2020

Perceptions of academic benefits of work-integrated learning among West Virginia community and technical college students

Laura Leslie McCullough
mccullough.laura10@gmail.com

PERCEPTIONS OF ACADEMIC BENEFITS OF WORK-INTEGRATED LEARNING AMONG WEST VIRGINIA COMMUNITY AND TECHNICAL COLLEGE STUDENTS

A dissertation submitted to
the Graduate College of
Marshall University
In partial fulfillment of
the requirements for the degree of
Doctor of Education
In
Educational Leadership
by
Laura Leslie McCullough
Approved by
Dr. Bobbi Nicholson, Committee Chairperson
Dr. Charles Bethel
Dr. Feon Smith-Branch
Dr. Diana Long

Marshall University
May 2020

APPROVAL OF THESIS

We, the faculty supervising the work of **Laura McCullough**, affirm that the dissertation, *Perceptions of Academic Benefits of Work-Integrated Learning Among West Virginia Community and Technical College Students*, meets the high academic standards for original scholarship and creative work established by the EdD Program in **Leadership Studies** and the College of Education and Professional Development. This work also conforms to the editorial standards of our discipline and the Graduate College of Marshall University. With our signatures, we approve the manuscript for publication.

Bobbi Nicholson, PhD Digitally signed by Bobbi Nicholson, PhD Date: 2020.04.10 15:01:38 -04'00'	Dr. Bobbi Nicholson	04/10/20
Dr. Bobbi Nicholson Leadership Studies	Committee Chairperson Major	Date
Bethel, Charles Digitally signed by Bethel, Charles Date: 2020.04.10 14:40:43 -04'00'	Dr. Charles Bethel	04/10/20
Dr. Charles Bethel Leadership Studies	Committee Member Major	Date
Dr. Feon Smith-Branch Digitally signed by Dr. Feon Smith-Branch Date: 2020.04.09 18:47:54 -04'00'	Dr. Feon Smith-Branch	04/09/2020
Dr. Feon Smith-Branch Adult and Continuing Education	Committee Member	Date
Diana L Long Digitally signed by Diana L Long Date: 2020.04.09 07:17:22 -05'00'	Dr. Diana Long	04/09/20
Dr. Diana Long	Committee Member External	Date

ACKNOWLEDGMENTS

Many have helped me reach this milestone. I am grateful to the dedicated and talented faculty in the Leadership Studies and Curriculum and Instruction doctoral programs at Marshall University. Thank you Dr. Charles Bethel, Dr. Michael Cunningham, Dr. Diana Long, Dr. Feon Smith-Branch, and Dr. Bobbi Nicholson for serving on my committee. Thank you, especially Dr. Nicholson for your spirited sense of humor, patience with my slow progress, and mentorship on this journey, from my first class in Educational Theory to my last hour of Dissertation Research. You have made me a scholar.

I appreciate Ms. Pamela Woods and Dr. Zornitsa Georgieva, who helped me reason through the limitations of data available at the West Virginia Higher Education Policy Commission. I want to also thank my colleagues at BridgeValley, specifically, Dr. Eunice Bellinger, Dr. Sherri Ritter, Dr. Peter Soscia, Dr. Calisa Pierce and many other co-workers, who are almost as excited as I am.

Every day, one of my family or friends asked about this study. Their kind inquiries pressured me to not give up. I might have too, if it were not for my steadfast husband, Joe, my amazing children, Katie, Sam, and Jacob, and my loving mother, Beverly. No one can fail, while they watch. Thank God for this life and for the people that have been placed along my path.

Philippians 4:13

TABLE OF CONTENTS

LIST OF TABLES viii

LIST OF FIGURES ix

Abstract x

Chapter 1 1

INTRODUCTION TO THE PROBLEM 1

Definition of Terms 2

Studies Addressing the Problem 6

Research Documenting Benefits of Work-Integrated Learning 7

Research Documenting Challenges with Work-Integrated Learning 8

Effective Design and Implementation of Work-Integrated Learning Programs 9

Purpose of the Research 12

Research Questions 12

Population 13

Method 13

Limitations 14

CHAPTER 2 15

REVIEW OF THE LITERATURE 15

Prior Research in Work-Integrated Learning 18

Research Documenting Benefits of Work-Integrated Learning 18

Research Documenting Challenges with Work-Integrated Learning 25

Effective Design and Implementation of Work-Integrated Learning Programs 31

Chapter 3 40

RESEARCH METHODS 40
Population 40
Study Design 41
Variables 41
Procedure for Data Collection 42
Data Analysis 43
Limitations 44
Summary 44
CHAPTER 4 45
PRESENTATION AND ANALYSIS OF DATA 45
Population and Sample 45
WIL Experiences and Higher Cumulative GPAs 59
WIL Experiences and a Shorter Time-to-Degree 59
Summary 60
CHAPTER 5 62
DISCUSSION 62
Interpretation of Findings 62
Implications of Findings 65
Limitations and Recommendations for Future Research 67
Summary 69
References 70
Appendix A 83
IRB EXEMPTION 83

APPENDIX B 84

APPLICATION FOR DATA 84

LIST OF TABLES

Table 1. Summary of Findings.....60

LIST OF FIGURES

Figure 1. Representation of Participants from All West Virginia Community and Technical Colleges 46

Figure 2. Academic Year and Degree Level 47

Figure 3. Demographics of Study's Participants 49

Figure 4. Graduation of Participants at Year 2 and Year 3 Periods 50

Figure 5. Distribution of Graduation Year of the Study's Participants 51

Figure 6. Grade Point Average Distribution 51

Figure 7. Work Integrated Learning Completed at West Virginia Community and Technical Colleges 52

Figure 8. Representation of Participants from Sample 53

Figure 9. WIL Completed at Sample Institutions 54

Figure 10. Academic Year and Degree Level from Sample 55

Figure 11. Demographics of Sample Participants from Sample Institutions 56

Figure 12. Graduation of Sample Participants by Year 2 and by Year 3 Periods 57

Figure 13. Distribution of Sample Participants by Years Required for Graduation 58

Figure 14. Grade Point Average Distribution of Sample 58

ABSTRACT

Global research notes the academic benefits of Work-Integrated Learning (WIL) to be higher academic achievement and faster degree completion rates. Past studies have been chiefly conducted at baccalaureate degree granting institutions. The purpose of this descriptive, non-experimental, post-facto study is to determine whether the West Virginia WIL programs delivered through community and technical colleges yield the same academic benefits that have been reported in the extant research concerning baccalaureate schools. The population of this study was to be 572 business and information technology majors at ten West Virginia community and technical colleges. Student-level data by classification of instructional programs (CIP) codes were analyzed that had been previously collected through the West Virginia Higher Education Policy Commission's annual census for academic years 2011-2012, 2012 -2013, and 2013-2014. WIL experience data distribution throughout the population of the study, however, was skewed substantially and required a more normally distributed sample for purposes of analysis. A reduced sample, comprised of 117 participants enrolled at New River Community and Technical College, Pierpont Community and Technical College, and West Virginia Northern Community College during the same period, provided a more even distribution. The findings suggest WIL experiences did not have a significant effect on cumulative GPA or on demonstrated time-to-degree in the two-year graduation period, nor on the years to degree variable, for this sample. WIL experiences did appear to have a significant effect on demonstrated time-to-degree in the three-year graduation period, however. The lack of a conclusive determination that WIL has an effect on grade point average (GPA) for community college students could spur a reconsideration of the field's understanding of the academic benefits of WIL experiences for researchers and professional practitioners.

CHAPTER 1

INTRODUCTION TO THE PROBLEM

Xun Kuang's Confucian program of study, the *Xunzi*, written in the 3rd century BCE, contained a proverb that translates to English as, "Tell me and I forget, teach me and I may remember, involve me and I learn" (Chen, 2017). Highlighting the importance of practice in a student's learning process, this concept is the basis of collaborations between employers and educational institutions that enables students to practice concepts learned in formal programs of study in work experiences outside the classroom that can deliver to the labor force the technical and soft-skills needed and allows students to launch careers or adapt to industry changes (Jackson & Wilton, 2016). This type of experiential learning among a student, an academic institution, and an employer is known as work-integrated learning (WIL) (Corporate Voices for Working Families [Corporate Voices], 2012; Freudenberg, Brimble, & Cameron, 2010; Murphy & Calway, 2008; Parks, Baldwin, Fenster, & Onweugbuzie, 2008; Sprandel, 2010; Smith, 2012; Washor, 2015; Xia, Caulfield, & Ferns, 2015).

Globally, WIL boasts beneficial results that include academic success, higher rates of degree attainment, and ease of transition to the workforce along with higher wages for participating students (Corporate Voices, 2012; Binder, Baguley, Crook, & Miller, 2015; Blicblau, Nelson, & Dini, 2016; Drysdale, Frost, & McBeath, 2015; Gardner & Perry, 2011; Gomez, Lush, & Clements, 2004; Grover-Bisker, 2011; Jackson & Wilton, 2016; Lentz, Holland, & Alloy, 2011; Sprandel, 2010; Tanaka, 2015, Washor, 2015). These outcomes are especially important to graduating students throughout the United States and in West Virginia. Complete College America (n.d.) estimates 20 million students are enrolled in higher education intuitions in the United States, of whom only 20% will graduate within four years with a

bachelor's degree and only 5% will complete an associate degree within two years. There are 31 million Americans with some college credits who have not earned a degree (Complete College America, n.d.). Of the nearly 1.3 million people aged 25 years or older living in West Virginia, only 12% have attained a baccalaureate degree or higher and only 6.9% have attained an associate degree (Census, 2017).

Past research noting the benefits of WIL has been chiefly conducted at baccalaureate degree granting institutions. Little is known about whether community and technical college students earn the same benefits deriving from their WIL experiences. The purpose of this study was to determine whether community college students participating in WIL programs in one of West Virginia's (then) ten community and technical colleges achieved academic benefits that are documented in other parts of the United States and the world. If so, higher education and government leaders may wish to allocate resources to WIL programs to improve performance against metrics such as higher grade point averages and degree attainment. Statistical improvements in both areas will become increasingly important to higher education institutions as the West Virginia Council of Community and Technical College Education (WVCCTCE), the coordinating organization of the state's nine community and technical colleges, is considering the implementation of a performance-based funding model. Both metrics are currently contained in goal one of the 2015-2020 master plan (WVCCTCE, 2019).

Definition of Terms

Before delving into the historical and current studies on the subject, an understanding of the nomenclature used in the discipline is important. Work-integrated learning (i.e., WIL) is an overarching term that refers to an experience where "learning takes place within the context in which it is applied" (Lave & Wenger, 1991) In the past, the term "cooperative education"

commonly described this learning experience, but various other terms are also employed (Jackson and Wilton, 2016). Helyer and Corkill (2015) devoted a small study to documenting the terminology of university faculty and staff involved in experiential learning activities and found that "learning-by-doing" and "internship" were commonly used. Recently, international scholars have used the more encompassing term of WIL (Zegwaard, 2015). Gardner and Bartkus (2014) as well as Zegwaard believe WIL's origins stem from situational learning, but extend past on-the-job training due to its formal connection to higher education coursework. In an attempt to provide a taxonomy of WIL, Groenewald, Drysdale, Chiupka, and Johnston (2011) provided four separate categories of practice that include

- community and service, which focus on service learning, cooperative education, and community-based learning;
- professional practice-required WIL that features apprenticeships, internships, cooperative education, and professional practica;
- field- and industry-based concentrations such as cooperative education; and
- other WIL opportunities that focus on teaching assistantships, work study, work exchanges, research assistantships, and select leadership and peer programs.

This study focused on professional practice-required WIL in West Virginia community and technical colleges, although programs that offer elective WIL components were included as well. Groenewald et al. (2011) and Jackson and Wilton (2016) pointed out that all academic work experiences contained in the required professional practice include intentional learning goals that mandate competency in the workplace, and they cautioned that cooperative education differs from cooperative learning where the collaborative effort of a group aids in the accomplishment of student learning objectives. The WIL courses offered in West Virginia's community colleges

possess syllabi that document measurable learning objectives and defined assessment processes. Because this study emphasized professional-practice required WIL, the definitions of the terms identified in Groenewald et al. associated with this category and defined in Gardner and Bartkus (2014) and Tanaka (2015) are employed, as follows:

- *Apprenticeships* are formalized combinations of mentorship, on-the-job training, and related technical instruction that are sponsored by an employer, labor organization, or an association where workers learn academic and theoretical aspects of a highly skilled job, and which commonly features wages that progress over a multi-year period as skills increase or standardized competencies are achieved (Apprenticeship, n.d.).
- *Cooperative Education or Co-Op* is an academic program integrating classroom learning and productive work experiences in a field related to a student's academic and career goals. Co-ops provide students with progressive learning experiences integrating theory and practice (World Association of Cooperative Education (WACE), p. 9, n.d.);
- *Internships* are structured and monitored experiences that involve academic credit and in which students apply classroom learning to a relevant work placement with an approved organization, paid or unpaid (ASHE-ERIC, p. 46 2002); and
- *Practica* are broadly defined experiences in which students enrolled in academic courses assess and model professional behaviors and aptitudes learned in the classroom, with restrictions and under close monitoring in a work environment that typical employees would do; these are usually unpaid (Price, 1987; para. 2; Eastern Mennonite University, n.d.).

WIL incorporates many additional formats within academia. Murphy and Calway (2008) identified eight models of WIL that are sometimes used in the classroom:

- The pre-course experience model is a prerequisite for a subsequent course, is usually noncredit, and assumes aptitude, not experience.
- The project-based model is for academic credit; students connect theory to real life as they complete a scholarly investigation related to their career. This model is a worksite-based study and may be referred to as a practicum, independent study, or work-based project.
- The vocational model is trade-focused; participants have little academic theory preparation, concentrating almost entirely on the acquisition of technical skills. Learning occurs on the job. This model is applicable to vocational education, technical preparation, and apprenticeships.
- The contextual learning model enables students to learn real-life work experiences in the classroom in a structured manner. This model is more of a teaching pedagogy and includes labels such as experiential education, contextual learning, praxis, and service learning.
- The work experience model allows participants to observe an experienced worker for a limited number of weeks to gain a cursory understanding of what the job entails. This model makes no connection to learning outcomes in the classroom. The participant may earn a small wage to perform menial tasks. This model occurs mainly at the high school level and is applicable to work experience and job shadowing.
- The supervised experience model permits the participant to acquire theoretical knowledge first in the classroom and then to practice those skills in a professional application. Workplace/classroom integration is minimal. The experience, however, is required in

academic course and usually not paid. This model includes externships, field studies, internships, cognitive apprenticeships, professional practice, and preceptorships.

