

The Effects of Work on the Educational Experiences and  
Liberal Arts Outcomes of First Year College Students

Mark H. Salisbury

Ryan D. Padgett

Ernest T. Pascarella

The University of Iowa

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Please address inquires to Mark Salisbury, Department of Educational Policy and Leadership Studies, 491 Lindquist Center North, Iowa City, IA, 52242-1529; telephone (319) 400-8011; email: [mark-salisbury@uiowa.edu](mailto:mark-salisbury@uiowa.edu).

## ABSTRACT

This longitudinal study explores the effects of work on 18 experiences and outcomes commonly associated with a liberal arts education across 3,081 first-year, full-time college students at 19 institutions. It isolates the unique effects of five categories of work based on location (on- or off-campus) and intensity (number of hours worked per week) while controlling for important demographic variables and taking into account the clustering effect. The results suggest that, although a few isolated negative effects emerged for working students, overall students who work are not penalized in terms of their college experiences or gains on educational outcomes as compared to students who do not work - regardless of the job's location or the number of hours worked. In fact, students who work longer hours off campus benefit on several measures of leadership development in ways that non-working students or those who work on campus do not. Most important, this study indicates that the effects of work differ based upon the nature of the employment, the characteristics of the student, and the dependent variable of interest.

Key words – college students, employment, work, liberal arts outcomes, college experiences, higher education

## INTRODUCTION

The responsibilities and realities of working college students are now an almost inescapable consideration for higher education policy-makers, faculty, and administrators. 2006 National Center for Educational Statistics data (Planty et al., 2008) indicates that, among traditional age students, 46% of full-time and 81% of part-time students work. While the percentage of employed part-time students has remained relatively constant since 1970, the percentage of employed full-time students rose 18 points between 1970 and 2000 (from 34% to 52%) before receding slightly then leveling off between 2001 and 2006.

Not only are more full-time students working; an alarming percentage of full-time students who work are working longer hours. The percentage of full-time students working more than 20 hours a week has more than doubled since 1970, rising from 14% to 30% in 2006 (Planty et al., 2008). In addition, working students are well-represented at every institutional type. 37% of students at private institutions work - only 10 points less than the 47% of students at public institutions who work (Planty et al.). As both the proportions of full-time students who work and those working more than 20 hours per week increase, faculty, administrators, policy-makers, and students have struggled with the ramifications of these realities (Haugby & Schulman, 1978; Hey, Calderon, & Seabert, 2003; Stern & Nakata, 1991). If higher education institutions intend to successfully enroll, educate, and graduate all students equally, it is critical to develop a clear and thoroughly nuanced understanding of the effects of work on full-time undergraduates across the broad landscape of postsecondary education.

## LITERATURE REVIEW

As the percentage of college students who work has multiplied so too have efforts to understand the effects of work on college students. Early single-institution studies focused on the

effect of employment on GPA. Studies at Teacher's College, Columbia and Colorado State found that work had no effect on GPA (Anderson, 1930; Heilman, 1939), while a 1943 study of students at Temple University found work to have a positive effect on GPA (Barr). Other studies published prior to 1969 found no connection between the number of hours worked per week and academic success (Anderson, 1966; Henry, 1967; Trueblood, 1957). But at the same time that NCES data (Planty et al., 2008) identifies the beginning of a growth period in both the number of working students and the percentage of those students working longer hours, studies on the effects of work on college students begin to diversify both in the dependent measures of interest and the disparity of results.

Findings since 1970 have examined the effects of work in three ways. One approach suggests that the effects of work are best represented through its impact on student attainment, experiences, or outcomes. Another approach connects the effects of work to one or more specific characteristics of the employment. The third approach positions work's effects at the intersection between the nature of the work and the characteristics of the student. While these approaches are by no means exclusive (many studies of work produce findings in more than one of the above categories), organizing the last four decades of research in this way provides a useful lens through which to view the present study.

Outcome-based studies of working students have explored work's impact on measures of attainment, student experiences, or educational outcomes. Studies measuring attainment have either considered markers of progress during college - GPA and persistence - or evidence of success after college - early career job acquisition and earnings. While findings on the effects of work during college on career success after graduation have been generally positive (Casella & Brougham, 1995; Richards, 1984; Sagen, Dallam, & Laverty, 2000; San, 1986; Washington &

Rives, 1980), findings on work's effect on students during college have been decidedly mixed. Research exploring work's affect on GPA has found negative effects (Astin, 1993; King & Bannon, 2002; Gleason, 1993; Ma & Wooster, 1979; DeSimone, 2008), no effects (Canabal, 1998; Curtis & Nummer, 1991; Ehrenberg & Sherman, 1987; High, 1999; Kalenkoski & Pabilonia, 2004) and even positive effects (Augenblick, Van De Water & Associates, 1987; Hammes & Haller, 1983; Parson, 1977). Although varying methodological designs applied to different datasets might partially account for the disparity in these findings, Hood and Maplethorpe (1980) noted that across the studies they reviewed, once academic ability was taken into account all significant effects of work on GPA disappeared. Studies exploring work's effect on persistence have also produced mixed results. Several analyses of national datasets have concluded that work can have a negative effect on persistence (Choy, 2002; Ehrenberg & Sherman, 1987; King, 2002), while some smaller studies have found work to have a positive effect on persistence (Curtis & Nummer, 1991; Kulm & Cramer, 2006).

Some researchers have chosen to examine the effect of work on college student experiences, arguing that this approach should produce a more accurate assessment of work's effects since attainment measures are often byproducts of the college students' experience (Astin, 1977, 1991; Furr & Elling, 2000; Lundberg, 2004). This avenue of research has studied the effects of work on two categories of experiences. Astin found work to have a negative affect on co-curricular involvement since the hours that students spent working were no longer available for participation in student clubs, organizations, or other co-curricular campus activities. Furr and Elling found that, in addition to limiting students' involvement in co-curricular activities, extensive hours of work (more than 30 hours per week) had a negative effect on students' interaction with faculty and peers. Lundberg analyzed a large national sample

of students to determine the effect of college involvement on learning for working students. She also found that students who work extended hours (more than 20 hours per week) had less interaction with faculty and peers.

However, findings from this line of research have been less consistent in connecting working students' experiences to learning or college success. A study of the 1999-2000 National Postsecondary Student Aid Survey (King & Bannon, 2002) found that 42% of students who work more than 25 hours a week believe that work negatively impacts their grades, while 53% reported that work limited their number of courses they could take. However, King and Bannon never linked their data to any standardized measures that might indicate whether or not the respondents' perceptions came to fruition. Although Ehrenberg and Sherman's (1987) examination of data from the National Longitudinal Study of the High School Class found that male students working more than 20 hours per week took longer to complete their degree, they did not find any negative effect on GPA. And even though Lundberg (2004) found work to have a negative effect on interactive experiences with faculty and peers, she found no differences in learning between the students in her sample who work more than 20 hours a week, less than 20 hours a week, or don't work at all.

Other scholars have pointed to the weaknesses inherent in tying effects to GPA or student self-reports (see Pascarella & Terenzini, 1991 and 2005 for an extensive review of the reliability and validity of studies based on self-reports or GPA) and have instead examined work's effect on specific learning outcomes. The most common outcomes examined involve various measures of cognitive development. Pascarella, Bohr, Nora, Desler, and Zusman (1994) found that work had no significant effect on cognitive development during the first year. In a similar examination of data collected through the multi-institutional National Study of Student Learning

(Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1998), researchers replicated the findings of Pascarella et al.'s 1994 study of first year students and found that later in college work may have a beneficial affect on cognitive outcomes. On a similar but slightly different outcome, Baxter Magolda (1992) found that employment can contribute to a students' intellectual development. Work has also been found to have a positive affect on psychological well-being (Derous & Ryan, 2008) and leadership skills (Kincaid, 1996).

Despite numerous studies suggesting that employment may affect college students, a nagging challenge lies in the various forms of work. Clearly, there are differences in where one works, how many hours one works, and the tasks specific to each job. In the context of a college experience, it is reasonable to expect that these differences might produce varying effects. Researchers have addressed this challenge in a number of ways - again, with mixed results. Many researchers have situated the effect of work in the number of hours worked per week and operationalized work as a continuous or categorical variable with no control for the location of the employment (Anderson, 1930; Canabal, 1998; Cuccaro-Alamin & Choy, 1998; DeSimone, 2008; Dundes & Marx, 2007; Gleason, 1993; Heilman, 1939; Kalenkoski & Pabilonia, 2004; King & Bannon, 2002; Parsons, 1977). King and Bannon and DeSimone found a negative effect, while Gleason, Canabal, and Kalenkoski and Pabilonia found no effect. Both Parsons and Dundes and Marx found some positive effects for working students, but those effects did not hold across all categories of hours worked.

