics associated with who is likely to be working while in high school. The model results were also reported using Odds Ratios (OR) to aid in the interpretation of the logistic regression results. Odds Ratios are a relative measure of effect which allow the comparison of a group relative to another group. In this study, OR results were used to describe the odds of whether or not a student will be a working learner or a non-working learner.

Results

Descriptive Analysis

Table 1 reports the mean and percentages for key student characteristics evaluated in this study. The results indicated that 28.4% of adolescent examinees work more than 15 hours a week while attending school. More than half (59.0%) of the sample population was female with only 37.8% from one of the racial/ethnic minority groups. A sizable percentage of students in the sample came from a low SES background; 28.7% indicated a parental income of $36,000 or less and 37.0% indicated their parents' highest level of education was a high school degree or less. Only about one-third of students in the sample were very sure of their occupational

plans after college (31.2%), while a little over half (57.8%) planned on working 11 hours or more a week in college.

Table 2 presents group differences for the variables of interest by working learner status. Compared to non-working learners, adolescents who are working intensely in high school are more likely to be White/Asian, older, from families with low SES as defined by parents' highest level of education and family income, and surer of occupational choices; have plans to work intensely in college; and earn lower ACT Composite scores.

Characteristics of Working Learners

Table 3 regresses intense working learner status on student demographics as well as socioeconomic factors and both career sureness and intentions to work while in college. Table 4 presents odds ratios and 95% confidence intervals for the different predictors of working learner status.

Table 1. Descriptive Statistics (*n* = 366,528)

Variable		Mean or percentage	*SD*	Range or *n*
Working learner status	Working learner	28.4%	-	104,212
	Non-working learner	71.6%	-	262,316
Age		18.4	0.7	15–20
Gender	Female	59.0%	-	216,099
	Male	41.0%	-	150,429
Parental Education	Parents' highest level of education–high school degree or less	37.0%	-	135,477
	Parents' highest level of education–college degree or higher	63.0%	-	231,051
Parental income	Parental income–$36,000 or less	28.7%	-	105,057
	Parental income–more than $36,000	71.3%	-	261,471
Career sureness	Occupational sureness–I am fairly sure or not sure	68.8%	-	252,163
	Occupational sureness–I am very sure	31.2%	-	114,365
Planned work in college	Planned work hours per week in college–none or up to 10 hours	42.2%	-	154,542
	Planned work hours per week in college–11 hours or more	57.8%	-	211,986
Race/Ethnicity	Minority	37.8%	-	138,655
	White/Asian	62.2%	-	227,873
ACT composite score		21.7	4.8	4–36

Note: Mean reported for continuous variables and percentages reported for categorical variables.

Table 2. Group Differences by Working Learner Status (*n* = 366,528)

	Mean or Percentage						
Variable	**Working Learner**	**Non-Working Learner**	***X*²**	***df***	***s***	***t***	**95% CI**
Age	18.5	18.4		207,277	(.623, .679)	63.984***	[-.162, -.152]
Female	57.6%	58.2%	14.418***	1			
Male	42.4%	41.8%					
Parents' highest level of education–high school degree or less	40.0%	33.0%	1921.007***	1			
Parents' highest level of education–college degree or higher	60.0%	67.0%					
Parental income–$36,000 or less	31.1%	27.3%	556.934***	1			
Parental income–more than $36,000	68.9%	72.7%					
Occupational sureness–I am fairly sure or not sure	66.9%	71.9%	1224.058***	1			
Occupational sureness–I am very sure	33.1%	28.1%					
Planned work hours per week in college–none or up to 10 hours	28.1%	49.1%	15482.237***	1			
Planned work hours per week in college–11 hours or more	71.9%	50.9%					
Minority	36.4%	38.7%	248.372***	1			
White/Asian	63.6%	61.3%					
ACT composite score	20.9	22.0		210,187	(20.89, 21.96)	63.794***	[1.034, 1.100]

*$p < .05$. **$p < .01$, ***$p < .001$

Table 3. Logistic Regression Analysis of Working Learner Status

Independent Variables	***B***	***SE B***	***e*^B**
Planned work hours in college–11 hours or more (vs. none or up to 10 hours)	0.851***	0.008	2.343
Occupational sureness–I am very sure (vs. I am fairly sure or not sure)	0.143***	0.008	1.154
ACT composite score	-0.044***	0.001	.957
Parental income-$36,000 or less (vs. more than $36,000)	-0.017	0.009	.983
White/Asian (vs. Minority)	0.3642***	0.009	1.439
Male (vs. Female)	0.001	0.008	1.001
Parents' level of education–college degree or higher (vs. HS degree or lower)	-0.054***	0.009	.948
Student age	0.324***	0.006	1.383
Constant	-6.740	0.111	.001
Model X^2	21,181.23***		
df	8		
n	366,528		

*$p < .05$. **$p < .01$, ***$p < .001$
Note: The dependent variable in this analysis is working learner status coded so that 0 = non working learner and 1 = working learner.