- The work-based learning model alternates periods of academic instruction in which industry integration of knowledge-centered learning objectives are demonstrated, such as using specific terminology, with periods of work-based learning. The learning happens prior to the student's requested work placement. The work in this model is usually paid; its labels include work-based learning, cooperative education, organizational learning, industry-based learning, sandwich course, and practice-oriented education.
- The joint industry/university courses model is a partnership in which industry actively participates in the delivery of content based on learning objectives imbedded in the collaboratively developed curriculum. This model ensures the academic curriculum is relevant from industry's perspective. The participants receive credit for the required experience.

This study compared students enrolled in WIL classes using the supervised experience model with their peers who were not enrolled in WIL classes. The supervised experience model is the most prevalent at West Virginia community and technical colleges.

Studies Addressing the Problem

While a full review of the literature is provided in Chapter Two, a preliminary examination can help to clarify the grounding for this study. Current research can be divided into three broad categories: research documenting the benefits of WIL, research identifying the challenges associated with WIL, and research reporting effective design and implementation of WIL programs.

Research Documenting Benefits of Work-Integrated Learning

Recent research has specified various academic and employment benefits associated with WIL. Binder et al. (2015), Blicblau et al. (2016), and Gomez et al. (2004) found higher academic performance based on grades as an outcome, and Drysdale et al. (2015) found faster time to graduation as an effect of WIL participation. Other outcomes connected to WIL participation included marketable skills (Corporate Voices, 2012; Grover-Bisker, 2011; Knouse & Fontenot, 2008; Sprandel, 2010; Washor, 2015); realistic career expectations and competencies (Gardner & Perry, 2011; Jackson & Wilton, 2016; Tanaka, 2015); and higher wages (Grover-Bisker, 2011; Gault, Redington & Schlager, 2000; Lentz et al., 2011).

Other researchers have identified motives for employers' preference in hiring WIL participants. Molseed, Alsup, & Voyles (2011) identified problem-solving as a reason employers hire co-op participants. Critical thinking and written and oral communication skills were noted by Maskooki, Rama, & Raghunandan (1998), Perry (1989), and Raymond, McNabb, & Matthaei (1993). Corporate Voices (2012) added brand recognition and the development of a labor force, and Washor (2015) contributed initiative, teamwork, and analytical soft skills as reasons employers preferred WIL participants.

A few researchers have excluded academic achievement and positive employment outcomes as benefits of work-integrated learning. As examples, Sprandel (2010) found no significant difference in the mean salaries of co-op graduates and non-co-op graduates from the Sam M. Walton College of Business, and Grover-Bisker (2011) found participants in a co-op program did not achieve significantly higher GPAs.

Research Documenting Challenges with Work-Integrated Learning

Themes of benefits, such as marketable skills, learned at the institution and at the workplace that increase during WIL participation make up a vast majority of the literature (Corporate Voices, 2012; Freudenberg et al., 2010; Jackson & Wilton, 2016; Knouse & Fontenot, 2008; Murphy & Calway, 2008; Parks et al., 2008; Sprandel, 2010; Washor, 2015). A few scholars, however, have identified gaps between the skills produced in the academic setting and those valued at the workplace. Crebert, Bates, Bell, Patrick, and Cragnolini (2004) noted deviations in the perceptions of bosses and students regarding the purpose of higher education and expectations at the work site. Coll and Zegwaard (2006) noted the perceptions of students, faculty, and employers regarding graduate competencies are not in sync when projected 10 years into the future. Chao and Gardner (2008) surveyed 10,000 young adults and over 700 managers and found the two groups differed in perceptions of work expectations and career readiness. Gardner and Perry (2011) determined that among those differences is employers possess unrealistic expectations of recent graduates.

Barriers of an effective WIL program have also been recognized by a few scholars. Alteraifi (2005), for instance, found WIL coordination needs to be a systematic process that includes an educational campaign directed to employers and reluctant liberal arts faculty. Bennett (2008) and Tanaka (2015) stated the economic model of WIL can be a barrier to implementation. Bennett noted that a cost-benefit analysis, necessary prior to any project, on WIL programs is complicated due to the difficulty of measuring tangible and intangible outcomes such as wage, soft skill acquisition, and identification of tacit elements of WIL curricular models. Tanaka (2015) developed a formula that addressed challenges often cited

when analyzing the economic return of co-operative education, situating his model within a student framework of human capital investment.

Risk is a theme sometimes associated with WIL experiences as well. Gamble, Patrick, & Peach (2010) documented this risk for universities, when international students were not being retained by local business managers due to the perceptions of poor language skills, cultural differences, and homesickness. Arslan and Surmen (2009) observed student dissatisfaction with their WIL experiences at Turkish auto factories. The students reported to Arslan and Surmen a feeling of social isolation due to a disciplined work culture in comparison to a less structured environment at their schools, which made some students seek alternative employment upon completion of their WIL placement. Student risk was also documented by scholars. Newhook (2013) conducted a case study based on the perceptions and experiences of 14 coordinators of co-op programs at 10 Canadian universities. Newhook's data documented co-op coordinators have various levels of understanding of the risks associated with placing their students at an employer's work site; acknowledge their responsibility to manage the risks; and confess their institutions have done little to train them for risk assessment and mitigation. Mutereko and Wedekind (2016) actually suggested the elimination of WIL from a curriculum because of low graduation rates, failure to produce graduates who were work-ready, and poor placement of WIL students. Industry risk is pointed out by Partners (n.d.), who estimated the cost of onboarding a machine operator as the cost of on-the-job training — at $91,000 per machine operator hired.

Effective Design and Implementation of Work-Integrated Learning Programs

The learning theories of Dewey (1938), Lewin (1947), and Piaget (1936) form the theoretical basis for WIL. Kolb (1984) refined these theories, especially that of Dewey, into his experiential learning theory by stressing the importance of conscious and subjective experiences,

as opposed to content and outcomes. Other scholars have also added to the learning theory associated with WIL. McRae (2015) brought to WIL a concept of transformative learning that occurs over time due to its dialectical processes that connect the student and the work site through supportive systems. Mate and Ryan (2015) argued narrative practices help WIL participants become resilient, while Bandaranaike and Willison (2015) suggested well-established cognitive pedagogy must be incorporated into effective WIL program design.

More concrete elements for effective WIL program design have been recommended over the past decade. Both Coll and Zegwaard (2006) and Knouse and Fontenot (2008) found all stakeholders of WIL must be actively involved in program design, with Knouse and Fontenot further stipulating students should possess a specific attitude and set of skills and should journal reflectively. Corporate Voices (2012) encouraged industry to provide tuition assistance and flexible schedules to WIL participants.

Professional development for students is a consistent theme with ideal WIL programs. Alteraifi (2005) recommended a WIL system approach which mandated professional development for faculty and an awareness campaign to all potential employers regarding the beneficial employment skills graduates achieve as a result of participation in a WIL program. Murphy and Calway (2008) challenged higher education institutions to have their WIL students apply knowledge to multifaceted situations that require self-directed learning. Freudenberg et al. (2010) found placing first-year students into a WIL program that included professional development workshops and nine-member learning communities or pods with industry and faculty representation yielded increases in skill and performance areas such as oral communication, creativity, and problem-solving. Hanneman and Gardner (2010) suggested opportunities for professional network creation and maintenance be incorporated in WIL

programs, as a network is especially important for new graduates. Perry (2011) determined early success in a graduate's transition to the workplace depends on WIL's being incorporated into academic programs to manage student expectations and help establish professional relationships before graduation. Jackson and Wilton (2016) determined students participating in WIL placements developed career management competencies students not participating in WIL placements did not.

WIL programs have to be balanced against faculty and administrator workloads/ responsibilities. Smith (2012), for example, created a measurement instrument that identified authenticity, integrated learning supports, and alignment of educational content with assessment of outcomes, supervisor access, and comprehensive orientations as key dimensions of WIL program design. Fleming (2015) found a WIL program design which allows students to acquire both technical and soft skills must not be too taxing for faculty, administrators, and industry supervisors, but must nonetheless support pedagogical learning with measurable outcomes the industry supervisor must evaluate. Jackson (2015) identified learning and assessment undertakings that encourage the development of employment skills and factors that impede skill improvement and performance in hopes WIL program design improves. Xia, et al. (2015) provided examples of win-win program designs of WIL for both academia and industry. The criteria used were synergy among all stakeholders; infusion of industry scenarios into academic curricula; reflective and active learning measured through presentation assessments; trust and collaboration among all parties; submission deadlines for learning assessments made flexible; progress meetings scheduled on a regular basis and comprised of the sharing of research and scholarly literature; and quality monitoring through student presentations and participation in peer-reviewed conference papers and journals. Clark, Rowe, Cantori, Bilgin, & Mukuria (2016)

explained curriculum development/preparation, curriculum delivery, assessment of student learning, pre-semester informational and recruiting activities, industry partner recruitment and relationship maintenance, risk assessment/management, system design/development, research, and committee service/leadership were all factors of WIL that contributed substantially to faculty and administrator workloads.

Purpose of the Research

The purpose of this descriptive, non-experimental, post-facto study was to determine whether the West Virginia WIL programs delivered through community and technical colleges yielded the academic benefits of WIL programs that have been reported in the extant research, such as higher GPAs and faster time to graduation.

The West Virginia Higher Education Policy Commission collects from state-supported higher education institutions' data related to enrollment and graduation through an annual census. Student data from academic years 2011-2012, 2012-2013, and 2013-2014 were made available for analysis, after sensitive student-identification information was removed. This study compared the academic success, measured as cumulative GPA and time to degree, of those non-WIL community college graduates enrolled as business and information technology majors with the academic success of those community college graduates enrolled as business and information technology majors who participated in WIL experiences.

Research Questions

The focus for this study was the extent to which West Virginia community college students participating in a business or information technology WIL experience achieved academic success as a result of their experiential learning experiences. Two specific research questions originated from the review of literature:

1. Did business or information technology graduates who participated in WIL experiences earn higher cumulative GPAs than did business or information technology graduates not participating in WIL programs?
2. Did business or information technology students participating in a WIL experience demonstrate a shorter time-to-degree period than business or information technology students not participating in WIL experiences?

Population

The population for this study consisted of all two-year business or information technology graduates of the West Virginia community college system-wide 2015 cohort who were first-time associate-degree-seeking students, who did not re-enroll at another/subsequent institution of higher learning, and who were marked as WIL participants. The comparison group consisted of all two-year business or information technology graduates of the West Virginia community college system-wide 2015 cohort who were first-time associate-degree-seeking students, who did not re-enroll at another/subsequent institution of higher learning, and who were not marked as WIL participants.

Method

Data for this study were provided by the West Virginia Higher Education Policy Commission (HEPC), which collects institutional data through an annual census. The nine, then 10, colleges reported student-level data regarding the courses each student completed, grades earned, and degrees conferred. Inferential analyses were conducted to determine whether significant differences exist between WIL and non-WIL students in cumulative GPA and time to degree. Additional independent variables that were categorical in nature (i.e., sex, race, and eligibility for the Pell grant) were controlled for in analytical processes.

Limitations

Among the limitations to the use of existing data is those data were not originally collected to address the research questions of a particular study. It is also the case some variables relevant to the study are not available because they were not collected or because they have been removed in order to protect the confidentiality of the sample or population. Another limitation of the secondary analysis of existing data is the researcher who is analyzing the data did not typically collect the data and is thus potentially unaware of either the existence of or rationale for gaps, oversights or omissions in the data collection process. These could possibly limit the explanatory power of interpretations based on the dataset. A close working relationship between the data provider and the researcher regarding the validity of the data, however, and clear and frequent communication concerning the researcher's request and needs have been employed to address and mitigate these potential problems.

CHAPTER 2

REVIEW OF THE LITERATURE

The industrial revolution in the late 19th century altered the mission of higher education to produce workers with specialized skills (Cooperative Education and Internship Association [CEIA], 2016). In 1899, after noticing engineering students who worked in the industry while enrolled in college understood engineering concepts better and faster than those who did not have to work, Herman Schneider, an associate professor at Pennsylvania's Lehigh University, proposed a cooperative education (co-op) model (Niehaus, 2005). At about the same time in 1903, a less-structured sandwich course was introduced at Sunderland Technical College, now Sunderland University in the United Kingdom (Tanaka, 2015). A sandwich course or placement year at Sunderland alternated periods of learning with work experiences between the second and third year. Schneider's co-op, however, required faculty members to observe their students in the work environment and incorporate concepts students learned from the on-the-job experiences into curricular planning within a term of instruction. Niehaus stated Lehigh's administration rejected Schneider's model, but in 1906, three years after Schneider began employment at the University of Cincinnati, that institution's Board of Governors narrowly approved by a vote of five to four his plan to incorporate the co-op model into the institution's engineering curriculum. By 1920, Schneider's model was so successful the university had cancelled its traditional engineering program and made co-ops mandatory for all engineering and business students (Niehaus, 2005; Tanaka, 2015).

Niehaus (2005) and Tanaka (2015) provided the following timeline for early adopters of Schneider's co-op model: The Polytechnic School of the YMCA Evening Institute (now Northeastern University) in Boston in 1909, the University of Pittsburgh in 1910, the University

of Detroit in 1911, the Georgia Institute of Technology and the Rochester Institute of Technology in 1912, and Harvard in 1920. Institutions from England, Canada, China, Australia, and Germany also adopted Schneider's model of work-integrated learning (Niehaus, 2005; Tanaka, 2015). Crichton (2009) identified the first Canadian co-op at Ontario's University of Waterloo in 1955,[1] while Facer, Thorpe, and Shaw (2012) reported co-operative education began in the United Kingdom in 1944. The German Academic Institute for International Education (2018), which is located in Freiburg, Germany, identified 1974 as the beginning of a co-op plan that is also described as dual education. Tanaka (2015) added the most numerous work-integrated learning programs are in English-speaking countries such as Canada, Australia, the United Kingdom, New Zealand, and South Africa. The expansion and contraction of the number of American institutions offering work-integrated learning occurred in a span of under 60 years: in 1941, 39 colleges and universities engaged in co-ops; in 1986, 1,012 institutions offered co-ops; but by 1996, the number had declined to a range of 400-450 institutions (Tanaka, 2015). The reason for the rapid expansion and decline corresponds to a decrease in federal funding levels for cooperative education through Title VIII of the Higher Education Act of 1965 that was not reauthorized in 1996 (CEIA, 2016; Niehaus, 2005; Tanaka, 2015).