Building on Astin's (1977, 1993) theory of college student involvement, other scholars have operationalized the effects of work by both the number of hours worked and the location of the job. Astin suggested that students who participated in on-campus activities will be more connected to their college experience both socially and academically and should therefore earn

better grades and persist at higher rates. In his examination of working students, he found that on-campus work had a positive effect on both grades and persistence, while in both cases off-campus work had a negative effect – particularly when working more than 35 hours per week off campus. Ehrenberg and Sherman (1987) replicated these findings for students in the third and fourth years of college in terms of work's effect on persistence, but did not find the location of work to influence grades. Unfortunately the dataset they examined did not include the location of the work for students in either the first or second year. More recent research focusing on on-campus work has endeavored to support earlier positive findings (Beeson & Wessel, 2002; Broughton & Otto, 1999), while recent studies of off-campus work have replicated previously identified negative effects for student working more than 25 hours per week (Furr & Elling, 2000; Stern, 1997; Padgett & Grady, in press; Pascarella & Terenzini, 2005). It is difficult, however, to know whether the benefits attributed to on-campus work are a function of location or limited hours, since on-campus positions rarely require more than 20 hours of work per week. By contrast, in the research reviewed above studies of off-campus work did not produce negative effects for those working less than 20 hours per week.

A growing number of researchers have begun to recognize the potential complexity of work's effects and the possibility of conditional effects (Riggert, Boyle, Petrosko, Ash, & Rude-Parkins, 2006). The majority of research in this vein has explored the relationship between the nature of the work and the interests of the student. Early studies simply organized job type by the stereotypical classifications of blue collar and white collar work and were limited to single-institution studies at small liberal arts colleges (Mills, 1978; Ma & Wooster, 1979). Other scholars have conceptualized this question by considering whether or not the student's job is related to their major or intended profession (Bonacci, 1988; Butler, 2007; Cheng & Alcantara,

2007; Hay, Evans, & Lindsay, 1970; Trueblood, 1957; Wolniak & Pascarella, 2005). Regularly, these studies conclude that employment congruent with the students' goals or interests has positive effects over jobs that have no relationship with the students' major or career aspirations.

A few studies exploring the effects of student employment have examined the interaction of other student and work characteristics with intriguing results. Goldstein and High (1992) compared arts and science majors with business majors at nine different universities and found that working off campus negatively affected the grades of arts and science majors but did not affect the grades of business majors - even after controlling for academic ability. Anderson's (1981) social context approach to college attrition found that two-year college students who were employed and lived off-campus independent of their parents were less likely to persist than other students at either four-year or two-year colleges. Molitor and Leigh (2005) found that working while attending a two-year school seemed benefit future earning more so than working while attending a four-year school. Ryland, Riordan, and Brack (1994) found employment to be a useful predictor of attrition among high-risk college students. Finally, among sociologists interested in the transition from youth to working adulthood, some scholars have found that heavy workloads during high school and early in college can have negative effects on persistence while an incremental work load over the course of secondary and postsecondary school has no effect on persistence (Staff & Mortimer, 2008; Woolsey, 2003).

Although much of the research reviewed here seems to suggest that working extensive hours each week can be detrimental to college student success and that on-campus employment may be preferable to off-campus employment, other research suggests that working while enrolled can produce beneficial effects both during and after college. Furthermore, virtually all of the above research limits the effects of work to a few outcome measures, limiting the

usefulness of the findings in describing work's overall effect across the range of intended outcomes of a liberal arts education (AAC&U, 2005; King, Kendall Brown, Lindsay, & Van Hecke, 2007). It is quite possible that student employment could affect college students positively, negatively, and not at all – simultaneously.

The fundamental challenge in identifying the effects of work on college students seems to be a function of both scale and precision. All of the literature reviewed for this study examines one or some elements of works' effect on college students, but no research could be found that examines the effects of work in all of its various incarnations (on campus vs. off campus and the full spectrum of the number hours per week worked) across the full range of intended educational outcomes. Furthermore, far too few studies have examined whether or not the effect of work differs depending on variations on demographic traits of the student. It is critical to solving the student employment puzzle that all of these issues be taken into account in the same study in order to present the comprehensive effect of work on college students.

### PURPOSE OF STUDY

This study endeavors to provide much-needed clarity to understanding the complex effects of work on college students while at the same time placing that understanding within the broader context of the full array of intended undergraduate educational outcomes. The authors approach their examination of the effect of work on college students from a social systems perspective (Berrien, 1968; Parsons, 1951, Parsons & Shils, 2001) that recognizes the dynamic nature of the college student experience and the multitude of external and internal factors that operate and overlap simultaneously across that experience – perpetually shaping and reshaping the student, the experience, and the range of factors that influence the student's perception of it. Thus, within this multiplicity of moving parts, the effects of work can, and should be expected to

vary depending upon the nature of the work, the nature of the student, and the nature of the relationship between the two. While recent higher education scholars have crafted sophisticated systems models to examine various effects on aspects of college students experiences (Perna, 2006), Riggert, Boyle, Petrosko, Ash, and Rude-Parkins (2006) recently proposed this kind of a framework for researching the effect of work. This research described in this study is the first to fully apply a social systems approach to understanding the effects of work on college students.

This study operationalizes this framework in three ways. First, it recognizes that all employment is by no means alike. Work consists of many variations (e.g., the location of employment, the number of hours worked per week, the range of skills and talents required by the specific position, the relationship between the nature of the job and the interest or abilities of the employee) that shape the experience and its impact in potentially divergent ways. This study concentrates on two factors often considered by scholars examining the effects of work - differences in the location (on- or off-campus) and intensity (number of hours worked per week) of employment - and isolates five separate categories of work based on variations in these conditions. Second, it situates the effects of work within the full range of 18 experiences and outcomes traditionally associated with a liberal arts education (King, Kendall Brown, Lindsay, & VanHecke, 2007; Pascarella, Wolniak, Seifert, Cruce, & Blaich, 2005). Third, this study investigates whether differences in the academic ability of the student mitigates the effect of work on those experiences and outcomes.

This study asks three questions:

1. Does working while enrolled full-time have an effect on student experiences and educational outcomes that differentiate them from those who don't work?
2. Do these effects differ based upon the location or intensity of the work?

3. Does the magnitude of these effects differ based upon the student's academic ability?

The authors hypothesize that in each case the findings will demonstrate a substantial degree of complexity in the effects of work on college students by revealing effects that vary across experiences and outcomes, the location and intensity of employment, and the academic ability of the student.

## METHODS

### Samples

*Institutional Sample.* The sample in the study consisted of incoming first-year students at 19 four-year and two-year colleges and universities located in 11 different states from 4 general regions of the United States: Northeast, Southeast, Midwest, and Pacific Coast. Institutions were selected from more than 60 colleges and universities responding to a national invitation to participate in the Wabash National Study of Liberal Arts Education (WNSLAE). Funded by the Center of Inquiry in the Liberal Arts at Wabash College, the WNSLAE is a large, longitudinal investigation of the effects of liberal arts colleges and liberal arts experiences on the cognitive and personal outcomes theoretically associated with a liberal arts education. The institutions were selected to represent differences in college and universities nationwide on a variety of characteristics including institutional type and control, size, location, and patterns of student residence. However, because the study was primarily concerned with the impacts of liberal arts colleges and liberal arts experiences, liberal arts colleges were purposefully over-represented.

Our selection technique produced a sample with a wide range of academic selectivity, from some of the most selective institutions in the country to some that were essentially open admissions. There was also substantial variability in undergraduate enrollment, from institutions with entering classes between 3,000 and 6,000, to institutions with entering classes between 250

and 500. According to the 2007 Carnegie Classification of Institutions, 3 of the participating institutions were considered research universities, 3 were regional universities that did not grant the doctorate, 2 were two-year community colleges, and 11 were liberal arts colleges.

*Student Sample.* The individuals in the sample were first-year, full-time undergraduate students participating in the WNSLAE at each of the 19 institutions in the study. The initial sample was selected in either of two ways. First, for larger institutions, it was selected randomly from the incoming first-year class at each institution. The only exception to this was at the largest participating institution in the study, where the sample was selected randomly from the incoming class in the College of Arts and Sciences. Second, for a number of the smallest institutions in the study—all liberal arts colleges—the sample was the entire incoming first-year class. The students in the sample were invited to participate in a national longitudinal study examining how a college education affects students, with the goal of improving the undergraduate experience. They were informed that they would receive a monetary stipend for their participation in each data collection, and were also assured in writing that any information they provided would be kept in the strictest confidence and never become part of their institutional records.

#### Data Collection

*Initial Data Collection.* The initial data collection was conducted in the early fall of 2006 with 4,501 students from the 19 institutions. This first data collection lasted between 90-100 minutes and students were paid a stipend of \$50 each for their participation. The data collected included a WNSLAE precollege survey that sought information on student demographic characteristics, family background, high school experiences, political orientation, educational degree plans, and the like. Students also completed a series of instruments that measured

dimensions of intellectual and personal development theoretically associated with a liberal arts education. These are described in greater detail in the subsequent section on “WNSLAE Outcomes/Dependent Measures.”