Table 4. Odds Ratios (OR) and 95% Confidence Intervals (CI) from Logistic Regression of Working Learner Status

Independent Variables	OR	95% CI
Planned work hours in college–11 hours or more (vs. none or up to 10 hours)	2.343	[2.306, 2.381]
Occupational sureness–I am very sure (vs. I am fairly sure or not sure)	1.154	[1.136, 1.172]
ACT composite score	0.957	[0.955, 0.959]
Parental income-$36,000 or less (vs. more than $36,000)	0.983	[0.966, 1.001]
White/Asian (vs. Minority)	1.439	[1.415, 1.464]
Male (vs. Female)	1.001	[0.986, 1.017]
Parents' level of education–college degree or higher (vs. HS degree or lower)	0.948	[0.932, 0.963]
Student age	1.383	[1.368, 1.399]

n = 366,528

A test of the full model against a constant only model was statistically significant, indicating that the predictors included are useful for identifying who is likely to be a working learner (X^2 = 21181.229, $p < .001$, df = 8). The odds of being a working learner in high school was no different between males and females. High SES students (parents whose combined highest level of education is a college degree or higher) were less likely to work at high intensity during secondary school compared to their low SES counterparts (adjusted OR = 0.95). Interestingly, student SES as defined by parental income had no real impact on the odds of being a working learner, after statistically controlling for the other variables in the model. White/Asian students were more likely to work more than 15 hours a week while attending school when compared to their Minority counterparts (adjusted OR = 1.44). With every additional year of age, the odds of being a working learner was 1.38 times greater. Students with higher ACT Composite scores were less likely to be working learners than students with lower scores (adjusted OR = 0.96). Students who expected to work intensely while attending postsecondary education and were very sure of their career plans after postsecondary education were both more likely to be working learners (adjusted OR = 2.34 and 1.15, respectively).

Discussion and Limitations

This research constitutes the first analysis of working learner status among a college-bound sample of ACT test-takers. The findings of the current study align with much of the previous research on characteristics of adolescent working learners. The current study found significant differences between working learners and non-working learners with respect to demographic characteristics, as well as a measure of postsecondary academic readiness. While gender did not significantly predict working learner status, White/Asian students were found to be more likely than racial/ethnic minority students to work intensely in high school, as were older students when compared to younger students. High SES students as defined by parental education level were found to be less likely to work at high intensity during secondary school compared to their low SES counterparts. However, the current study found that student SES as defined by parental income had no real impact on the odds of being a working learner, after statistically controlling for other student characteristics, contradicting findings of other research (Snyder & Dillow, 2015; Warren, LePore, & Mare, 2000).

Due to the fact that the data used in this study were not longitudinal, statements of causality cannot be made. A student's expectations toward work and school were already formed at

the time that they took the assessment and at an age, in all likelihood, when they had already determined what their path will be after high school graduation (median age of sample was 18 years). The current study found that working in high school was positively related to a student's intent to work in college as well as to sureness about occupational plans after college. Students who were less school oriented may, in fact, be more likely to work intensely during high school, and therefore more likely to work intensely during college. It may be that working learner students who were very sure of their career plans were more work oriented than non-working learners. Additional analysis should be conducted to further investigate potential interaction effects of other potentially confounding variables such as school and work orientation. The current study was also limited in the ability to also control for dual enrollment status. Dual enrollment in college courses or dual credit courses in high school could be an indicator of school orientation and students who are more school oriented may be less likely to work while in high school. Future research should link secondary education dual enrollment/ dual credit course taking with the ACT Student Profile data in order to more fully account for student intent to pursue postsecondary education. Another limitation of the current study was that the variable of interest, working learner status, was only included in the ACT National Testing Form which indicates that each student elected to take the assessment as a precursor to applying for college. As such, the findings may not generalize to all high school students but rather only to college-bound students. Another possible area of research could be to investigate whether high school characteristics and measures evaluating the culture of the high school, especially on college-going, relate to working learner status.

Finally, the primary variable of interest in the current study was a combination of both employment status and work intensity vs. two separate measures. The lack of a continuous measure of employment intensity (i.e., hours worked per week) eliminates the possibility of being able to determine the nature (linear or curvilinear) of the relationship between working learner status and several of the study's variables of interest. Specifically, it would be of great value to know whether the negative relationship between ACT Composite scores and working learner status observed in this study was due to the intensity of work or due to employment status itself. Given findings from previous research that suggests that high SES students are more likely to work (Snyder & Dillow, 2015) but at a lower level or intensity (Warren, LePore, & Mare, 2000) than their lower income counterparts, it may be that there is a tipping point in the relationship of hours spent working with education outcomes.

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