Advancement in research focused on WIL has occurred as the field has developed. In addition to the World Council and Assembly on Cooperative Education, which was founded in 1983, the United States, Canada, the United Kingdom, Austria, New Zealand, South Africa, Thailand, and Sweden all possess associations devoted to the expansion of WIL-related research (Tanaka, 2015). Two university-sponsored research centers, the Centre of the Advancement of

[1] Tanaka (2015) identifies the year as 1957.

Co-Operative Education at the University of Waterloo in Ontario, Canada, and the Research Institute for Professional Practice Learning and Education at Charles Sturt University in Sydney, Australia, have also been established (Zegwaard, 2015). Additionally, two journals are currently central to WIL research: *The Journal of Cooperative Education and Internships* (JCEI) and the *Asia-Pacific Journal of Cooperative Education* (APJCE), both of which host a publicly accessible and annually increasing repository for studies within the field (Zegwaard & Coll, 2011). Several other relevant journals also emphasize WIL topics, including the *Journal of Workplace Learning*, *Reflective Practice*, *Journal of Vocational Education and Training*, and *Journal of Vocational Education Research*, and Zegwaard and Coll (2011) also noted the recent publication of studies conducted by prominent WIL researchers in non-WIL-related publications such as *Research in Science and Technological Education*, *Canadian Journal of Science, Mathematics and Technology Education*, *Journal of Criminal Justice Education*, *Journal of Social Work Education*, and *Science Education International*, among others. Bartkus (2007) examined the nature, scope and quality of research reported in 72 publications outside the *Journal of Cooperative Education and Internships* from 1987-2006. After an analysis of the articles, Bartkus criticized that much of the research was conducted by many of the same scholars and studies were published at the rate of four articles per year. The limitations of the studies that Bartkus reviewed also included poor statistical methods and other deficiencies of the research process. Despite identified concerns, Bartkus conceded past research established a good baseline for future research. A thorough review of current research reveals a preponderance of studies took place at two major institutions in Australia, which systematized WIL nationwide during the last decade.

Prior Research in Work-Integrated Learning

Research into work-integrated learning can be organized into three broad categories: studies on the benefits of WIL, studies examining the challenges of WIL, and studies investigating effective design and implementation of WIL programs. Each will be examined separately.

Research Documenting Benefits of Work-Integrated Learning

Research from 2004 to present indicates academic and employment benefits to WIL. Binder, et al. (2015), Blicblau, et al. (2016), and Gomez, et al. (2004) found WIL participants demonstrated higher academic performance based on grades, and Drysdale, et al. (2015) and Parks, et al. (2008) determined WIL participants were motivated to complete their academic programs at higher rates and that they changed their majors significantly less frequently. WIL participants also experience employment benefits such as marketable skills (Corporate Voices, 2012; Knouse & Fontenot, 2008; Sprandel, 2010; Washor, 2015), realistic career expectations and development (Gardner & Perry, 2011; Jackson & Wilton, 2016; Tanaka, 2015), and higher wages (Grover-Bisker, 2011; Lentz, Holland, & Alloy, 2011). These studies are summarized below.

A United Kingdom study by Gomez et al. (2004) considered the academic benefits achieved by two cohorts of 164 bioscience undergraduates using a multiple linear regression analysis on independent variables of sex, pre-university academic performance, level of student (i.e., first, second, or third year), and mode of study (i.e., non-placement or placement) to predict academic success in the final year of their degree programs. The results of the study demonstrated sex, pre-university academic performance, being at level two, and participating in placement had significant influences on students' grades during their final year. Gomez et al.

noted students participating in WIL achieved a 4% increase in final grades during their last year in higher education.

Similarly, Binder et al. (2015) conducted a longitudinal study at a large undergraduate university from 2001 to 2005 in the United Kingdom with 15,732 total students in five cohorts who were pursuing either a three-year degree or a four-year degree across multiple subjects, with a third-year internship placement that ranged from 36 to 52 weeks in duration. After controlling for the variance of 186 degree courses, choice vs. self-selection, prior student academic achievement, final marks, degree class (i.e., third-year or fourth-year), race, and sex, the researchers determined with statistical significance that

- participation internships yielded academic benefits across all curricula, with an increase in GPA of 3.3 percentage points;
- the benefits are true of privileged and at-risk students alike, though whites and female students reaped the highest benefits; and
- a break in the degree progression of the student (e.g., maturing for a year or studying in a different environment) did not generate the same academic benefit as did the student's participating in an internship.

While acknowledging multiple factors affecting academic success beyond work-integrated learning, Blicblau et al.'s (2016) study of engineering students at Swinburne University of Technology in Melbourne, Australia, found undergraduate industry-based learning experiences resulted in a higher cumulative grade point average and statistically significant higher mean scores in a final, capstone project. Added benefits were 30% of the students with industry-based learning had capstone projects sponsored by their employers and 10% were offered ongoing employment (Blicblau et al., 2016).

In recent years, researchers have documented additional academic benefits such as motivation to learn and graduate and more academic degree certainty. Parks et al. (2008) analyzed the responses of 857 co-op students from 14 universities located in the United States in 2001 through an online instrument called PLACE (i.e., Predicting Learner Advancement through Cooperative Education), developed in 1998 by a research committee of the Cooperative Education Network as a theoretical framework for understanding co-op student learning outcomes. The PLACE survey contained 29 Likert-type items, but a factor analysis flagged some items for exclusion from the study's findings. The retained items were as follows:

- the personal development factor contained 13 items, such as ability to set priorities (.70 alpha coefficient), the ability to follow through on tasks and projects (.69 alpha coefficient), and the ability to take initiative (.68 alpha coefficient);
- the career development factor measured six items, such as practical work experience related to the student's major (.78 alpha coefficient), practical work experience related to the student's career goals (.76 alpha coefficient), and opportunities for students to learn from professionals in the field (.74 alpha coefficient);
- the professional/work skills development factor represented three items such as ability to design and conduct experiments (.62 alpha coefficient), ability to complete an oral presentation (.61 alpha coefficient), and ability to write in a business environment (.56 alpha coefficient); and
- the academic development factor denoted three items, such as motivation to learn in the classroom (.78 alpha coefficient), motivation to graduate (.67 alpha coefficient), and desire to pursue life-long learning (.55 alpha coefficient).

Parks et al.'s (2008) study noted students reported educational benefits of cooperative education included career development, academic development, professional/work-skills development, and personal development.

Drysdale et al. (2015) conducted an exploratory study of 143 recruited participants from both co-op and non-co-op programs at a large Canadian university (which offers co-op programs in all of the university's disciplines) to see if participating in co-ops had an effect on students' vocational identities or satisfaction with their academic majors. The investigators' independent variables were sex, year of study, and faculty, and the addition of a qualitative component allowed the researchers to analyze reasons why students had changed their academic majors. Drysdale et al. noted the subjects had nearly equivalent confidence levels regarding their career paths. The rate of changing majors, however, was significantly higher, by more than two times, for students that did not participate in co-op programs. Eighteen percent of students in co-ops had changed their majors as opposed to more than 40% of students not participating in co-ops. Drysdale et al. offered five potential reasons why participants changed their majors:

- a new major appeared more interesting (30% of respondents);
- staying with the initial major would negatively affect future goals (23% of respondents);
- dissatisfaction with the initial major (17% of respondents);
- a desire to add or drop multiple specializations (16% of respondents); and
- difficulty of the initial program (14% of respondents).

It is important, however, to bear in mind the limitations cited by the authors themselves (i.e., small sample size in a single university which offered co-op learning opportunities in all academic majors) in relationship to these latter findings, particularly since none specifically mentions the co-op experience (Drysdale et al., 2015).

Researchers have also investigated the effect WIL has on employment outcomes such as gains in employment due to marketable skill development, realistic job expectations and career development, and higher wages upon transition into the workforce. Scholars have further identified reasons employers hire co-op participants. These reasons include critical thinking, written communications, and oral communication (Perry, 1989; Raymond, et al., 1993; Maskooki, et al., 1998), and problem-solving (Molseed, et al., 2011). A qualitative component of the Sprandel (2010) study revealed employers preferred to hire co-op participants due to the students' initiative to have a workplace experience and the students exhibited a higher level of experience, professionalism, and achievement. This finding is in keeping with previous research findings that employers like to hire co-op participants. Corporate Voices (2012) explored the effect WIL partnerships have on business by profiling 22 case studies of best-practice companies. Positive returns reported by these companies included enhanced brand recognition and building an engaged and diverse talent pool with better skills, yields that increased through the leveraging of each company's relationship with its respective academic institution. In a dissertation at the University of Rhode Island and Rhode Island College, Washor (2015) studied 315 undergraduate internship students and confirmed both the participants and their supervisors noted significant improvements in communication, initiative, teamwork, and analytical soft skills at the end of a 13-week internship experience.

Tanaka (2015) surveyed the perceptions of 1,353 alumni of Koyoto Sangyro University, located in Motoyama, Kamigamo Kyoto, Japan, regarding their employment outcomes after graduation. The majority of respondents were male, mostly in their 20s with an average of two, but no more than five years of working experience. In his study, Tanaka used a regression analysis of the following dependent variables:

- full-time/part-time employment status;
- number of jobs worked since graduation;
- desire to continue in current job;
- skill to express own opinion;
- skill to cope with stress;
- view of promotion as important;
- set-up of own business; and
- perception of a need to acquire new skills.

Tanaka's independent variables were sex, number of working years since graduation, program of study, GPA in the first year and in the third year, participation in WIL courses, participation in an introduction course, number of career-oriented courses taken, and participation in a small class. As was anticipated, Tanaka found WIL participation led to more realistic expectations for a long-term career versus an immediate promotion.

Australia and United Kingdom scholars from Edith Cowan University in Joondalup, and University of West England in Bristol, Jackson and Wilton (2016), determined graduate and undergraduate students participating in WIL placements developed career management competencies their peers not participating in WIL placements did not. Jackson and Wilton surveyed 136 United Kingdom students and 344 Australian students with the DOTS instrument that was originally developed by Law and Watts (1977) and measured elements of decision learning, opportunity awareness, transition learning, and self-awareness to determine employability. The DOTS model is well accepted by other researchers for summarizing personality dimensions relevant to self-management of careers, and reported WIL placements had a significant effect on a student's ability to self-assess work-related capabilities, insight into

the realities of a profession, exposure to guidance and mentoring by established professionals, and enhanced confidence, career planning and networking (p. 281).

Employment outcomes such as wage gains after participation in WIL have been the subject of multiple researchers. Gardner and Perry (2011) and Gault, et al. (2000) noted increased salaries as a benefit of work-integrated learning experiences. Gardner and Motschenbacher (1997) conducted a 1997 study on engineering students at a Midwestern public university from 1979-1989 and found students participating in three or more co-op experiences earned $4,000 more on average, and students taking part in one or two co-ops had entry wages $1,000 higher on average when compared with students who had no co-op experiences. As her doctoral dissertation, Grover-Bisker (2011) found graduates from Missouri University of Science and Technology located in Rolla, Missouri, from 2008 to 2010 who had participated in co-op programs could expect to receive a 9% greater starting salary, which was statistically significant, and find jobs in their respective fields at a significantly higher rate (i.e., 1.49 times more likely) than those who did not participate in co-op programs. Lentz, et al. (2011) conducted an extensive examination of data collected in a representative sample of the Baccalaureate and Beyond 1993-2003 Longitudinal Survey and compared the first year and ten year earnings after college of co-op and internship students with other students who did not participate in a WIL experience. Lentz et al.'s study discovered students participating in co-ops experienced positive wage gains the first year after graduation over those who did not participate in a co-op, which was still apparent 10 years after graduation. Internship and apprenticeship students did not experience this wage gain (Lentz et al., 2011).

A few researchers have excluded academic achievement and positive employment outcomes as benefits of work integrated learning. As examples, Sprandel (2010) compared the

mean salaries of co-op graduates from the Sam M. Walton College of Business Career Development Center located within the University of Arkansas in Fayetteville with its non-co-op graduates and found no statistical difference in the salaries earned by WIL participants and non WIL participants. Grover-Bisker (2011) also found participants in a co-op program did not achieve significantly higher GPAs, while Tanaka (2015) reported the higher a student's GPA, especially in the third year, the lower the graduate's satisfaction with work, though WIL mitigated this negative finding.

Research Documenting Challenges with Work-Integrated Learning

Much research in this review concentrates on marketable skills learned at the institution and at the workplace, which increase during WIL participation. For example, a Brisbane, Australia, study at Griffith University by Crebert, et al. (2004) showed a persistent divergence in the perceptions of employers and graduates when they compared employment challenges faced by graduates in 2002 with those who graduated in 1991. This "Griffith Project" investigated whether increased WIL curricular changes implemented in undergraduate programs reduced the gap in perceptions of graduate preparedness. These changes became necessary when national and international critics accused Australian universities of producing highly specialized technicians and not well-rounded and holistically educated graduates. Crebert et al. discussed the following findings:

- Employers and graduates perceived the purpose of a university education differently. Employers perceived the graduates exhibited desirable theoretical and technical knowledge. The graduates surveyed, however, instead thought a college degree should prepare them with practical and portable (i.e., generic) knowledge, and the students

placed less importance on their acquisition of technical knowledge, such as informational literacy and communication technology competencies they had gained.

- Both employers and graduates were unsatisfied with the university's work-readiness curriculum.
- Employers felt graduates had unrealistic expectations of employment, although the graduates' expectations were in keeping with current research. The realistic career expectations of the graduates were possibly attributable to the curriculum change of increased WIL in undergraduate degree programs.
- Both employers and graduates agreed less emphasis on traditional teaching and learning and a greater emphasis on practice-based approaches with reflection were needed.