*Follow-up Data Collection.* The follow-up data collection was conducted in spring 2007. This data collection took about two hours and participating students were paid an additional stipend of \$50 each. Two types of data were collected. The first was based on questionnaire instruments that collected extensive information on students’ experience of college. Two complementary instruments were used: the National Survey of Student Engagement (NSSE) (Kuh, 2001) and the WNSLAE Student Experiences Survey (WSES). These instruments were designed to capture student involvement in different activities during college (e.g., work, athletics, clubs, and the like) as well as engagement in, or exposure to, empirically vetted good practices in undergraduate education. These good practices included such dimensions as: exposure to effective teaching, quality of nonclassroom interactions with faculty, active learning, integrative experiences, influential interactions with other students, high expectations, and the like (Pascarella, Cruce, Wolniak, & Blaich, 2004; Pascarella, Cruce, Umbach, Wolniak, Kuh, Carini, Hayek, Gonyea, & Zhao, 2006). They are described in greater detail in the subsequent section on “WNSLAE Measures of Good Practices/Liberal Arts Experiences.” The second type of data collected consisted of follow-up (or posttest) measures of the instruments measuring dimensions of intellectual and personal development that were first completed in the initial data collection. All students completed the NSSE and WSES prior to completing the follow-up instruments assessing intellectual and personal development. Both the initial and follow-up data collections were administered and conducted by ACT (formerly the American College Testing Program).

Of the original sample of 4,501 students who participated in the fall 2006 testing, 3,081 participated in the spring 2007 follow-up data collection, for a response rate of 68.5%. These 3,081 students represented 16.2% of the total population of incoming first-year students at the 19 participating institutions. To provide at least some adjustment for potential response bias by sex, race, academic ability, and institution in the sample of students, a weighting algorithm was developed. Using information provided by each institution on sex, race, and ACT score (or appropriate SAT equivalent or COMPASS score equivalent for community college students), follow-up participants were weighted up to each institution's first-year undergraduate population by sex (male or female), race (Caucasian, African American/Black, Hispanic/Latino, Asian/Pacific Islander, or other), and ACT (or equivalent score) quartile. While applying weights in this manner has the effect of making the overall sample more similar to the population from which it was drawn, it cannot adjust for nonresponse bias.

#### Conceptual Framework for Liberal Arts Outcomes

Since the WNSLAE was fundamentally concerned with understanding the conditions and experiences that constituted an influential liberal arts education, its first task was to conceptually define the desired intellectual and personal outcomes of such an education. Synthesizing much of the literature on liberal arts education, and building on the work of Jones and McEwen (2000), King, Kendall Brown, Lindsay, and VanHecke (2007) developed a comprehensive model of liberal arts outcomes that embraced seven general dimensions: effective reasoning and problem solving, well-being, inclination to inquire and lifelong learning, intercultural effectiveness, leadership, moral character, and integration of learning. Although such outcome dimensions appear central to the undergraduate mission of a large cross-section of American colleges and universities (see, for example, the outcome taxonomy employed by Pascarella & Terenzini,

1991, 2005, in organizing college impact outcomes), the distinctiveness of the liberal arts outcomes lies in the integrated connections that exist between outcomes and their holistic nature, which spans cognitive, interpersonal, and intrapersonal domains. Consequently, the WNSLAE was largely guided by this conceptual framework of liberal arts outcomes in selecting specific outcome measures. Indeed, with the single exception of integration of learning, the WNSLAE study was able to identify specific outcome or dependent measures representing six of the seven liberal arts outcomes specified by the King, et al. conceptual model.

#### WNSLAE Outcome/Dependent Measures

*Effective Reasoning and Problem Solving.* To tap this outcome, we used the critical thinking module from the Collegiate Assessment of Academic Proficiency (CAAP) developed by the American College Testing Program (ACT). The critical thinking test is a 40-minute, 32-item instrument designed to measure a student's ability to clarify, analyze, evaluate, and extend arguments. The test consists of four passages in a variety of formats (e.g., case studies, debates, dialogues, experimental results, statistical arguments, editorials). Each passage contains a series of arguments that support a general conclusion and a set of multiple-choice test items. The internal consistency reliabilities for the CAAP critical thinking test range between .81 and .82 (ACT, 1991). It correlates .75 with the Watson-Glaser Critical Thinking Appraisal (Pascarella, Bohr, Nora, & Terenzini, 1995).

*Well Being.* We operationalized this dimension of liberal arts outcomes with the Ryff Scales of Psychological Well-Being (SPWB) (Ryff, 1989; Ryff & Keys, 1995). The SPWB is a 54-item, theoretically-grounded instrument that specifically focuses on measuring six dimensions of psychological well-being: positive evaluations of oneself (Self-Acceptance), sense of continued growth and development as a person (Personal Growth), belief in a purposeful and

meaningful life (Purpose in Life), quality relations with others (Positive Relations with Others), capacity to effectively manage one's life and surrounding world (Environmental Mastery), and sense of self-determination (Autonomy) (Ryff, 1989; Ryff & Keyes, 1995; Keyes, Shmotkin, & Ryff, 2002). Due to recent concerns about the construct validity and interpretation of the six subscales (Springer & Hauser, 2006; Springer, Hauser, & Freese, 2006), we used the total score in this study. The total score for the SPWB had a reliability of .88. The SPWB tends to have significant, positive associations with frequently used measures of happiness and satisfaction, and negative associations with depression (Ryff & Keyes, 1995).

*Inclination to Inquire and Lifelong Learning.* This outcome was operationally represented with two scales. The primary measure was the 18-item Need for Cognition Scale (NCS). Need for cognition refers to an individual's "tendency to engage in and enjoy effortful cognitive activity" (Cacioppo, Petty, Feinstein, & Jarvis, 1996, p. 197). Those who have a high need for cognition "tend to seek, acquire, think about, reflect back on information to make sense of stimuli, relationships, and events in their world" (p. 198). In contrast, those with low need for cognition are more likely to rely on others, such as celebrities and experts, cognitive heuristics, or social comparison processes to provide or make sense of their world. The reliability of the NCS ranges from .83 to .91 in samples of undergraduate students (Cacioppo, et al.). With samples of undergraduates, the NCS has been positively associated with the tendency to generate complex attributions for human behavior, high levels of verbal ability, engagement in evaluative responding, one's desire to maximize information gained rather than maintain one's perceived reality (Cacioppo, et al.) and college grades (Elias & Loomis, 2002). The NCS is negatively linked with authoritarianism, need for closure, personal need for structure, the tendency to

respond to information reception tasks with anxiety, and chronic concern regarding self-presentation (Cacioppo, et al.).

The second measure designed to tap continuing motivation for lifelong learning was a 6-item measure entitled the Positive Attitude Toward Literacy Scale (PATL). The PATL assesses students' enjoyment of such literacy activities as reading poetry and literature, reading scientific and historical material, and expressing ideas in writing, and has an internal consistency reliability of .71. The PATL score at entrance to college correlated .36 with three-year cumulative scores during college on a measure of library use, .48 with the cumulative number of unassigned books read during three years of college, and .26 with a measure of reading comprehension administered after three years of college (Bray, Pascarella, & Pierson, 2004).

*Intercultural Effectiveness.* This outcome dimension was measured with two scales. The primary measure was the 15-item, short form of the Miville-Guzman Universality-Diversity Scale (M-GUDS). The M-GUDS measures an individual's universal-diverse orientation, which is defined as "an attitude of awareness and acceptance of both similarities and differences that exist among people" (Miville, Gelso, Pannu, Liu, Touradji, Holloway, & Fuertes 1999; Fuertes, Miville, Mohr, Sedlacek, & Gretchen, 2000). The instrument has a total scale score and three subscale scores: Diversity of Contact (interest and commitment to participating in diverse, intentionally focused social and cultural activities), Relativistic Appreciation (appreciation of both similarities and differences in people and the impact of these in one's self-understanding and personal growth), and Comfort with Differences (the degree of comfort with diverse individuals). The internal consistency reliability for the total M-GUDS score in the present study was .85, while reliabilities for the three subscales ranged from .77 to .78. The precollege total M-

GUDS score correlated .47 with a measure of students' experiences and interactions with diverse others and diverse ideas during the first year of college.

The second instrument used to assess student growth in intercultural effectiveness was the seven-item Openness to Diversity/Challenge (ODC) scale. This scale measures one's openness to cultural and racial diversity as well as the extent to which one enjoys being challenged by different perspectives, values, and ideas (Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1996). The ODC has internal consistence reliabilities in the present study ranging from .83 to .87. In previous research, precollege ODC scores have significantly predicted the likelihood of participating in a racial/cultural workshop during the first year of college (Whitt, Edison, Pascarella, Terenzini, & Nora, 2001). In the present study, precollege ODC scores correlated .37 with a measure of students' experiences and interactions with diverse others and diverse ideas during the first year of college.

*Leadership.* This outcome dimension was assessed with the 68-item, revised version II of the Socially Responsible Leadership Scale (SRLS). The SRLS measures the eight dimensions of Astin's Social Change Model of leadership development (Astin, A., Astin, H., Boatsman, Bonous-Hammarth, Chambers, Goldberg, et al., 1996). According to this model, leadership is a collaborative group process directed toward promoting positive social change in an organization or community (Tyree, 1998). A person who demonstrates strong socially responsible leadership capabilities is self-aware, acts in accordance with personal values and beliefs, invests time and energy in activities that he or she believes are important, works with diverse others to accomplish common goals, has a sense of civic and social responsibility, and desires to make world a better place. The SRLS was developed specifically to measure leadership in college students. The instrument has eight scales corresponding to the eight dimensions of leadership specified in the

Astin model (Astin, et al., 1996; Dugan, 2006). The eight scales are: Consciousness of Self (being aware of the values, emotions, attitudes, and beliefs that motivate one to take action); Congruence (thinking, feeling, and behaving with consistency, genuineness, authenticity, and honesty toward others); Commitment (intensity and duration in relation to a person, idea, or activity—the energy and passion that propels one to act); Collaboration (working with others in a common effort); Common Purpose (working with others within a shared set of aims and values); Controversy with Civility (recognizing two fundamental realities of any group effort, that (a) differences of viewpoint are inevitable and valuable, and (b) such differences must be aired openly and with respect and courtesy); Citizenship (believing in a process whereby a person or group is responsibly connected to the environment and the community); and Change (adapting to continuously evolving environments and situations, while maintaining the primary functions of the group).

The internal consistency reliabilities for the eight subscales of the SRLS in the present study ranged from .77 to .88. The various scales of the SRLS have been shown to discriminate between involved and non-involved undergraduate students in community service, student organizational membership, formal leadership programs, and positional leadership roles (Dugan, 2006). Additional research by Rubin (2000) has demonstrated that undergraduates identified as “emerging student leaders” tend to score significantly higher on the SRLS congruency, collaboration, common purpose, citizenship, and change scales than a control group of students not identified as “emerging student leaders.”

*Moral Character.* We assessed the outcome dimension of “Moral Character” with the Defining Issues Test 2 (DIT2). The DIT2 is a revised version of James Rest’s original DIT from 1979 that measures one component of moral development, known as moral judgment or

reasoning (Rest, Narvaez, Thoma, & Bebeau, 1999). The DIT2 presents several dilemmas about social problems, such as should a starving man steal food for his family from someone who is hoarding resources? After each, a series of 12 items representing different issues that might be raised by the problem are presented. For example, in the scenario described above, the items include such questions as: “Would stealing bring about more total good for everybody concerned or wouldn’t it? Shouldn’t the community’s laws be upheld?” In response to the scenario and questions, respondents are asked to do three things:

1. make an action choice (i.e., yes, one should steal or no, one should not steal);
2. rate the series of 12 items in terms of their importance in making a decision about the scenario; and
3. rank the top four most important items.

We analyzed the DIT P-score which represents the degree to which an individual uses higher order (principled/post-conventional) moral reasoning in resolving moral issues presented in each scenario. The P-score is the proportion of items selected that appeal to moral ideas and/or theoretical frameworks for resolving complex moral issues—specifically, items that appeal to consensus building procedures, insistence on due process, safeguarding minimal basic rights, and organizing social arrangements in terms of appealing to ideals. The P-score has internal consistency reliabilities ranging from .74 to .77 (Rest, et al., 1999; University of Minnesota, n.d.).

An extensive body of evidence supports the validity of the DIT in predicting principled ethical behavior in a number of areas. These include: resistance to cheating, peer pressure, and unlawful or oppressive authority; whistle-blowing on corruption; the keeping of contractual promises; helping behavior; community involvement; ethical behavior in several professions;

clinical performance in nursing students; and social/political activism (see Pascarella & Terenzini, 1991, 2005, for a synthesis of this body of evidence, including citations to original studies).

With two exceptions, each WNSLAE outcome/dependent measure discussed above was completed by all 3,081 participants during both the initial data collection in fall 2006 and the follow-up data collection in spring 2007. The two exceptions were the CAAP Critical Thinking Test and the Defining Issues Test. Each of these instruments took at least 40 minutes to complete, and because we were concerned with the amount of time required of students during each data collection, the CAAP Critical Thinking Test and the Defining Issues Test were not taken by all participants. Rather, during the first data collection the study participants were randomly divided into two approximately equal samples. The CAAP Critical Thinking Test was then taken by one random sample during both data collections and the Defining Issues Test taken during both data collections by the other random sample. Of the 3,081 students participating in both data collections, 1,485 had useable responses on the CAAP and 1,584 had useable responses on the DIT.

#### Work During College

The independent variables in the study were measures of on-campus and off-campus work during the first year of college. These were taken from two items on the National Survey of Student Engagement which students in the study completed in the spring of 2007. The stem for each item was “About how many hours do you spend in a typical 7-day week doing each of the following?” One item referred to “working for pay on-campus,” while the second item referred to “working for pay off-campus.” There were eight response options for each item: 0 hours, 1-5 hours, 6-10 hours, 11-15 hours, 16-20 hours, 21-25 hours, 26-30 hours, and more than 30 hours.

Student responses on each item showed substantial positive skewness, with the vast majority of students not working and only a few students working 26 or more hours per week. There was greater skewness in hours of off-campus work per week than in hours of weekly on-campus work. Consequently, instead of treating hours of work per week as a continuous variable, we created categories of work represented by dummy (1, 0) variables. For on-campus work, these were 0 hours per week which was always coded zero, 1-10 hours per week, and 11 or more hours per week. For off-campus work, which demonstrated greater skewness, the categories were 0 hours per week, 1-10 hours per week, 11-20 hours per week, and 21 or more hours per week. The range of sample frequencies in each category of work is shown in Table 1.

Clearly, the WNSLAE sample has a substantially smaller percentage of students who work than would be found in the population of American postsecondary students—an undeniable study limitation. Balanced against this, however, is the richness of the WNSLAE data, which permits one to consider the net effects of work on a wide range of cognitive and personal outcomes. We are aware of no other longitudinal data base that permits such extensive analyses of the influence of work during college.

Table 1 about here

#### Good Practice Measures

A major part of the WNSLAE design was conceptually guided by a body of literature and evidence that identifies specific “good practices” in undergraduate education that are empirically linked to personal and intellectual growth during college (Astin, 1993; Chickering & Reisser, 1993; Kuh, Schuh, Whitt, & Associates, 1991; Kuh, Kinzie, Schuh, Whitt, & Associates, 2005; Pascarella & Terenzini, 1991, 2005). To measure these “good practices,” WNSLAE selected and adopted empirically vetted scales and items from the National Study of Student Learning (Cruce,

Wolniak, Seifert, & Pascarella, 2006; Pascarella, Wolniak, Seifert, Cruce, & Blaich, 2005) and the National Survey of Student Engagement (Pascarella, et al., 2006). These scales and items are designed to tap a range of “good practices” that includes such dimensions as student-faculty interaction, active learning/time on task, quality of teaching, prompt feedback from faculty, cooperative learning, high academic expectations, diversity experiences, influential interactions with other students, and integrative experiences. Extensive evidence exists to indicate that, even in the presence of statistical controls for important confounding influences, the good practice dimensions measured by these dimensions are significantly linked to student cognitive and personal development during college (see Cruce, et al., 2006; Pascarella, et al., 2005; Pascarella, et al., 2006, for reviews of this body of evidence, including specific citations to original studies).

We selected three good practice scales from the WNSLAE data that we anticipated would influence first-year liberal arts outcomes and would also be affected to some extent by one’s work responsibilities during college. These scales were titled: “Good teaching and high quality interactions with faculty,” “Diversity experiences,” and “Influential interactions with peers.”

Good teaching and high quality interactions with faculty was a 23-item scale that combined items from four subscales: Faculty interest in teaching and student development (e.g., the extent to which faculty are interested in helping students grow in more than just academic areas, the extent to which faculty are generally interested in teaching, and the extent to which faculty are willing to spend time outside of class to discuss issues of interest and importance to students); Prompt feedback (e.g., how often faculty informed students of level of performance in a timely manner, how often faculty checked to see if students had learned the material well before going on to new materials); Quality and impact of nonclassroom interactions with faculty (e.g., extent to which nonclassroom interactions with faculty have had an impact on: intellectual

growth and interest in items; personal growth, values, and attitudes; and career goals and aspirations); and Overall exposure to clear and organized instruction (e.g., frequency that faculty give clear explanation, frequency that faculty make good use of examples and illustration to explain difficult points, frequency that class time was used effectively, frequency that course goals and requirements were clearly explained). The internal consistency reliability for the 23-item scale is .92.