Stakeholder perceptions of the desired outcome of a WIL partnership may also change over time. Coll and Zegwaard (2006) conducted a quantitative study of science and technology and engineering degree-seeking students at the University of Waikato in New Zealand and found that student, faculty, and employer perceptions of graduate competencies today and competencies that are anticipated in 10 years' time are not aligned. The findings of Coll and Zegwaard were as follows: (a) new graduates need to be highly- and multi-skilled; (b) science and technology respondents emphasized the need for cognitive skills; (c) the role of new graduates was more likely to be in science rather than in positions of management; and (d) in 10 years, graduates will need to be even more highly- and multi-skilled. None of the themes which emerged from Coll and Zegwaard's (2006) study identified tacit or soft skills usually noted by industry as desirable.

In a joint research project conducted by Michigan State University and MonsterTRAK, a subsidiary of a global online career and recruitment resource, Chao and Gardner (2008)

described survey results from over 10,000 workers between the ages of 18 and 30 and over 700 managers who employed workers from that age demographic. Chao and Gardner showed neither young workers nor their supervisors viewed work to be a "central life issue" for young adults. Additionally, the managers perceived, more so than the young workers believed about themselves, that young workers viewed themselves as superior to others and they were more likely to be unsure of their career goals (Chao & Gardner, 2008). The managers in Chao and Gardner's study stated retaining young adults is difficult and most recent college graduates will leave their first jobs in 12 to 16 months, instead of three to four years as was a past norm. According to survey results, young workers wanted varied and autonomous projects with good feedback from their supervisors, promotion forecasting and career planning, developmental assessments, special onboarding experiences, and formal job rotation programs. Managers did not find these practices to be effective retention devices, however; instead, they used tuition reimbursement (26% of respondents), good health benefits (24% of respondents), in-house training (24% of respondents), performance bonuses (22% of respondents), flexibility in work hours (22% of respondents), and other job-related practices (Chao & Gardner, 2008). Gardner and Perry (2011) noted employers and past WIL program graduates do not exhibit this gap in perceptions and have lower turnover rates.

An evaluation of the WIL programs with the Turkish auto industry by Arslan and Surmen (2009) at Uludağ University in Görükle, Turkey, revealed troublesome issues:

- dissatisfaction with the recent level of collaboration between the university and the industry;
- inadequate preparation of most WIL students' technical skills;

- a gap between anticipated performance of WIL students and actual performance of the WIL students; and
- student perceptions of social isolation, due to the disciplined workplace that created a general dissatisfaction on the part of the students with their WIL worksites.

Arslan and Surmen, however, did find the WIL program created a pool of qualified workers, for which car manufacturers Fiat and Tofas were appreciative.

Gardner and Perry (2011) contributed to this discussion of changing perceptions of qualified workers who have recently graduated from academia. A convergence of economic globalization, demographic composition of working populations, and technology has placed new pressure on entry-level workers (Chao & Gardner, 2008; Gardner & Perry, 2011; Hanneman & Gardner, 2010). These studies suggest new hire turnover rate makes job training inefficient through traditional processes and employers now expect college graduates to adapt their academic learning to the workplace, becoming star employees immediately by communicating effectively, collaborating in team settings, acquiring job knowledge, and understanding issues associated with the work environment.

Barriers to effective WIL programs have been identified by several authors. Alteraifi (2005) reviewed the WIL program at the United Arab Emirates University because excess demand had been created by 1,154 students from seven academic areas who desired internship placements with 384 government and private agencies. The result of Alteraifi's review was the identification of three barriers to a robust WIL system at that university as follows:

- creation of an automated process to manage components of WIL that would be accessible, comprehensive, and functional was needed;

- resistance of the faculty to institutionalizing WIL in academic disciplines, such as the humanities and social sciences, was present; and
- an educational campaign conducted for industry that touts the benefits of hiring humanities and social science students for a WIL program was desirable.

The economic model of WIL can be a barrier to implementation of WIL programs as well (Bennett, 2008; Tanaka, 2015). A cost-benefit analysis on WIL programs was difficult to ascertain, according to Bennett, due to the difficulties of measuring both tangible and intangible outcomes, such as wage gain over a period of years, soft skill acquisition, and identifying significant tacit elements of WIL curricular models. Tanaka (2015) agreed, but developed a formula to analyze the economic return of co-operative education within a student framework of human capital investment. Tanaka concluded the WIL experience was economically beneficial to the student if the difference between the cooperative education wage premium (i.e., the present value of deferred full-time wages for the year the co-op took place) minus the cost of the annual cost of attending the institution of higher education was greater than the first-year earnings of a non-co-op graduate favors the co-op graduate.

An undercurrent theme of risk is associated with WIL experiences (Gamble, et al., 2010; Newhook, 2013; Mutereko & Wedekind, 2016; Partners, n.d.). According to this research strand, the students, most of whom are in a fragile state of un- or under-employment from the start, risk injury and failure when, after much personal, familial, and financial sacrifice, the employer partner may dismiss them from full-time employment due to hard-to-quantify issues such as "goodness of fit."

The higher education institution, which has two clients in a WIL experience (i.e., the student worker and the industry partner), risks its reputation with both entities (Narayanan, Olk

& Fukami, 2010; Newhook, 2013). If employer partners do not retain students representing the college's programs, then it may become known to other potential students and the industry itself the institution is not adequately preparing its students to meet workforce needs. Gamble et al. (2010) documented this risk for universities, when they found international students in Brisbane, Australia's, Industrial Affiliate Program of Griffith University were not being retained by local business managers who believed these students would have difficulty norming to corporate values due to poor language skills, different cultural backgrounds, and a desire to return to their homelands. Universities should internationalize their WIL programs, Gamble et al. urged, to establish partnerships with multi-national companies, where bi-lingual abilities and multi-cultural sensitivities are valued.

Newhook (2013) addressed risk exposure (e.g., litigation, liability, and the extent of duty of care responsibilities) that 10 Canadian universities assume when placing WIL students at an off-campus employer site. Themes which emerged from interviews with 14 coordinators of educational co-op programs included understanding of risk, responsibility to manage risk, and lack of training support from administrators on how to mitigate risk. It is interesting the coordinators' self-assessment of their understanding of risk and risk management did not always correlate with experience in WIL programing. While coordinators acknowledged a responsibility to manage risks assumed by the institution, Newhook discovered some felt university administrators and company managers shared in the responsibility of risk management. Additionally, Newhook reported the coordinators felt they were not adequately prepared via education/training and institutional polices to manage risk effectively (Newhook, 2013).

WIL programs can fail for a multitude of reasons. Mutereko and Wedekind (2016) conducted a case study at a university of technology in South Africa and recommended

elimination of mandatory WIL from the engineering curriculum because of low completion rates, graduates who were not work-ready, and industry misuse of the placement of WIL students (e.g., using the students as short-term, temporary workers doing jobs that had little relevance to the WIL curriculum). Additionally, the researchers identified problems with work placements, such as a shortage of accredited businesses for placement, the long distances between the university and the placement sites, and access to the placement sites by the academic evaluators due to safety regulations (Mutereko and Wedekind, 2016).

Notably, industry has much at stake as well. Partners for a Competitive Workforce (n.d.) projected an employer's recruitment cost for a single employee may reach as high as $1,900. The major cost, however, of onboarding a new hire in all sectors is the cost of on-the-job training. Partners explained that during this time, new hires within the manufacturing industry, for example, exhibit low productivity and require high levels of supervision from their managers that can result in a calculated cost of $91,000 per machine operator hired. Partners conceded this cost can be reduced by as much as $27,300 per new machine operator hired if the manufacturer will partner with an educational provider. Regardless, the cost of onboarding a new entry-level worker in the manufacturing industry is substantial, and the industry partner bears this risk alone.

Effective Design and Implementation of Work-Integrated Learning Programs

Learning theory grounding WIL stemmed first from Dewey's (1938) experiential learning theory, which espoused the principles of (a) continuity, in that learning is based upon and directed by what has been learned previously, and (b) interaction of external and internal forces. These internal and external forces are social control (both intrinsic and extrinsic), freedom to observe and to judge consequences of learning (i.e., purpose), and organization of subject matter that falls within ordinary life circumstances and is structured around the method of

scientific inquiry – all of which indicates empirical and contextual experience is both the means and the end of education (Dewey).

Dewey's sound philosophy of experience was further refined by Kolb in 1984. By drawing on the work of John Dewey and combining it with influences of Kurt Lewin (1947), Jean Piaget (1936), William James (1907), Carl Jung (1946), Paulo Freire (1968/2005), Carl Rogers (1951) and others, Kolb developed a holistic model of learning based on six propositions (Kolb, 1984). Kolb's argument is learning is a process that (a) is continuous, (b) consists of relearning prior experiences, (c) is energized by clashing ideas, (d) relies on adaptation to the environment, (e) is transactional between the learner and the environment, and (f) creates knowledge. McRae (2015) also contributed to the theoretical understanding of the field through her proposal of transformative learning that views WIL as a practice that includes dialectical processes, vibrant connectivity between the student and the workplace, supportive systems, and learning that takes place over time (p. 141). Mate and Ryan (2015) concurred and stressed the incorporation of narrative practices such as self-reflection and journaling, not only for the evaluation of student learning, but also to increase the retention of students in the workplace by helping the students/workers develop resilience.

A model of effective WIL designs has been contemplated by scholars recently. A model for effective internships was constructed by Narayanan et al. (2010), which the authors believed would be useful for scholars to test theories regarding the human capital investment in experiential learning. Narayanan et al. developed an instrument generated through a process of interviews and focus groups with employers, university officials and members of the faculty, and from a review of related literature. Sixty-five graduates from a single Portugal university responded. Data collected allowed Narayanan et al. to test the significance of various constructs

and their correlated antecedents to expand their understanding of the process for effective internship design. The scholars learned elements important for the institution were selection of the advisor and student preparation, while student learning and project development/implantation were critical elements for businesses (Narayanan et al., 2010).

Bandaranaike and Willison (2015) suggested WIL should range from well-established cognitive development pedagogy to more affective instruction, where students can acquire the emotional work readiness which is desired by industry. Bandaranaike and Willison coded and interpreted themes that emerged from the reflective journals, essays, and responses to interview questions of 138 WIL students at James Cook University in Australia, and 111 WIL employers. Emotional work readiness deficiencies identified by Bandaranaike and Willison included interpersonal relationship challenges due to the WIL students' not understanding communication styles (21%), visualizing sex and age discrimination (26%), understanding speech (e.g., accent, modulation) (10%), accepting dissimilar habits and perceptions (15%), and understanding ethnic and cultural diversity (11%) of those in the workplace (p. 228).

From a less theoretical viewpoint, Coll and Zegwaard (2006) stated the multiple stakeholder views of a WIL partnership (i.e., business and industry, colleges and universities, and students) must align before designing a curriculum for work-integrated learning. Knouse and Fontenot (2008) reported the internship process improves with active student and employer participation, well-defined expectations, student screening based on attitude and skill mix as a prerequisite, use of mentors, and reflective journaling. "A talent development solution," proposed by Corporate Voices (2012, p. 3), encouraged industry to contribute resources such as tuition assistance and scheduling flexibility to maximize "workplace performance while supporting the education and career aspirations of working learners."

Professional development for faculty, students, and employers is an underlying theme of model WIL program design as well. Alteraifi (2005), a researcher at United Arab Emirates University in Abu Dhabi, outlined a WIL system that incorporated best practices from international researchers. This broad-based approach included the following features in the comprehensive model:

- professional development, which emphasized the student and workforce benefits, delivered to university faculty and area employers;
- internship assignments that allowed students to develop new skills and make meaningful contributions to employers;
- academic coordinators selected based on experience in the industry where the WIL students would be placed and provided with professional development on how to operate the jointly-supervised, worksite-based education system;
- work-site trainers who closely monitored and mentored the WIL students;
- job descriptions that accurately described the positions for students and managed unrealistic expectations for employers;
- interns who were prepared, due to close links between job training and related instruction, and committed to careers in the industries in which they were placed;
- informal evaluations that addressed specific feedback and follow-up regarding improvement of intern performance was given frequently by academic coordinators;
- single geographic job location that was maintained for the duration of the internship; and
- central WIL program support that was directly accountable to the upper administrators of the university.

Murphy and Calway (2008) examined research related to WIL and how WIL provides graduates with professional development early in their careers, which is beneficial to the student, the employer, and professional associations. As a result of this review, Murphy and Calway proposed higher education institutions have responsibilities to prepare students beyond technical competencies, and should also equip them for life-long professional development by challenging students to apply knowledge to complex scenarios which require self-directed learning, like that which occurs in model WIL programs.

Freudenberg, Brimble, & Cameron (2010) incorporated professional development in a more direct way with their study that placed first-year business students who were enrolled at Griffith University in Australia into a WIL program that included professional development workshops and learning communities or pods, each comprised of nine students, two representatives from industry, and one faculty advisor. A comparison of the WIL students with a control group of non-WIL students after only one year revealed to the researchers significant increases in generic skills areas and overall performance of the students, though at the beginning of the study the reverse was true. Freudenberg et al. (2010) developed a professional development program that aided WIL students in acquiring three generic skills: oral business communication, creativity/flair, and problem-solving.

Hanneman and Gardner (2010) revealed professional network creation and maintenance are among the most important success strategies for new graduates and recommended they be incorporated into WIL programs. Perry (2011) conducted a qualitative study of recent graduates in Oklahoma as a part of her doctoral dissertation and determined early success in a graduate's transition to the workplace depends on professional practice being incorporated into academic

programs, management of student expectations, and assistance in the creation of professional relationships before graduation.

Some scholars have contributed practical frameworks to use when designing WIL programs. Smith (2012) created a measurement instrument, validated by Australian and United Kingdom students, identifying key dimensions of WIL program design to include the following:

- authenticity (i.e., real work site with meaningful and relevant learning);
- integrated learning supports at the university and at the worksite;
- alignment of teaching and learning activities and assessments with integrative learning outcomes; and
- supervisor access and orientation processes

An Australian scholar, Jackson (2015), conducted an online survey of 131 Edith Cowen University students who had completed WIL placements at businesses in Joondalup. The instrument consisted of open-ended items, which were derived from a template associated with non-technical competencies previously operationalized within the institution to survey its graduates. The items requested WIL participants identify the classroom and work site learning activities and assessments that aided in their accomplishment of the specified skills and behaviors. Jackson's (2015) results emphasized the importance of skill development during a WIL placement, if it builds on traditional classroom learning. Deficiencies in student learning occurred if there were inadequacies in placement or in course content, structure, and design (p. 364). Establishing effective methods for communication, goal setting, self-reflection, and performance reviews between the placement and academic organizations were significantly important, Jackson learned.