Diversity experiences was a 9-item scale that combined items from two subscales: Diversity experiences (e.g., extent to which one's institution encourages contact among students from different economic, social, and racial or ethnic backgrounds; how often one had serious conversations with students of a different race or ethnicity than one's own; how often one participated in a racial or cultural awareness workshop during the academic year); and Meaningful discussions with diverse peers (e.g., how often one had meaningful and honest discussions about issues related to social justice with diverse students, how often one had discussions regarding intergroup relations with diverse students). The internal consistency reliability for the 9-item scale is .80.

Influential interactions with peers was a 9-item scale that combined items from two subscales: Positive peer interactions (e.g., the student friendships one has developed at the institution have been personally satisfying; interpersonal relationships with other students have had a positive influence on one's intellectual growth and interest in ideas; interpersonal relationships with other students have had a positive influence on one's personal growth, attitudes, and values) and Co-curricular involvement (number of hours per week spent in co-curricular activities). The 9-item scale has an internal consistency reliability of .85.

Detailed description of the three good practice scales, including all specific items and response options, can be found at [http://education.uiowa.edu/crue/publications/documents/research\\_methods\\_draft\\_march2008.pdf](http://education.uiowa.edu/crue/publications/documents/research_methods_draft_march2008.pdf).

### Control Variables

A particular methodological strength of the Wabash National Study of Liberal Arts Education is that it is longitudinal in nature. This permitted us to introduce a wide range of statistical controls, not only for student background and precollege traits and experiences, but also for other experiences during the first year of college. Our control variables used for various analyses in the present study included the following:

- A parallel precollege measure for each liberal arts outcome measure.
- Tested precollege academic preparation. This was the student's ACT score, SAT equivalent score, or COMPASS equivalent score for community college students. The score was provided by each participating institution.
- Sex.
- Race (coded as 1 = White, 0 = Other).
- Pre-college employment. A single item asked how often the student worked for pay during their last year of high school. Response options were "very often," "often," "occasionally," "rarely," or "never."
- High school involvement. This was a seven-item scale with an internal consistency reliability of .58 that measured involvement during high school. Examples of constituent items include: "During your last year in high school, how often did you study with a friend?" "During your last year in high school, how often did you talk with teachers outside of class?" "During your last year in high school, how often did

you participate in extracurricular activities?” Response options were “very often,” “often,” “occasionally,” “rarely,” or “never.” Scores on the scale were obtained during the initial data collection in fall 2006.

- Lived in campus housing (coded 1) versus elsewhere (coded 0) during the first year of college.
- The liberal arts emphasis on one’s first year coursework. [Operationalized as the total number of courses during the first year of college taken in traditional liberal arts areas: “Fine Arts, Humanities, and Languages” (e.g., art, music, philosophy, religion, history); “Mathematics/Statistics/Computer Science”; “Natural Sciences” (e.g., chemistry, physics); and “Social Science” (e.g., anthropology, economics, psychology, political science, sociology).]
- Institutional type. This was operationally defined as three dummy variables representing attendance at a research university, regional university, or community college (each coded 1), with attendance at a liberal arts college always coded 0.
- In estimating the effects of on-campus work we controlled for off-campus work, and vice versa.

Information on place of residence and first-year coursework was obtained during the follow-up data collection conducted in spring 2007.

### Data Analyses

Our data analyses were guided by the conceptual model shown in Figure 1. As Figure 1 shows, the conceptual model included six sets of variables: 1) *student pre-college and background characteristics* (tested academic preparation, sex, race, experience working for pay during last year of high school, high school involvement, a parallel pretest for each liberal arts

outcome); 2) *institutional type* (research university, regional university, community college, or liberal arts college); 3) *measures of on- and off-campus work*; 4) *other college experiences* (on- or off-campus residence, liberal arts emphasis of first-year coursework); 5) *good practices in undergraduate education* (good teaching and high quality interactions with faculty, diversity experiences, influential interactions with peers); and 6) *liberal arts outcomes* (previously described standardized instruments measuring effective reasoning and problem solving, well being, inclination to inquire and lifelong learning, intercultural effectiveness, leadership, and moral character). The analyses proceeded in four stages.

Figure 1 about here

At each stage of our analysis, we needed to address the reality that our sample of student data was not gathered through purely random selection. Instead, data were gathered from students enrolled at 19 postsecondary institutions that differ substantially in selectivity, size, location, and other characteristics that likely make the students within each institution more similar to each other than to students at other institutions in the study. Without proper adjustments, this exposes our analysis to the possibility of reduced bias in standard error - and therefore type I specification error. To correct for this possibility, we employed the means within our statistical analysis software package to account for the clustering effect.

In stage 1, we sought to determine the net effects of on- and off-campus work on experience of good practices in undergraduate education. Each good practice scale was regressed on the two work measures plus student precollege and background characteristics, institutional type, and other college experiences. (In this set of analyses only, we included high school involvement in the regression specifications rather than the precollege for any outcome.)

In stage 2, we estimated the total effect of work on each liberal arts outcome using reduce-form equations as specified by Alwin and Hauser (1975). This total effect includes both the direct, or unmediated, effect of work on each liberal arts outcome plus the effect mediated through good practices. Each liberal arts outcome was regressed on the work measures plus student precollege and background characteristics (including a precollege measure of each outcome), institutional type, and other college experiences. In stage 3, we estimated the direct, or unmediated, effect of work on each liberal arts outcome by adding the three good practice scales to each total effects equation.

The fourth and final stage of the analyses sought to determine if the effects of work on liberal arts outcomes were general or conditional. That is, were the effects of work essentially similar in magnitude for all students (general effects), or did they differ in magnitude for students who entered postsecondary with different characteristics (conditional effects). In our investigation, we were particularly concerned with the conditional effects of work based on precollege tested academic preparation and students' precollege scores on each liberal arts outcome measure. We thus created sets of cross-product terms between each category of on- or off-campus work on the one hand and both precollege tested academic preparation and precollege score on each liberal arts outcome on the latter. These sets of cross-product terms were then added to the general effects equations. Individually significant conditional effects were examined only if the specific set of cross-product terms was associated with a statistically significant increase in explained variance ( $R^2$ ).

In order to test for conditional effects and still control for the potential clustering effect in our data, we were confronted with an interesting problem. Because we had only 19 sampling units (institutions), we were limited in our analyses to a regression specification with no more

than N-1, or 18 variables. Consequently, we examined our direct effects equations in the third stage of the analyses and dropped the five variables that had the fewest significant effects on each liberal arts outcome. (This had a negligible impact on the total variance explained in each direct effects model.) We then added each set of cross-products to this reduced direct effect equation and used the statistical significance of the  $R^2$  increase to indicate the presence of conditional effects. For the subsequent examination of individually significant conditional effects, we divided the sample into upper and lower halves of precollege tested academic preparation or precollege score on each liberal arts outcome and reran the full direct effects equation (stage 3) for each half. We then compared the regression coefficients for the work category in question.

## Results

### *Work and Good Practices*

The estimated net effects of work during college on the experience of good practices in undergraduate education are summarized in Table 2. In all cases, the comparison group is students who do not work. As the table indicates, when controls for student background characteristics, high school experiences, institutional type, and other college experiences were introduced and the clustering effect is taken into account, neither on-campus nor off-campus work had any significant net effect on exposure to the three good practice dimensions considered: good teaching and quality interactions with faculty, influential interactions with peers, and diversity experiences. Thus, in general it would appear that students who work are having an essentially similar experience of college along the good practice dimensions considered in the study as are their peers who do not work.

Table 2 about here

Work and Liberal Arts Outcomes

Table 3 summarizes the estimated net total and direct effects of on- and off-campus work on the 15 liberal arts outcomes considered in the study. In all cases, the comparison group is students who do not work. Columns 1 and 2 in the table show the effects for students working on campus from 1-10 hours per week, while columns 3 and 4 show the effects of on-campus work of 11 or more hours per week. As the table indicates, on-campus work at either level had only a few rather isolated and modest significant net effects. Four of these effects were negative and three were positive. Net of all controls, including the good practice scales, working between 1 and 10 hours per week on campus had significant negative effects on four dimensions of socially responsible leadership: congruence, commitment, collaboration, and controversy with civility. Interestingly, none of the total effects of work on these four dimensions of leadership were significant. Conversely, working 11 or more hours per week on campus had significant, positive net total effects on both positive attitude toward literacy and the change dimension of socially responsible leadership. The direct effect on positive attitude toward literacy of working 11 or more hours per week on campus became nonsignificant when the three good practice scales were added to the prediction equation, although the magnitude of the reduction in effect size was only .005 of a standard deviation (.178 to .173). The positive total effect on the change scale of socially responsible leadership of 11 hours or more of on-campus work was reduced from .162 to .142 when differences in the experience of good practices was taken into account. However, this direct effect remained statistically significant. Notably, neither level of on-campus work had significant effects on critical thinking, moral reasoning, need for cognition, intercultural effectiveness, or psychological well-being.

Table 3 about here

Columns 5-10 in Table 3 show the total and direct effects of different levels of off-campus work during college on the various liberal arts outcomes. As shown in columns 5 and 6, working from 1-10 hours per week off campus had a significant, negative net effect on only 1 of the 15 outcomes: moral reasoning. Both the total and direct negative effects were significant. On all 14 other outcomes, however, the net impact of 1-10 hours of off-campus work was nonsignificant. Working from 11-20 hours per week off campus had no negative net impacts on any of the liberal arts outcomes. However, it did have significant, positive total and direct effects on three dimensions of socially responsible leadership: consciousness of self, congruence, and common purpose (columns 7 and 8). Finally, as shown in columns 9 and 10, working 21 or more hours per week off campus had a significant negative influence on only one of the 15 liberal arts outcomes: critical thinking. Both the total and direct negative effects on critical thinking were significant. Conversely, 21 or more hours of off-campus work had positive net effects on psychological well-being, and four dimensions of socially responsible leadership: consciousness of self, common purpose, controversy with civility, and citizenship.

#### Conditional Effects

Table 4 summarizes the nature of the significant conditional effects of on- and off-campus work we uncovered. As the table indicates, all of the statistically significant conditional effects involved students' tested precollege level of academic preparation (i.e., ACT, SAT, or COMPASS score). To show the general nature of each conditional effect, we arbitrarily divided each sample at the mean of tested academic preparation and reran our estimates separately for each sample. What is clear for the first five of the six significant conditional effects is that the negative impact of different levels of on- or off-campus work on critical thinking, openness to diversity challenge, and moral reasoning is most pronounced for students at lower levels of

precollege academic preparation. As level of academic preparation increased, the negative impact of work tended to decrease in magnitude. In one case, the effect of 1-10 hours of on-campus work on critical thinking, the impact for students above the mean of tested precollege academic preparation actually became positive and statistically significant. The only exception to this otherwise consistent overall pattern of conditional effects was the sixth or last conditional effect shown in Table 4. For students at the lower levels of tested academic preparation, working more than 21 hours per week off campus positively influenced the common purpose dimension of socially responsible leadership. As level of tested academic preparation increased, the effect of off-campus work at this level tended to become less positive.

## DISCUSSION

Our findings suggest a number of general conclusions. First, we uncovered little evidence to suggest that students who work either on or off campus have different experiences than their nonworking peers across three dimensions of vetted good practices in undergraduate education: good teaching and high quality interactions with faculty, influential interactions with peers, and diversity experiences. This held irrespective of student academic preparation, high school experiences, institutional type (liberal arts college, research university, regional institution, or community college), first-year college experiences other than work, and all levels of on- or off-campus work considered.

Second, the significant effects of on- or off-campus work on the 15 first-year liberal arts outcomes we considered tended, with one possible exception, to be isolated and few in number. Of the 150 direct and indirect effects of work that we estimated, we found only 24 were statistically significant, and 18 of those 24 were in the various subscales of socially responsible leadership. Only 6 significant effects of work were found among the other measures of liberal

arts outcomes: critical thinking, moral reasoning, need for cognition, positive attitude toward literacy, universal-diverse orientation, openness to diversity/challenge, and psychological well-being. These few effects tended to be isolated and mixed—both positive and negative. Thus, across nearly all the dimensions of liberal arts outcomes we considered, there would appear to be a general parity in the first-year educational benefits that accrue to most working students and their nonworking peers. Although it is based on a substantially broader range of outcomes, such a conclusion is consistent with previous findings reported by Pascarella, et al. (1998) in which there was little overall difference in cognitive gains made by working students and their nonworking peers. Pascarella and his colleagues did find that working more than 15 to 20 hours per week had a small deleterious net impact on a composite measure of cognitive growth including reading comprehension and critical thinking—a result that is consistent with our own finding of a negative impact of off-campus work of 21 or more hours per week on first-year critical thinking gains. Given these two consistent findings, based on independent samples collected more than a decade apart, it seems reasonable to conclude that any negative consequences of work during college on cognitive growth may only become manifest when one is working more than about 20 hours per week.

We did uncover an additional negative effect of off-campus work of 1-10 hours per week on first-year gains in moral reasoning. However, this finding is difficult to explain because moral reasoning gains for students involved in the highest levels of off-campus work (21 or more hours per week) were almost exactly the same as those for nonworking students (total effect =  $-.01$ , direct effect =  $.02$ ). It may well be that this finding is a potential anomaly that awaits replication.

A third generalization from our findings is that, with the one exception involving critical thinking, as the amount of both on- and off-campus work increased, the statistically significant

effects we did uncover tended to become positive. This included significant positive effects of on-campus work of 10 or more hours per week on positive attitude toward literacy and the change scale of socially responsible leadership. However, somewhat surprisingly, most of these positive effects were found for students working off campus more than 10 hour per week.

Working off campus between 11 and 20 hours per week positively influenced the consciousness of self, congruence, and common purpose subscales of socially responsible leadership, while more than 20 hours of off-campus work per week had positive net effects on psychological well-being as well as on the consciousness of self, common purpose, controversy with civility, and citizenship scales of socially responsible leadership. The fact that working more than 10 hours per week off campus positively influenced five of the eight dimensions of socially responsible leadership suggests that off-campus work during the first year of college may facilitate the development of leadership skills through unique experiences that are less likely to be available to students who do not work while attending college. Of course, our findings await replication before such a suggestion can be anything more than tentative.

A final generalization is that the effects of both on- and off-campus work on such outcomes as critical thinking, moral reasoning, and openness to diversity/challenge may be moderated by the level of a student's tested academic preparation (ACT, SAT, or COMPASS scores) at which he or she begins college. The consistent trend of these conditional effects was that different levels of on- or off-campus work tended to have their strongest negative impact on these three outcomes for students at the lowest levels of tested precollege academic preparation. Indeed, in all five conditional effects involving critical thinking, moral reasoning and openness to diversity/challenge, different levels of on- or off-campus work had significant negative effects for students below the mean of tested precollege academic preparation. As level of academic

preparation increased, however, the negative effects of work on these outcomes decreased in magnitude and became more positive. In four of the five conditional effects involving critical thinking, moral reasoning and openness to diversity/challenge, the effects of different levels of on- and off-campus work became nonsignificant for students above the mean of precollege academic preparation. In one case, the impact of work actually became positive and statistically significant. For students above the mean of precollege academic preparation, working between 1-10 hours per week on campus had a significant, positive effect on first-year gains in critical thinking.

Although such conditional effects await replication, they clearly suggest that the impacts of work on the outcomes of college may be complex. On- or off-campus work may have different effects on different outcomes for different kinds of students. At the very least, our findings suggest that to gain a complete understanding of how work during college influences the benefits one derives from school, future research will need to be sensitive to the estimation of conditional effects.

### IMPLICATIONS

The results of this study hold important implications for student development professionals, higher education scholars, and national policy makers. They challenge several widely held notions about the effects of work on college students and provide additional support for the literature highlighting the benefits of student employment. In addition, this research emphasizes the importance of three key methodological necessities for future research on student employment.

Although the literature examining work's effects during college regularly frames work as a necessary evil (often attributable to the increasing gap between the cost of attendance and

students' ability to pay), this study suggests that, in fact, full-time students working moderate or high number of hours per week benefit from those responsibilities across several leadership outcomes in ways that non-working students and those who work on campus do not.

Furthermore, where work might seem to be the smallest obstacle (working on campus 1-10 hours per week) to participation in other educationally important college-sponsored activities, those students suffer small but significant negative effects on leadership development compared to students who do not work. These findings clearly support the argument that employment should be embraced by student development professionals as an educationally purposeful means of fusing in-class and out-of-class learning in preparation for life after college. As higher education scholars discuss leadership development in terms of its relationship to citizenship and democracy (Komives, Lucas, & McMahon, 2006; Guarasci, Cornwell, & Associates, 1997), experiences that bridge the campus and surrounding community such employment seem ideally suited to strengthen these skills.

Moreover, these findings suggest that off-campus employment is beneficial in ways that on-campus employment is not. Given that college student development scholars have long preferred on-campus employment based upon the belief that on-campus employment provides great opportunity for students to be involved in the social fabric of their chosen college community (Astin, 1975), these findings suggest a reconsideration of that belief. While evidence supporting the positive aspects of increased student involvement and engagement is plentiful, the benefits of college involvement require an institutional structure, climate, and culture that support programs and activities in which students can be involved. However, this trait is not necessarily shared across all institutional types or even among institutions within each institutional type. Thus, when controlling for institutional type and taking into account the fact

that students are inevitably nested within individual institutions, it is possible – at least in the case of student employment – that any benefit resulting from the employment’s on-campus location is attributable to variables other than the employment itself. This accounting for institutional differences has previously proven insightful in an analysis of student retention research by Braxton, Sullivan, and Johnson (1997), who reviewed a range of studies across various institutional types to conclude that Tinto’s (1987) theory of academic and social integration was much more applicable to small residential colleges than larger public or commuter institutions. While the impact of on-campus employment may prove positive on individual campuses, the results of this study suggest that, at least during the first year, off-campus employment, particularly in the category of 11-20 hours per week, is marginally positive while the on-campus counterpart is marginally negative. Future research is necessary to examine if off-campus employment is more beneficial on educational outcomes than on-campus employment, if these findings hold across each year of college, or if these findings are unique to the WNSLAE dataset. Nonetheless, this study suggests the possibility that posing on-campus employment against its off-campus counterpart in regard to experiencing educational good practices and most liberal arts outcomes may be a false dichotomy. Instead, the number of hours worked per week appears to be a more influential factor on outcomes, both positive and negative, than the location of the job.