Fleming (2015) conducted a case study of Auckland University of Technology's Bachelor of Sport and Recreation WIL participants, involving 91 students, 18 academic supervisors, and 28 industry supervisors. Data in Fleming's study were collected via a questionnaire of similar items customized by the three categories and followed by less structured interviews of a subset of each of the groups. Fleming's emerging themes were categorized as (a) direct guidance by industry supervisor, along with dialogue and social interactions with co-workers; (b) the attitude of the student; (c) academic support and feedback; and (d) critical reflections (p. 112). Fleming concluded both the industry supervisor and the academic supervisor are key to supporting student learning in WIL placements, in that the academic supervisor must create pedagogy with observable and measurable learner outcomes the industry supervisor must evaluate and from which students acquire both technical and soft skills. In a discussion of her research, Fleming emphasized academic supervisors were crucial to the students' ability to think critically as they reflected on ways they integrated classroom theory into real work environments. Fleming cautioned, however, this design must not place undue demands on the workloads of academic supervisors, which is viewed by some universities as an inefficient use of faculty members' time from a cost perspective.

Case studies were also used by Xia, et al. (2015), who provided examples of effective program design of WIL that linked research and teaching and created a win-win for academia and industry with the following recommendations:

- realize synergy through partnerships among the university, the students, and industry where students not only increase knowledge and skills, but solve real problems too;
- link research and teaching by embedding industry problems/issues of concern into the WIL program curriculum;

- utilize reflective and action learning methods and measure them through presentation assessments;
- build trust among all partners to ensure a long-term collaboration despite minor misunderstandings;
- allow for flexible deadlines for submission of assessments;
- incorporate research methods, experiential design, and scholarly literature into regular progress meetings; and
- monitor quality of the WIL program through student presentations to industry and by publishing the research in peer-reviewed conference papers and journals.

Action researchers, Clark, et al. (2016) wanted to quantify the faculty workload demands of WIL programs which Fleming (2015) and other scholars had noted as problematic. Clark et al. documented factors that typically increase the workload of faculty and administration, among them curriculum development/preparation, curriculum delivery, assessment of student learning, pre-semester informational and recruiting activities, industry partner recruitment and relationship maintenance, risk assessment/management, system design/development, research, and committee service/leadership. According to Clark et al. (2016), these factors reflect the dimensions of the diversity that encompass WIL related tasks. The dimensions were generated through a process of formal and informal consultations with the institution's leading WIL practitioners. From this matrix of duties, a draft survey instrument was developed that measured faculty, staff and administrator's perceptions of time spent with each aspect. Feedback on the draft document was collected and documented in several formal and informal meetings. After the survey was piloted, Clark et al. modified it, developed a diary-like spread sheet, and invited university employees to

participate in the survey. Finally, interviews were conducted that enriched the data. No findings, however, were reported as of the publishing date (2016).

To summarize, recent literature related to WIL reveals a consensus among scholars who identify benefits for participating students as an increase in academic performance; a smooth transition to the workforce at faster rates due to degree certainty/motivation and marketable skills; more realistic career expectations and development; and higher wages than non-WIL participants. Others recommend institutions collaborate with industry to create an authentic and effective WIL model that aligns teaching and learning activities with assessments that have learning outcomes designed to integrate technical knowledge with communication, team building, creativity, and problem-solving skills. Professional development of the students, faculty, and industry supervisors should also be incorporated into the program design, according to the literature associated with WIL.

CHAPTER 3

RESEARCH METHODS

The focus for this research was to determine whether West Virginia community college students participating in work-integrated learning (WIL) programs attained academic benefits that are documented in other parts of the United States and the world. Academic success in this study is defined by GPA and time to graduation. Two specific research questions originated from the review of literature:

1. Did business or information technology graduates who participated in WIL experiences earn higher cumulative GPAs than did business or information technology graduates not participating in WIL programs?
2. Did business or information technology students participating in a WIL experience demonstrate a shorter time-to-degree period than did business or information technology students not participating in WIL experiences?

Population

The population for this study were associate-degree-seeking business or information technology students in all of West Virginia's community and technical colleges during the academic years of 2011-2012, 2012-2013, and 2013-2014. The research population was not randomly selected. The participants were assigned for inclusion based on their enrollment status as business or information technology associate degree students at a community and technical college in West Virginia during the time period identified above. The students attended Blue Ridge Community and Technical College; Bridgemont Community and Technical College; Eastern West Virginia Community and Technical College; Kanawha Valley Community and Technical College; Mountwest Community and Technical College; New River Community and

Technical College; Pierpont Community and Technical College; Southern West Virginia Community and Technical College; West Virginia Northern Community College; and West Virginia University at Parkersburg Community and Technical College.[2]

The author selected business and information technology students as participants because those programs' curricula contained WIL classes that were both optional and/or stipulated as a graduation requirement and because a sufficient number of students was enrolled in those programs.

Study Design

The research was designed as a descriptive, non-experimental, post-facto study involving secondary analysis of existing data. Non-experimental designs lack the random selection of the population and do not manipulate independent variables (Price, Jhangiani, & Chiang, 2015; Salkind, 2010). A non-experimental design was appropriate because the research questions focused on relationships, the independent variable could not be manipulated, and the participants could not be randomly assigned (Price et al., 2015; Salkind, 2010). The study was post-facto because it analyzed archived data.

Variables

Participant cumulative grade point averages, data that indicated participant's graduation status at two and three years from initial enrollment, and also the year of each student's graduation were the dependent variables in this study. A student's participation in or lack of participation in a WIL experience served as the independent variable. As noted above, however,

[2] Bridgemont Community and Technical College merged with Kanawha Valley Community and Technical College in 2014 to form BridgeValley Community and Technical College.

this variable was not manipulated as it would have been with an experimental design. Extraneous variables that might have affected the dependent variables and were held constant as control variables in the research design were each participant's age, sex, race, major, and federal Pell grant financial aid recipient status.

Procedure for Data Collection

The author of this study reviewed each community college's catalogs for the academic years of 2011-2012, 2012-2013, and 2013-2014 and through content analysis was able to identify which of the courses offered by each institution would be included in the study based on whether a particular course was a WIL course. Key words and phrases used to filter through each institution's courses were a combination of internship, externship, practicum, and/or co-op coupled with words that indicated the enrolled student would be placed at an external worksite for the learning experience. Next the author cross-referenced each of the WIL courses with each academic degree's curriculum patterns contained in the catalog to determine if the WIL course was a requirement for graduation or was an elective course. All of these data were recorded on a spreadsheet and given to researchers at the West Virginia Higher Education Policy Commission (WVHEPC) to assemble archived data from the periods identified. The spreadsheet identified the academic year, the institutional identification number, the subject/department code of the relevant course(s), as well as each of the course numbers and titles; the spreadsheet also indicated whether the courses listed were required for graduation within a degree program or they were optional electives.

After consultation with the researchers at the West Virginia HEPC, the author determined to limit the major code of the graduates to business and information technology classification of instructional programs (CIP) codes for participants included in the potential data set. The reasons

for this limitation were (1) business and information technology programs were common to all of the community and technical colleges in West Virginia; (2) some of the institutional programs had mandatory WIL experiences within the curriculum and some were elective experiences; and (3) several of the studies within the literature review also looked at business or information technology students. The limitation of the study to business and information technology graduates may have excluded any apprenticeship students, because they may have been awarded a type of degree, where credit is awarded for experiential learning known as an occupational development degree.

The West Virginia HEPC used the submitted spreadsheet to develop a list of unique course registration numbers (CRNs) of relevant WIL courses (i.e., apprenticeships, internships, cooperative education, and professional practica) at each of the ten institutions during the identified period. This list of unique CRNs of WIL courses was used to select participants from the Commission's 2015 archived data that had been collected as census data. The researcher received these data after personally sensitive and distinguishable information had been removed. The dataset received from the West Virginia HEPC included each student's GPA, graduation status at two and three years from initial enrollment, year of graduation, major, age, sex, race, and whether the student received a Pell grant during their freshman year (an indicator of economic need). The author did not request for the type of WIL experience the graduates had participated to be identified.

Data Analysis

Inferential analyses were conducted to determine whether significant differences exist between WIL and non-WIL students in cumulative GPA and time to degree. Additional

independent variables that were categorical in nature (i.e., sex, race, and recipient of the Pell grant) were controlled for in analytical processes.

Limitations

Among the limitations to the use of existing data are those data were not originally collected to address the research questions of a particular study. It is also the case that some variables relevant to the study are not available because they were not collected or because they have been removed in order to protect the confidentiality of the sample or population. Another limitation of the secondary analysis of existing data is the researcher who is analyzing the data did not typically collect the data and is thus potentially unaware of either the existence of or rationale for gaps, oversights or omissions in the data collection process. These could possibly limit the explanatory power of interpretations based on the dataset. A close working relationship between the data provider and the researcher regarding the validity of the data, however, and clear and frequent communication concerning the researcher's request and needs have been employed to address and mitigate these potential problems.

Summary

This chapter provided information on the research design, population, data-collection techniques, and data analyses used in this study to determine the effects of WIL on students' cumulative GPA and time to degree. This research featured a descriptive, non-experimental, post-facto design, and focused on colleges included in the Community and Technical College System of West Virginia. Data were analyzed using SPSS Statistics 26 software.

CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

The findings and statistical analysis of data related to this study are contained in this chapter. The purpose of this study was to determine the extent to which Work Integrated Learning (WIL) experiences in community colleges in West Virginia are associated with academic benefits reported in scholarly literature, such as higher accumulative grade point average (GPA) and faster time-to-graduation. Research data on business and information technology graduates were collected by the West Virginia Higher Education Policy Commission's (HEPC) annual census of the 10 community and technical colleges in West Virginia during the 2011-2012, 2012-2013, and 2013-2014 academic years. SPSS Statistics 26 software was used to analyze these data. The research was designed to answer the following questions.

1. Did business or information technology graduates who participated in WIL experiences earn higher cumulative GPAs than did business or information technology graduates not participating in WIL programs?
2. Did business or information technology students participating in a WIL experience demonstrate a shorter time-to-degree period than business or information technology students not participating in WIL experiences?

Population and Sample

The 572 students who enrolled during the academic years of 2011-2012, 2012-2013, and 2013-2014 as first-time freshmen and subsequently graduated with a business or information technology major classification of instructional programs (CIP) code at any of the 10 West Virginia Community and Technical Colleges comprised the target population for this study.

(There were participants in the study that graduated with multiple business or information technology degrees. The author of the study removed 41 duplicated student records from the dataset to ensure that each student was represented only once.) Figure 1 illustrates the percentage of students assigned to each institution. Eighty-two students (14.3%) were enrolled at Blue Ridge Community and Technical College, 19 students (3.3%) were enrolled at Bridgemont Community and Technical College, 31 students (5.4%) were enrolled at Eastern WV Community and Technical College, 40 students (7.0%) were enrolled at Kanawha Valley Community and Technical College, 96 students (16.8%) were enrolled at Mountwest Community and Technical College, 43 students (7.5%) were enrolled at New River Community and Technical College, 41 students (7.2%) were enrolled at Pierpont Community and Technical College, 53 students (9.3%) were enrolled at Southern West Virginia Community and Technical College, 33 students (5.8%) were enrolled at West Virginia Northern Community College, and 134 students (23.4%) were enrolled at WVU at Parkersburg.

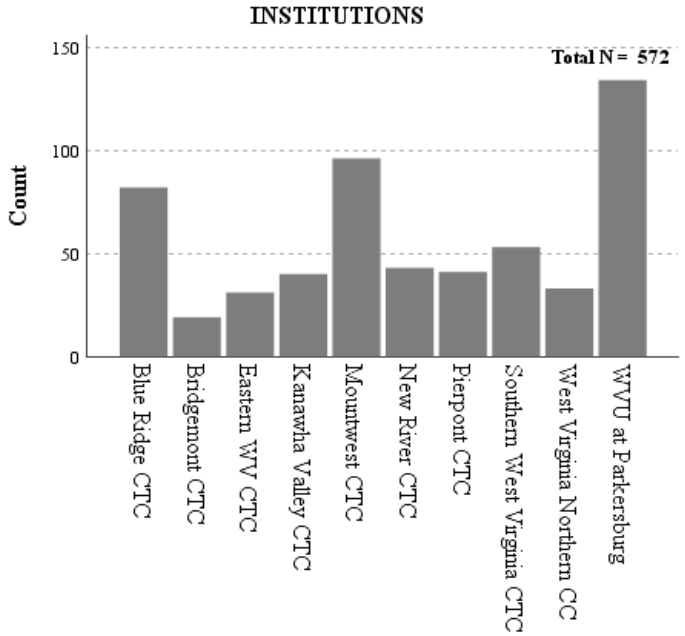


Figure 1. Representation of Participants from All West Virginia Community and Technical Colleges

The frequency of initial enrollment of the students was reasonably evenly distributed with 191 (33.2%) in 2011-2012, 198 (34.4%) in 2012-2013, and 183 (31.8%) in 2013-2014. See Figure 2. Most of the participants were seeking associate degrees (533 or 92.7%). Students seeking one-year certificates (29 or 5.0%) or who started as non-matriculating students (10 or 1.7%) were also represented in the population.