With this in mind, however, the conditional effects uncovered in this study indicate the danger inherent in applying these findings across all college students. This study shows that, even under methodologically rigorous conditions, students below the mean of tested pre-college academic preparation are affected negatively compared both to students who do not work and students who score above the mean of tested pre-college academic preparation. The well established relationship between socio-economic status, financial need, working status, and pre-

college test scores suggests that a blanket approach to encouraging employment in addition to the academic requirements of college could exacerbate the already present gap between students from higher and lower socio-economic conditions. The added evidence of work's negative effects on educational outcomes for lower ability students should further encourage policy makers to ensure that federal and state policy produces ideal conditions for success through completion instead of merely access to college.

In addition to the implications of this research for policy makers and student development personnel, the design of this study illuminate several important considerations for higher education scholars in considering the impact of college on students or the impact of other experiences on the intended outcomes of college. First, large-scale studies of working students must fully account for the multiple iterations of work and the diverse array of outcomes expected of a college education. Studies that fail to include all of these elements are increasingly likely to be limited in their usefulness because fail to account for the multiple dimensions of development represented by the range of intended outcomes of a liberal arts education. To add insult to injury, discussions of findings and subsequent citations of those studies have not always clearly explained the types of work examined or the limitations of the research design. As the body of research on the effects of work has grown, this lack of precision seems to have contributed to a lack of clarity in understanding what previous research says and doesn't say. Lumping all types of work into overly general categories masks these details and undercuts the value of such studies. The devil – or in several instances throughout this study, the angel – lurks squarely in the details.

Second, the findings of this study add to the growing body of literature on student employment demonstrating the existence of conditional effects. Across four of the five

categories of work, this study found that on at least one outcome, the effects of worked differed significantly depending on the student's tested pre-college academic preparation. While approached in different ways, other researchers have recently found similar results (Butler, 2007; Cheng & Alcantara, 2007). To understand more precisely the potential for work to benefit or hinder student success, the nature of the work, the characteristics of the student, and the interaction of the two must be taken into account. Future research on student employment should continue to explore this aspect of work's effect on college students.

Third, in addition to controlling for the characteristics of the student and the characteristics of the work, this study demonstrates the importance of recognizing the influences of institutional type and the clustering effect inherent in studying college students. Although employed as a control, the variable representing research I institutions as compared to liberal arts colleges was regularly significant, suggesting that importance of its impact in the overall model. Furthermore, the effects of any experience on collegiate outcomes must take into account the context in which students experience college. In a preliminary analysis of the WNSLAE data, the differences in test score means between selective liberal arts institutions and open access community colleges demonstrate the degree of difference between students at various institutions. Modeling the effects of work without recognizing these differences produced substantially different results prior to instituting taking into account the nesting of students within institutions. Future research on large-scale data sets – be they longitudinal or cross-sectional – should strongly consider the full context of the effects chosen for study and adjust for this fact. Failure to take all of these factors into account can produce disparate results and further muddy the body of findings on student employment and its effect on college students.

## CONCLUSION

Although the effects of working while enrolled in college full-time have been studied for almost 80 years, researchers have yet to fully understand its impact. As the number of working students grows and the number of hours they work increases, it is imperative that higher education scholars and policy makers examine the multiplicity of work's effects and the degree to which those effects can change for different types of students before crafting policy that impacts student decisions to work. Furthermore, research on the effects of work may benefit from a closer examination of the theoretical frameworks on which it is based. If, as this study shows, employment can produce beneficial results, then work should be more fully included in the educational structure of the student experience. Future research should examine how this might be best organized for the benefit of all students.

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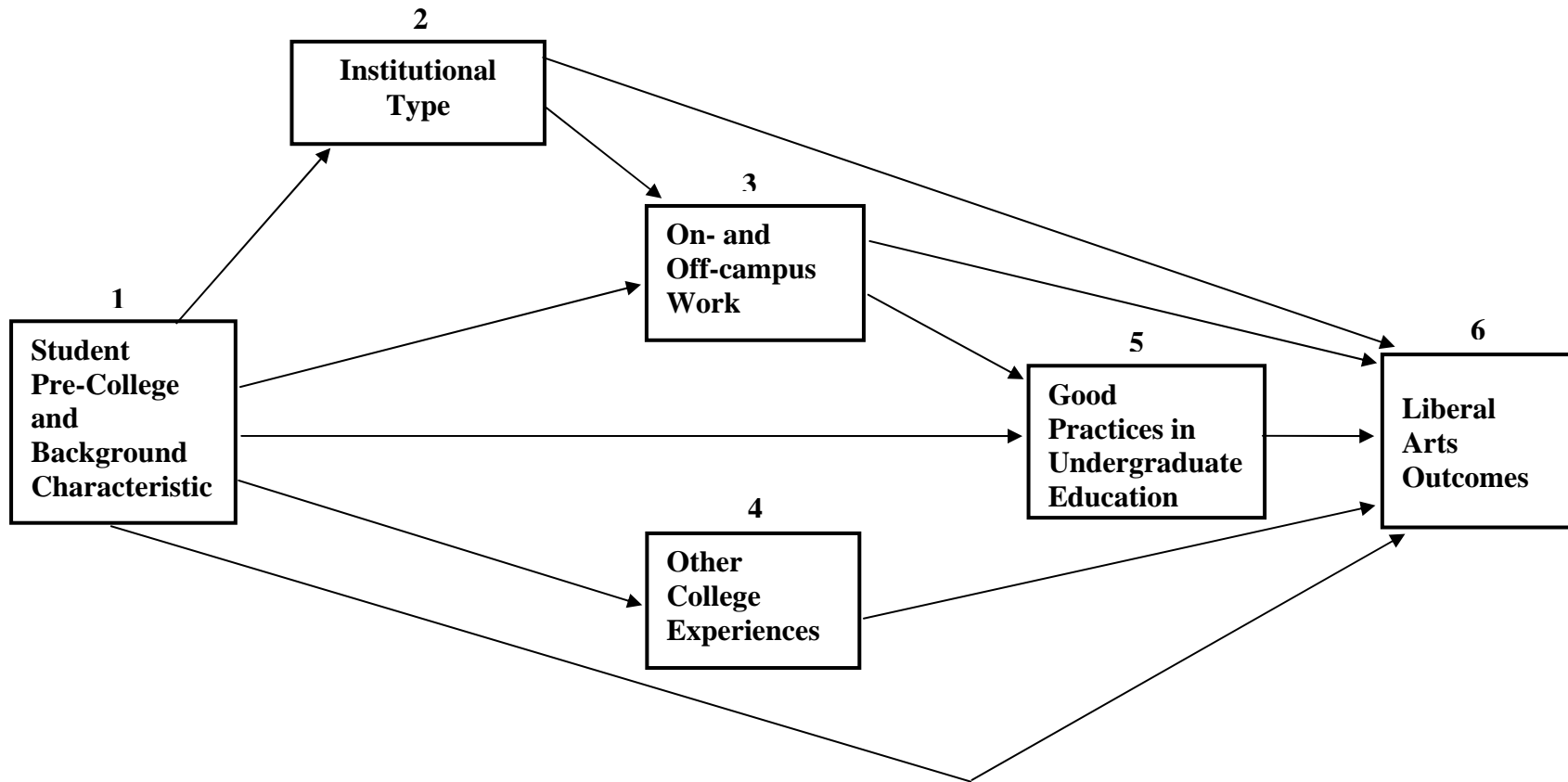


Figure 1. Conceptual Model of the Effects of Work on Liberal Arts Outcomes.

Table 1 - Range of students in sample distributed across each category of work.

| Work Category                                 | N sizes for all but two liberal arts experiences and outcomes | N sizes for Critical Thinking (CAAP) / Moral Reasoning (DIT2) <sup>a</sup> |
|---|---|--|
| did not work on campus                        | 1868 - 1896   | 876 / 1007   |
| did not work off campus                       | 2462 - 2502   | 1190 / 1292  |
| worked on campus 1-10 hours per week          | 829 - 845   | 438 / 405  |
| worked on campus more than 10 hours per week  | 297 - 301   | 143 / 153  |
| worked off campus 1-10 hours per week         | 249 - 252   | 122 / 129  |
| worked off campus 11-20 hours per week        | 181 - 182   | 93 / 87  |
| worked off campus more than 20 hours per week | 104 - 107   | 52 / 45  |

a - The sample was split in half and then randomly assigned to take the Critical Thinking (CAAP) or the Moral Reasoning (DIT2) tests, thus the smaller N sizes.