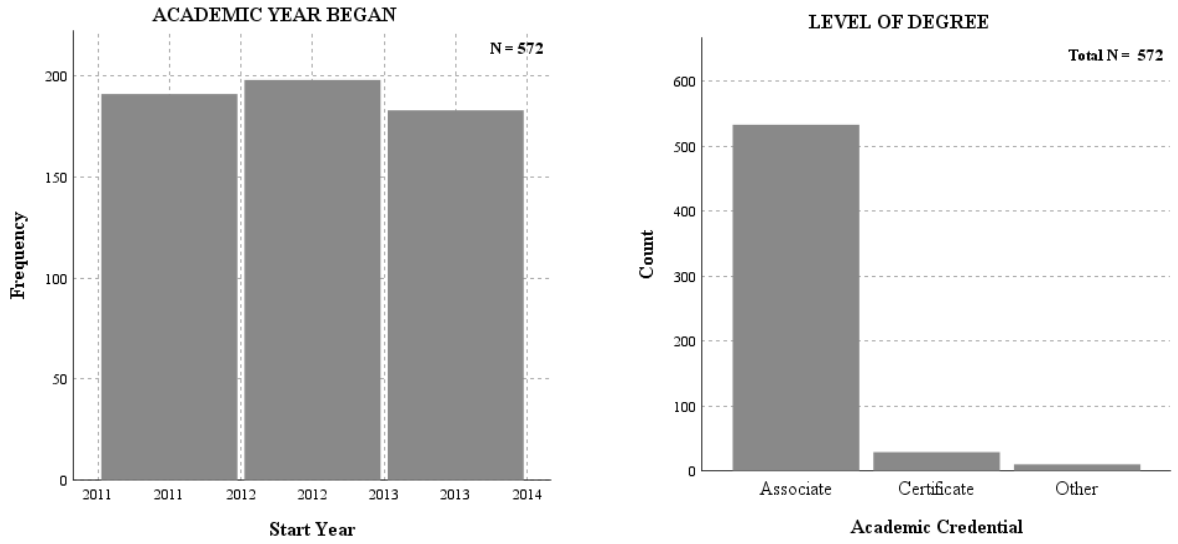
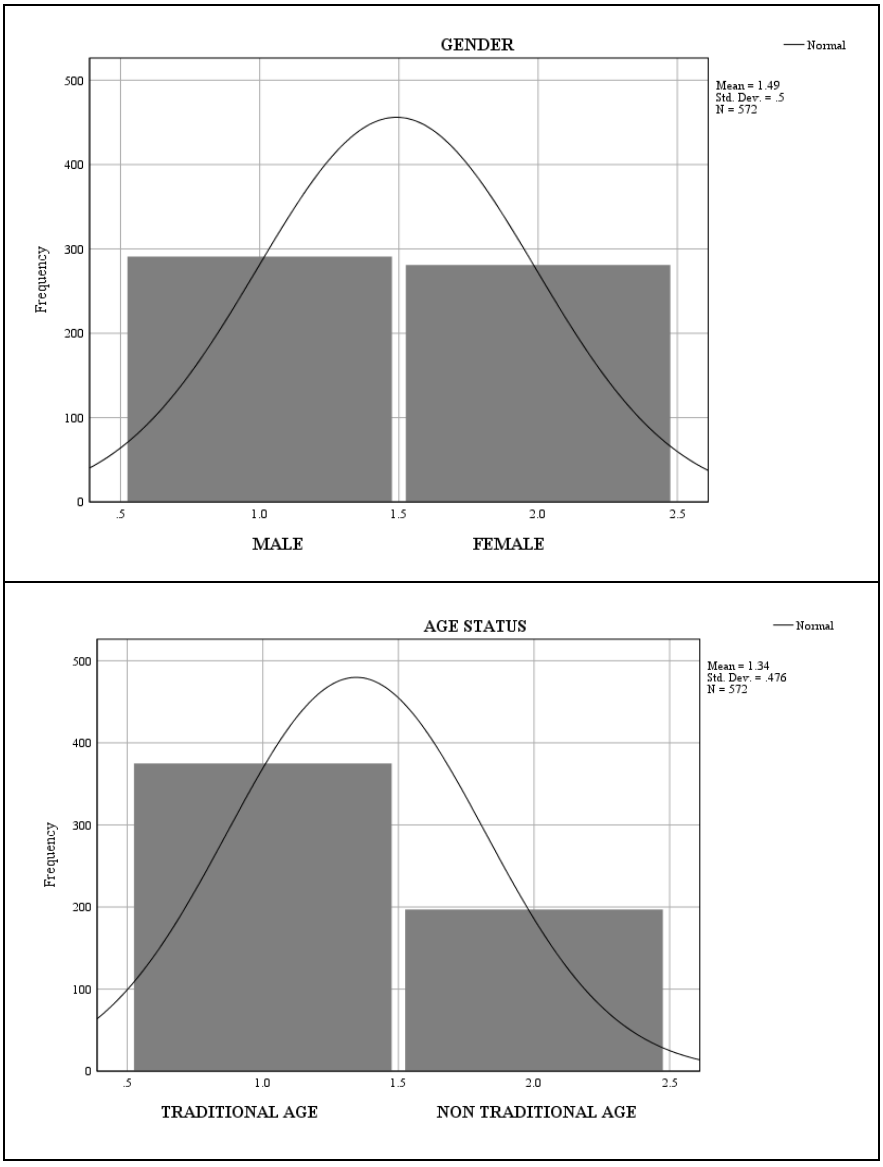


Figure 2. Academic Year and Degree Level

The gender of the population was evenly distributed with 291 (50.9 %) male and 281 (49.1) female. Most of the participants, 524 or 91.6% of the population, did not identify as representing a racial minority, while 48 or 8.4% of the population did self-identify as belonging to a racial minority. Most of the participants, 354 or 61.9% of the population, were economically disadvantaged as demonstrated by their status of receiving need-based federal student aid in the form of a Pell grant; 218 or 38.1% of the population were not recipients of Pell grants. Most of the participants, 375 (or 65.6%) were grouped into a traditional age range of 18-24 years of age,

while 197 or 34.4% of the population were categorized into a non-traditional age range of 25 years of age or older. Demographic characteristics of the population are shown in Figure 3.



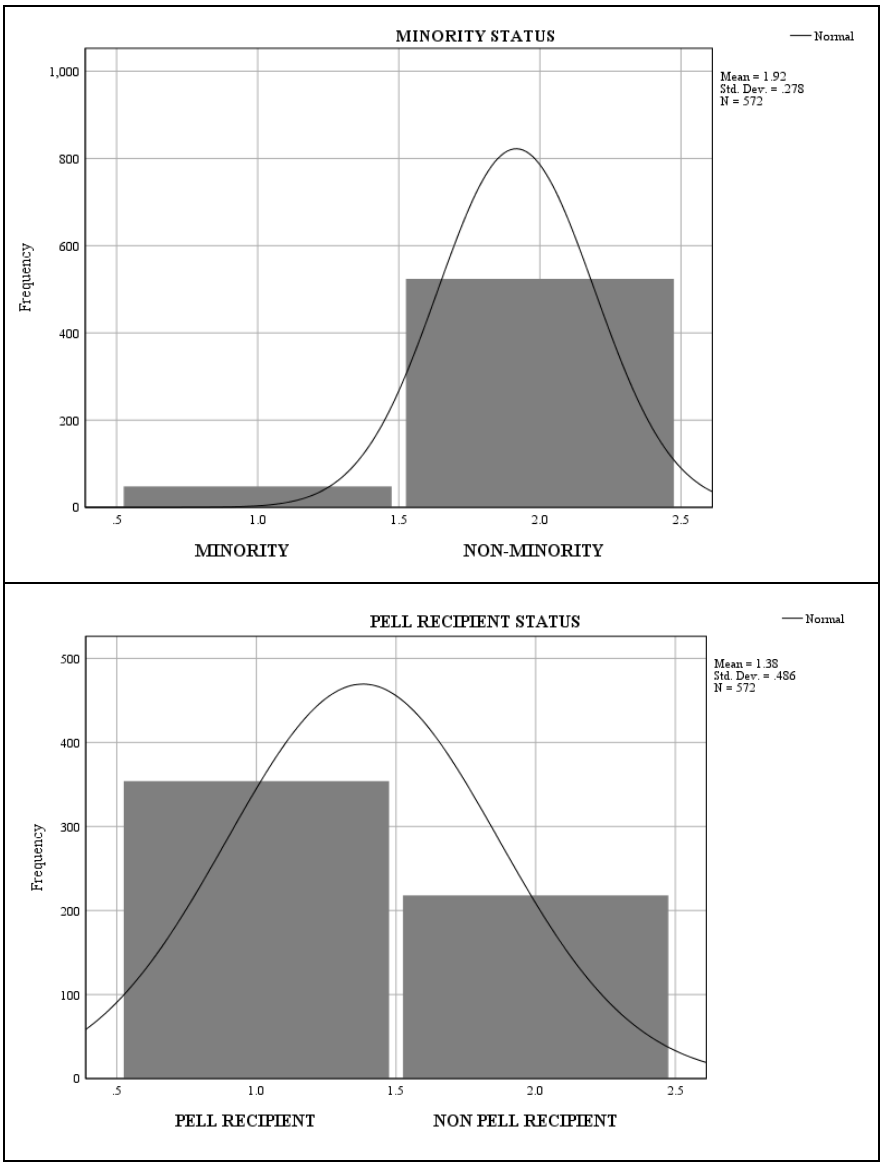


Figure 3. Demographics of Study's Participants

Figure 4 shows of the 572 participants, 101 students (17.7%) graduated in two years and 343 students (60.0%) graduated in three years. Please note within the figure, the second bar on each graph represents students who have graduated but not within the specific timeframe (2 years or 3 years). Figure 5 details the distribution graduation data of the study's entire population, where 28 (4.9%) graduated in 2012, 98 (17.1%) graduated in 2013, 167 (29.2%) graduated in

2014, 142 (24.8%) graduated in 2015, 94 (16.4%) graduated in 2016, and 42 (7.3%) graduated in 2017.[3]

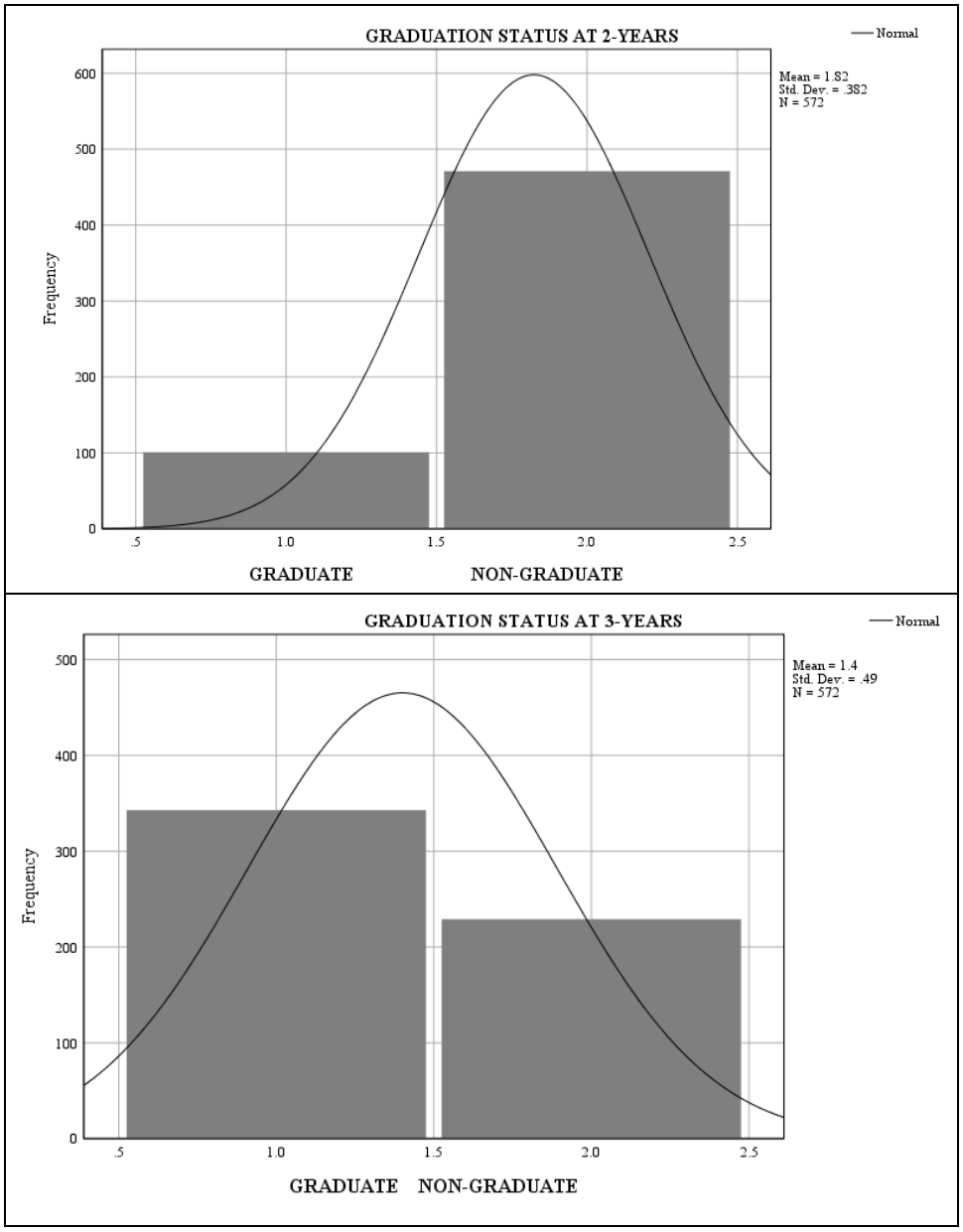


Figure 4. Graduation of Participants at Year 2 and Year 3 Periods

[3] Information suppressed, due to a sub-sample size of less than 10.