Table 2 - Estimated effects of on- and off- campus work on experienced good practices during the first year of college compared with students who do not work.<sup>a</sup>

| Good Practice Scales                | On Campus Work |              | Off Campus Work |                |              |
|-------------------------------------|----------------|--------------|-----------------|----------------|--------------|
|                                     | 1-10 hrs/week  | 11+ hrs/week | 1-10 hrs/week   | 11-20 hrs/week | 21+ hrs/week |
| Good Teaching and High Quality      |                |              |                 |                |              |
| Interactions with Faculty           | 0.009          | -0.078       | -0.076          | -0.006         | 0.009        |
| Influential Interactions with Peers | 0.062          | -0.025       | -0.132          | -0.014         | -0.230       |
| Diversity Experiences               | 0.189          | 0.103        | 0.008           | -0.016         | -0.017       |

a - Because all the dependent measures (Liberal Arts Outcomes) were standardized, the coefficients are expressed in effect size terms - or that fraction of a standard deviation that students who work are advantaged or disadvantaged (depending on the sign) relative to students who do not work.

b - Regression equation also includes controls for: race (white/non-white), gender, degree of high school involvement (a six item scale that measured the degree of teacher interaction, extra-curricular activity, socializing, studying with friends, volunteering, exercising, and using a computer while in high school), tested pre-college academic preparation (as measured by the respondent's ACT, SAT, or COMPASS test score converted to a common metric), employment during the last year of high school, institutional type (research universities, regional public institutions, and community college as compared to liberal arts colleges), number of liberal arts courses (i.e., fine arts, humanities, languages, natural sciences, social sciences, and math) taken, whether the student lives on or off campus, and the clustering effect.

\* P<.05; \*\* P<.01; \*\*\*P<.001

Table 3 - Estimated total and direct effects of on- and off- campus work on first year liberal arts outcomes compared to students who do not work.<sup>a</sup>

| Liberal Arts Outcomes           | On-Campus Work     |                     |                    |                     | Off-Campus Work    |                     |                    |                     |                    |                     |
|---------------------------------|--------------------|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|---------------------|
|                                 | 1-10 hrs/week      |                     | 11+ hrs/week       |                     | 1-10 hrs/week      |                     | 11-20 hrs/week     |                     | 21+ hrs/week       |                     |
|                                 | Total <sup>b</sup> | Direct <sup>c</sup> | Total <sup>b</sup> | Direct <sup>c</sup> | Total <sup>b</sup> | Direct <sup>c</sup> | Total <sup>b</sup> | Direct <sup>c</sup> | Total <sup>b</sup> | Direct <sup>c</sup> |
|                                 | 1                  | 2                   | 3                  | 4                   | 5                  | 6                   | 7                  | 8                   | 9                  | 10                  |
| Critical Thinking               | -0.006             | -0.015              | 0.060              | 0.051               | -0.117             | -0.126              | -0.129             | -0.133              | -0.267*            | -0.275*             |
| Moral Reasoning                 | 0.007              | 0.002               | -0.015             | -0.015              | -0.180*            | -0.169*             | -0.173             | -0.170              | -0.010             | 0.020               |
| Inclination toward Inquiry      | -0.041             | -0.057              | 0.014              | 0.010               | -0.036             | -0.040              | -0.075             | -0.077              | -0.122             | -0.107              |
| Attitude toward Literacy        | 0.083              | 0.060               | 0.178*             | 0.173               | 0.035              | 0.038               | 0.021              | 0.025               | -0.008             | 0.007               |
| Universal-Diverse Orientation   | 0.037              | -0.057              | -0.040             | -0.013              | -0.116             | -0.070              | 0.055              | -0.009              | 0.256              | -0.241              |
| Openness to Diversity/Challenge | 0.087              | 0.038               | -0.137             | -0.155              | -0.100             | -0.095              | -0.005             | 0.007               | 0.234              | 0.297               |
| Psychological Well-being        | 0.021              | -0.009              | -0.015             | -0.015              | -0.051             | -0.027              | 0.028              | 0.049               | 0.097              | 0.199*              |
| Leadership (8 separate scales): |                    |                     |                    |                     |                    |                     |                    |                     |                    |                     |
| Consciousness of Self           | -0.027             | -0.048              | -0.070             | -0.070              | 0.088              | 0.105               | 0.172*             | 0.180*              | 0.383***           | 0.431***            |
| Congruence                      | -0.074             | -0.099*             | -0.039             | -0.044              | 0.032              | 0.046               | 0.162*             | 0.172*              | 0.106              | 0.145               |
| Commitment                      | -0.048             | -0.100*             | -0.023             | -0.016              | 0.016              | 0.032               | 0.055              | 0.065               | -0.066             | 0.010               |
| Collaboration                   | -0.030             | -0.067*             | 0.031              | 0.026               | 0.024              | 0.046               | 0.087              | 0.093               | 0.114              | 0.200               |
| Common Purpose                  | -0.029             | -0.057              | 0.090              | 0.089               | -0.019             | -0.005              | 0.125*             | 0.129*              | 0.208*             | 0.270*              |
| Controversy with Civility       | -0.071             | -0.108*             | -0.043             | -0.046              | -0.021             | -0.021              | 0.071              | 0.072               | 0.234              | 0.267*              |
| Citizenship                     | -0.003             | -0.038              | 0.002              | 0.006               | 0.006              | 0.021               | 0.009              | 0.017               | 0.141              | 0.195**             |
| Change                          | 0.034              | -0.008              | 0.162*             | 0.149*              | -0.111             | -0.102              | 0.131              | 0.137               | 0.097              | 0.170               |

a - Because all dependent measures (Liberal Arts Outcomes) were standardized, the coefficients are expressed in effect size terms - or that fraction of a standard deviation that students who work are advantaged or disadvantaged (depending on the sign) relative to students who do not work.

- b - Regression equation also includes controls for: race (white/non-white), gender, pre-test (the instrument noted in the parenthesis next to each outcome listed above), tested pre-college academic preparation (as measured by the respondent's ACT, SAT, or COMPASS test score converted to a common metric), employment during the last year of high school, institutional type (research universities, regional public institutions, and community college as compared to liberal arts colleges), number of liberal arts courses (i.e., fine arts , humanities, languages, natural sciences, social sciences, and math) taken, whether the student lives on or off campus, and the clustering effect.
- c - Regression equation includes all the controls listed in (b) plus good practice scales for diversity experiences, influential interactions with peers, and good teaching and high quality interaction with faculty.

\* P<.05; \*\* P<.01; \*\*\*P<.001

Table 4 – Significant conditional effects of on- and off-campus work compared to students who do not work.

*Significant conditional effect for on-campus work between 1 and 10 hours per week*

| Liberal Arts Outcome | Above average tested pre-college academic preparation | Below average tested pre-college academic preparation |
|----------------------|---|---|
| Critical Thinking    | .167***   | -.226***  |

*Significant conditional effect for on campus work more than 10 hours per week*

| Liberal Arts Outcome            | Above average tested pre-college academic preparation | Below average tested pre-college academic preparation |
|---------------------------------|---|---|
| Openness to Diversity/Challenge | .106  | -.281*  |

*Significant conditional effects for off campus work between 1 and 10 hours per week*

| Liberal Arts Outcome            | Above average tested pre-college academic preparation | Below average tested pre-college academic preparation |
|---------------------------------|---|---|
| Moral Reasoning                 | -.108   | -.238*  |
| Openness to Diversity/Challenge | .128  | -.106*  |

*Significant conditional effects for off campus work more than 20 hours per week*

| Liberal Arts Outcome              | Above average tested pre-college academic preparation | Below average tested pre-college academic preparation |
|-----------------------------------|---|---|
| Critical Thinking                 | .043  | -.319***  |
| Leadership - Common Purpose scale | -.339   | .320***   |

a - Because all dependent measures (Liberal Arts Outcomes) were standardized, the coefficients are expressed in effect size terms - or that fraction of a standard deviation that students who work are advantaged or disadvantaged (depending on the sign) relative to students who do not work.

b - Regression equation also includes controls for: race (white/non-white), gender, pre-test (the instrument noted in the parenthesis next to each outcome listed above), tested pre-college academic preparation (as measured by the respondent's ACT, SAT, or COMPASS test score converted to a common metric), employment during last year of high school, institutional type (research universities, regional public institutions, and community college as compared to liberal arts colleges), number of liberal arts courses (i.e., fine arts, humanities, languages, natural sciences, social sciences, and math) taken, whether the student lives on or off campus, good practice scales for diversity experiences, influential interactions with peers, and good teaching and high quality interaction with faculty, and the clustering effect.

\* P<.05; \*\* P<.01; \*\*\*P<.001