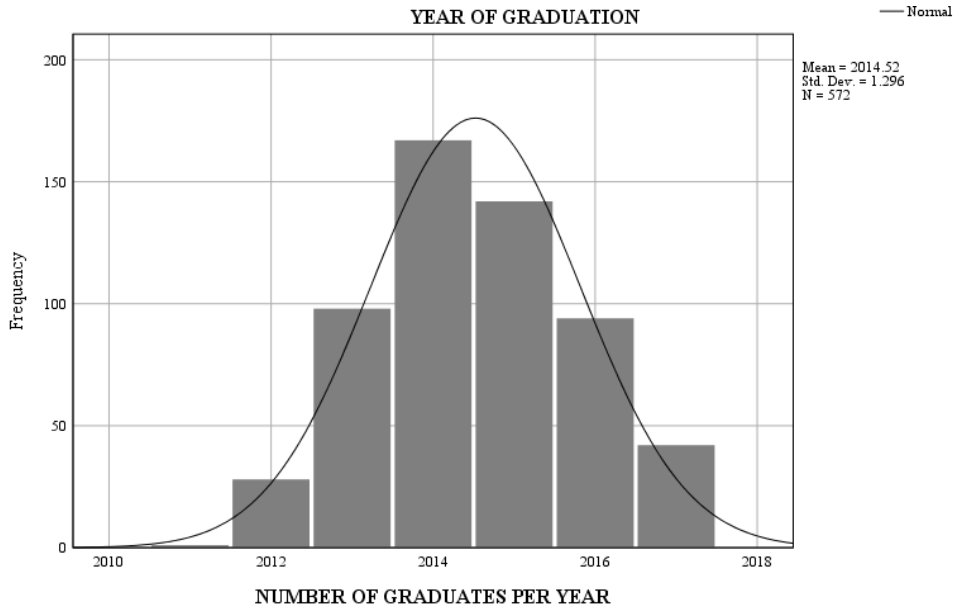


Figure 5. Distribution of Graduation Year of the Study's Participants

The mean GPA of these students was 3.25, within a range of 2.02 to 4.00 and a standard deviation of 0.48. With a skewness of -0.4, the GPAs of the participants are not normally distributed through the population as shown in Figure 6.

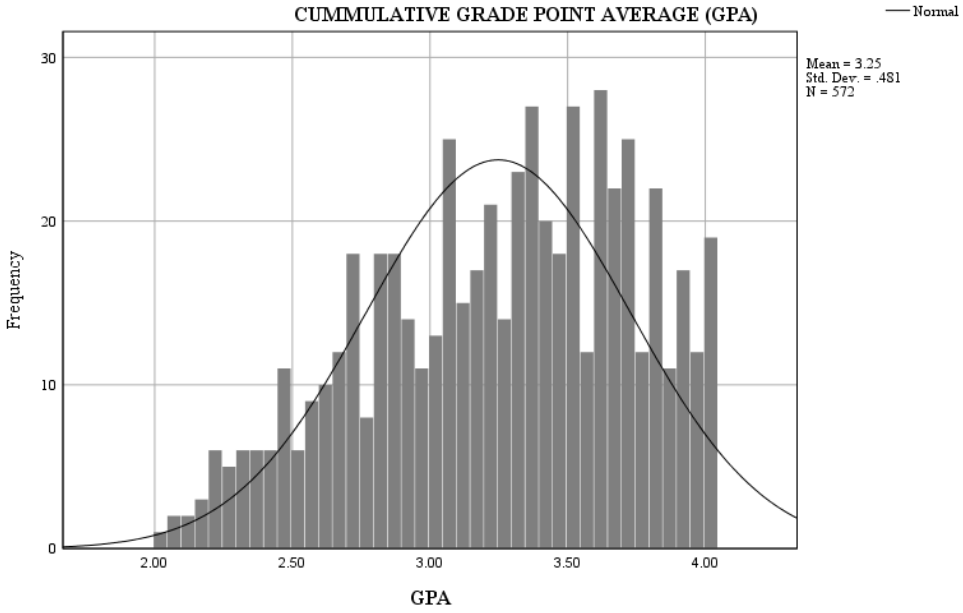


Figure 6. Grade Point Average Distribution

The most problematic concern with the dataset is that at 153 students, only a quarter (26.7%) of this study's population participated in work-integrated learning (WIL) during their enrollment in community college. The majority, 419 or 73.3%, did not. This unequal distribution is best demonstrated in Figure 7, where the first column shows the number of students who participated in WIL and the second column illustrates the number of students who did not participate in WIL. The data contained in this variable, however, is categorical and not continuous, inhibiting both measures of central tendency and tests of probability.

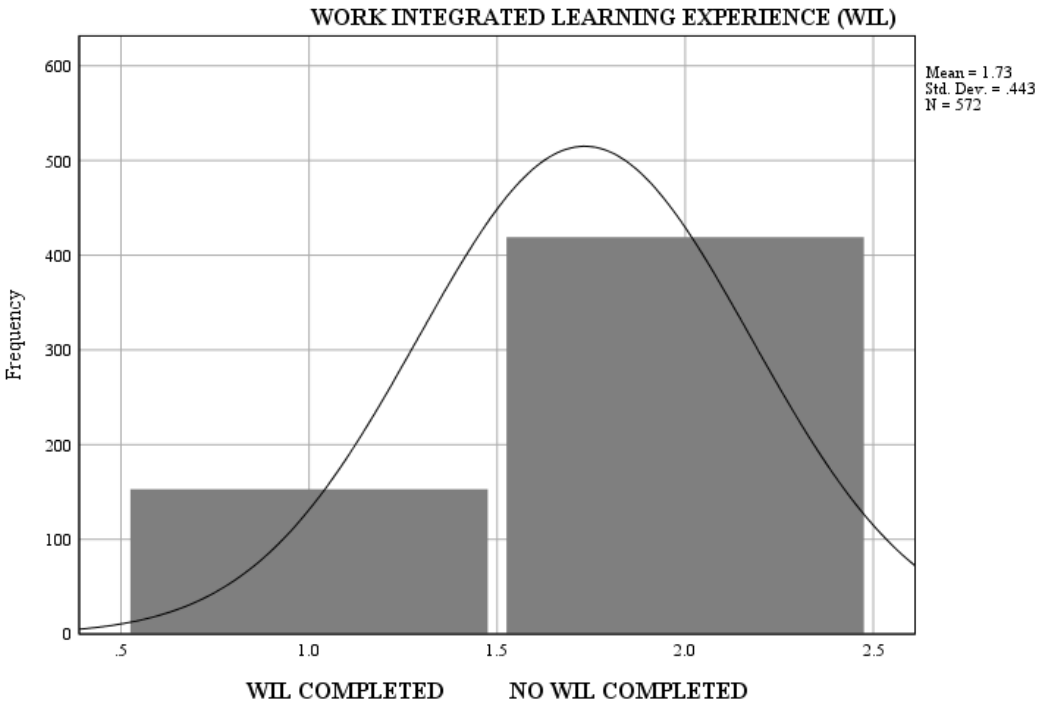


Figure 7. Work Integrated Learning Completed at West Virginia Community and Technical Colleges

While the extent of population asymmetry makes any typical transformation process to force the dataset to follow the Gaussian distribution unrealistic, three institutions did have a more normal distribution of students both participating and not participating in WIL experiences that could form a sample for statistical analysis. These three institutions were New River Community

and Technical College (43 participants or 36.8%), Pierpont Community and Technical College (41 participants or 35.0%), and West Virginia Northern Community College (33 participants or 28.2%). The total number of participants in this sample is 117 (*N* =117). See Figure 8.

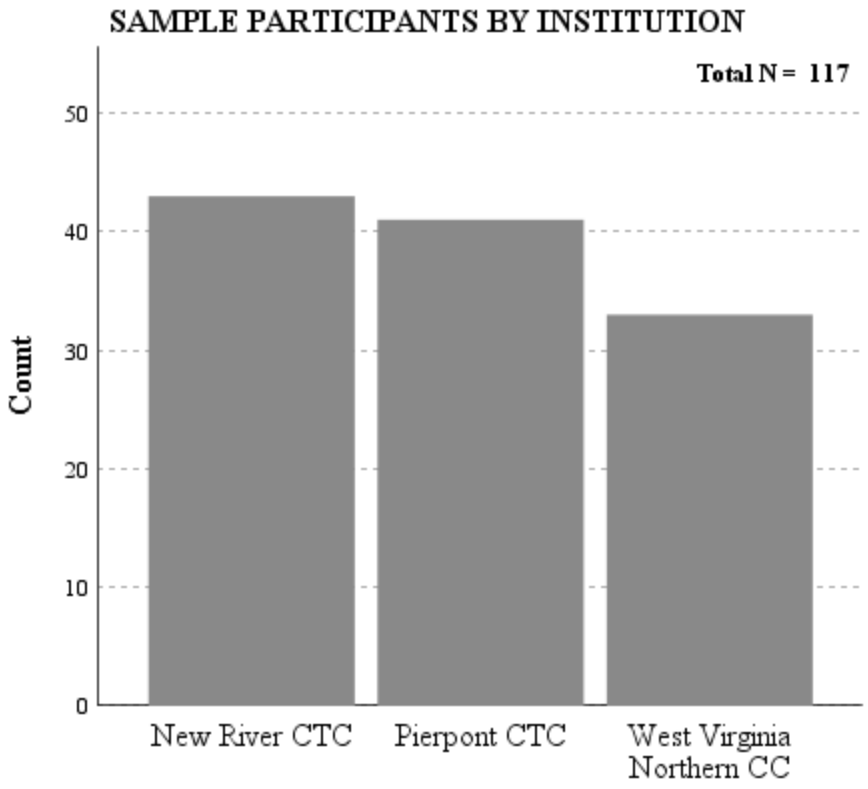


Figure 8. Representation of Participants from Sample

Data within this proposed sample show that 55 or 47.0% participants had a WIL experience and 62 or 53.0% not. Figure 9 illustrates a more normal distribution with a skewness of only -.121, when compared to distribution of the population.

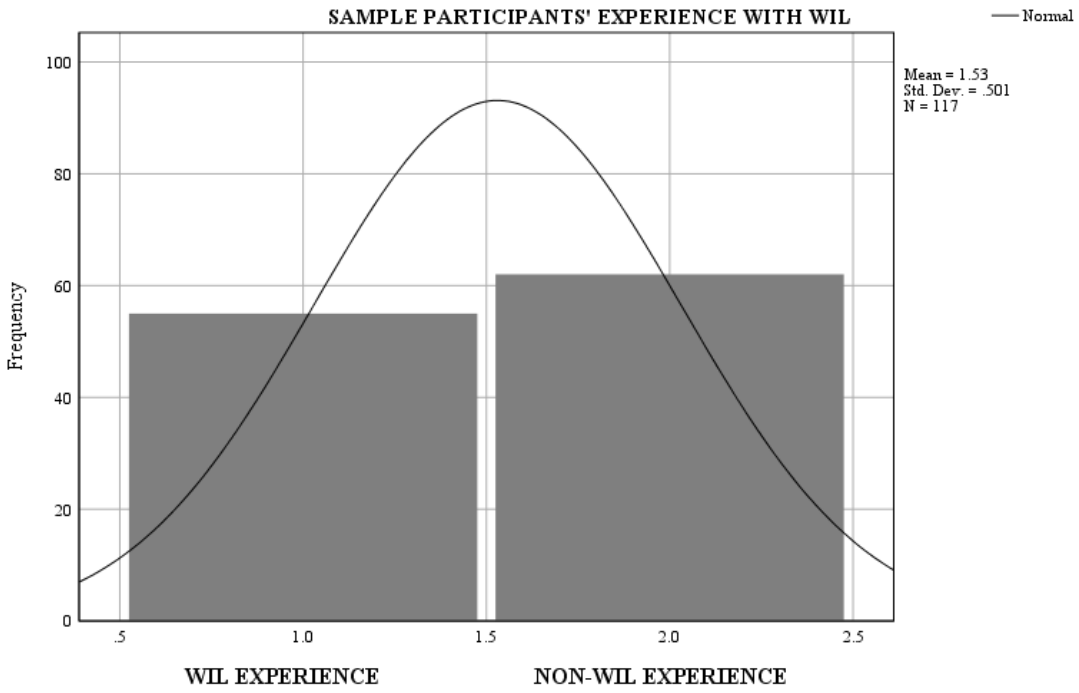


Figure 9. WIL Completed at Sample Institutions

Demographic and academic performance aspects of the proposed sample did, however, resemble the population of the study with one exception: the initial enrollment distribution of the 117 students is skewed at -.226 with 33 (28.2%) in academic year 2011-2012, 37 (31.6%) in 2012-2013, and 47 (40.2%) in 2013 – 2014. See Figure 10. The level of degree sought by the participants in the sample aligned almost perfectly with those in the population where most (104 or 88.9%) were seeking associate degrees, but certificates (12 or 10.3%) and other credential-seeking or non-degree seeking students were also represented.[4]

[4] Information suppressed, due to a sub-sample size of less than 10.

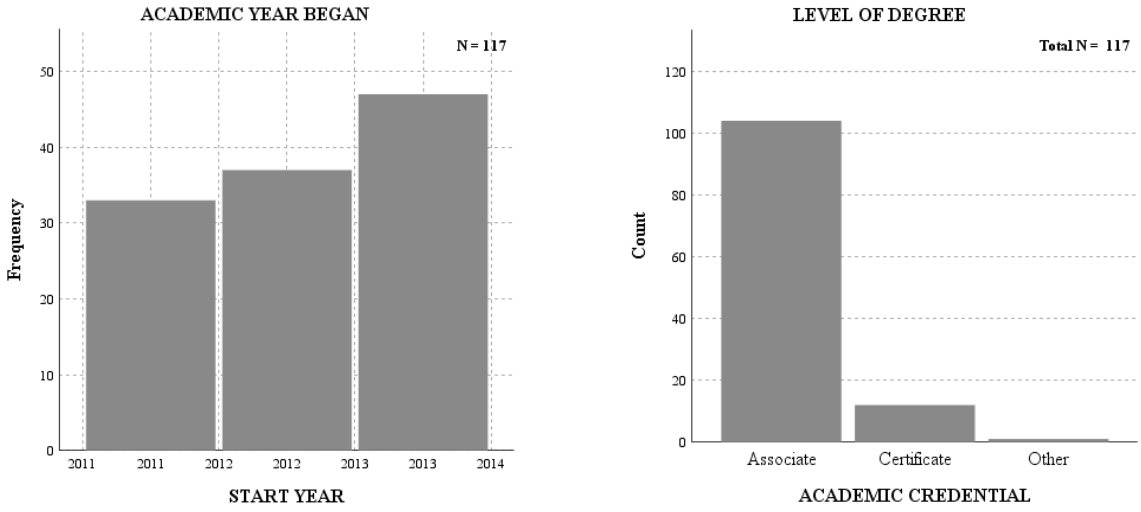


Figure 10. Academic Year and Degree Level from Sample

Demographic elements of the sample are reflective of the general population of the study. See Figure 11. The gender of the sample is normally distributed with 57 (48.7%) male and 60 (51.3%) female students represented. The participants self-reporting as minorities compared to the non-minorities within the sample are also representative of those in the study's population.[5] Economic status based on the sample participants' receiving need-based financial aid was also on par with the population, with 83 (70.9%) who received Pell grants and 34 (29.1%) who did not. Sample participants' age too was akin to those in the population, with 79 (67.5%) who were traditional students and 38 (32.5%) who were 24 years or older.

[5] Information suppressed, due to a sub-sample size of less than 10.

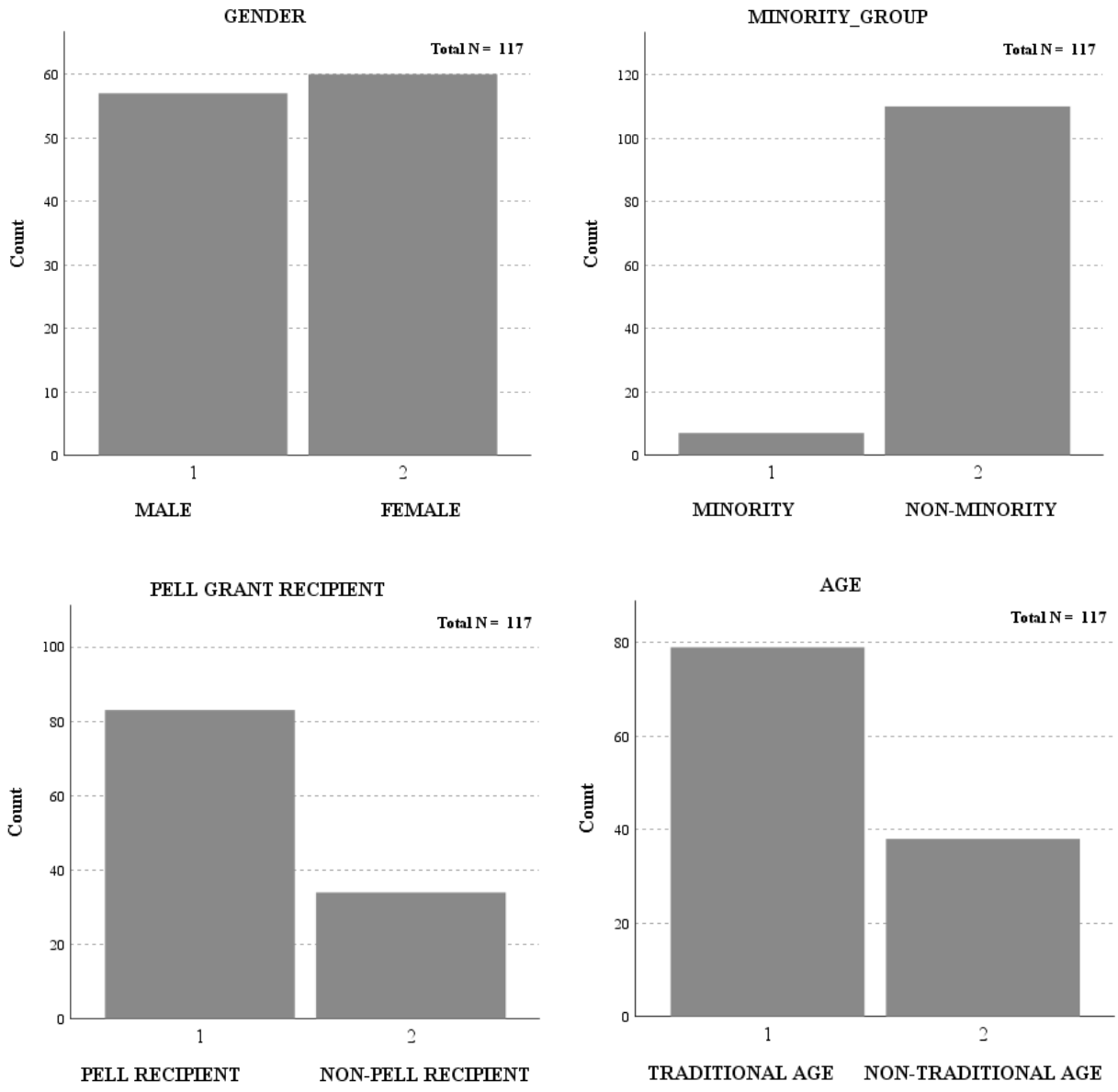


Figure 11. Demographics of Sample Participants from Sample Institutions

The number of students represented in the sample who graduated at a two year period (27 or 23.1%) and at a three year period (79 or 67.5%) from initial enrollment is also representative of the number of graduates in the general population. See Figure 12.

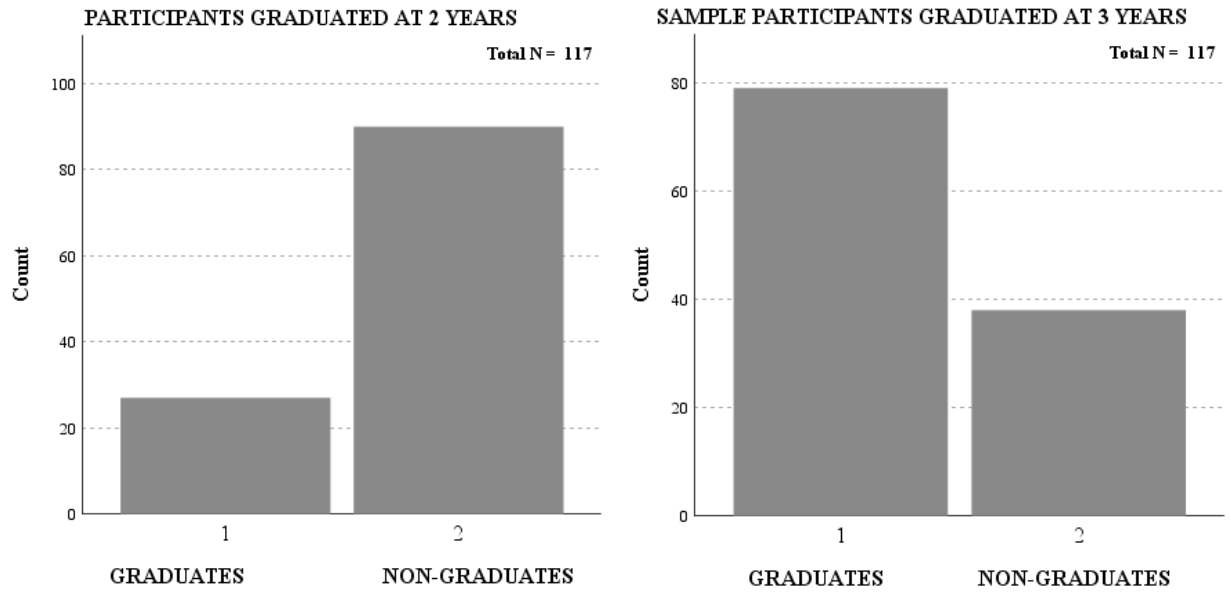


Figure 12. Graduation of Sample Participants by Year 2 and by Year 3 Periods

The author of this study transformed data by subtracting the year graduated from the year started and created a years to graduation variable. Figure 13 shows the majority of sample participants (77 or 65.8%) graduated between two and three years, but there were some outliers. [6]

[6] Information suppressed, due to a sub-sample size of less than 10.

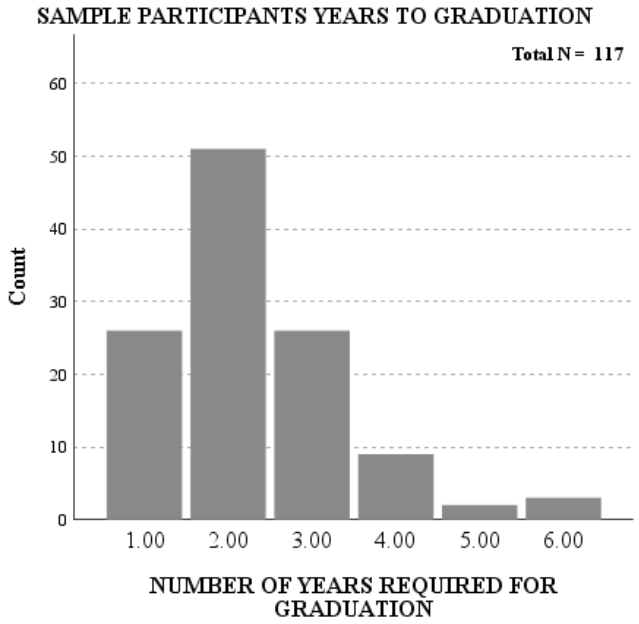


Figure 13. Distribution of Sample Participants by Years Required for Graduation

Figure 14 illustrates the distribution of GPA throughout the sample. As with the general population, these data are still skewed (-.315), but are within normal parameters. The mean GPA of the sample population is 3.19 within a range of 2.17 to 4.0 and a standard deviation 0.496.

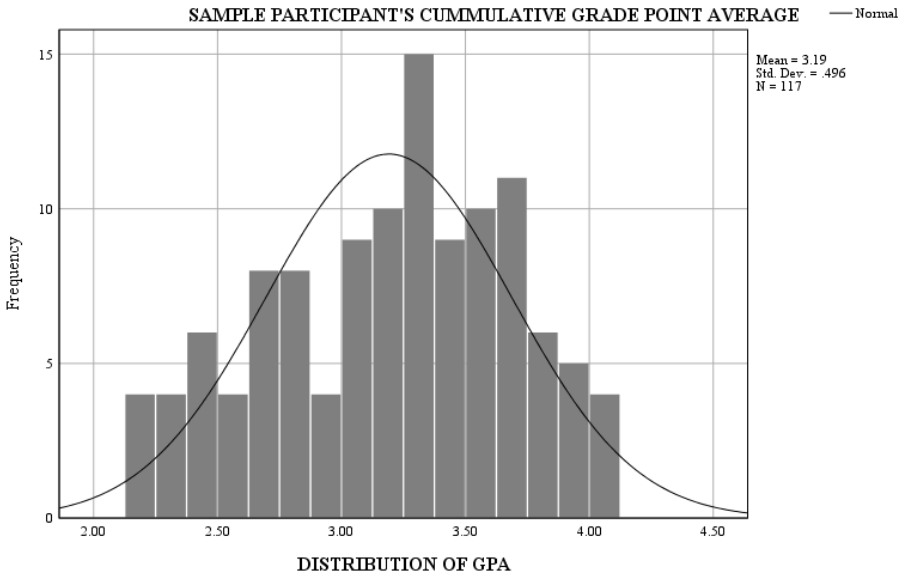


Figure 14. Grade Point Average Distribution of Sample

The important similarities among the data contained in this sample, when compared to the population of the study, were almost ideal and made some statistical analysis and potential research findings possible.

WIL Experiences and Higher Cumulative GPAs

The first research question of this study was to determine the extent to which business or information technology graduates who participated in WIL experiences earned higher cumulative GPAs than did business or information technology graduates not participating in WIL programs. Because data contained within the WIL completed and cumulative grade point average (GPA) variables were normally distributed, an independent samples *t*-test on the data from New River Community and Technical College, Pierpont Community and Technical College, and West Virginia Northern Community College was possible. There were no significant differences, $t(115) = .755$, $p = .481$, between the mean GPA of students who participated in a WIL experience ($M = 3.2278$, $SD = .47627$) and those who did not ($M = 3.1584$, $SD = .51393$). See Table 1.

WIL Experiences and a Shorter Time-to-Degree

The second research question in the study was to determine the extent to which WIL experiences of business or information technology students were associated with a shorter time-to-degree period, usually measured at two-year and three-year increments for associate degree students. An independent samples *t*-test was performed on both variables, WIL experiences ($M = 1.76$, $SD = .429$) and no-WIL experiences ($M = 1.77$, $SD = .422$), coupled with graduation status in two-years. Again, no significant difference was found between WIL and no-WIL students' experiences and graduation status at two years, $t(115) = -.134$, $p = .789$. There was, however, a

significant difference in the presence of participants on a graduation roster at three years between students who had a WIL experience (M = 1.27, SD = .449), when compared to those participants who did not (M = 1.37, SD = .487 with p = .026. See Table 1. Data contained in the graduation at two years and graduation at three years are categorical, and a t test may not be appropriate. In an attempt to analyze continuous data, the author transformed data for a variable titled years to graduation, which was derived by subtracting the graduation year from the starting year. The analysis of the mean years to graduate for participants who had WIL experiences (M = 2.27, SD = 1.24), when compared with those participants who did not (M = 234, SD = .991), showed no significant association $t(115)$ = -.320, p = .731. See Table 1.

Levene's Test for Equal Variances	**WIL Experience**		**No WIL Experience**			
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**	***T* score**	**Sig.**
Cumulative GPA	3.23	.476	3.16	.514	.755	.481
Graduation at 2 Years	1.76	.429	1.77	.422	-.134	.789
Graduation at 3 Years	1.27	.449	1.37	.487	-1.129	.026
Years to Graduate	2.27	1.24	2.34	.991	-.320	.731

Table 1. Summary of Findings

Summary

This chapter presented a description of the study's population and sample, statistical analysis of the data, and findings of tests conducted. The study's purpose was to determine the extent to which Work Integrated Learning (WIL) experiences affected West Virginia Community and Technical College business and information technology students' cumulative grade point average (GPA) and time to graduation period. WIL experience data distribution throughout the population of the study, however, was skewed substantially and required a more normally distributed sample for purposes of analysis. A reduced sample, comprised of 117 participants enrolled at New River Community and Technical College, Pierpont Community and

Technical College, and West Virginia Northern Community College during the academic years of 2011-2012, 2012-2013, and 2013-2014, provided a more even distribution.

The findings suggest WIL experiences did not have a significant effect on cumulative GPA or on demonstrated time-to-degree in the two-year graduation period or in the years to graduation for this sample. WIL experiences did appear to have a significant effect on demonstrated time-to-degree in the three-year graduation period, however. See Table 1. The following chapter will discuss further statistical findings, professional practice implications, and recommendations for additional studies.

CHAPTER 5

DISCUSSION

This descriptive, non-experimental study's purpose was to determine whether West Virginia community and technical college students participating in work integrated learning (WIL) experiences, such as apprenticeship, co-operative education, internships, and practica, achieve higher cumulative grade point averages (GPAs) and faster time-to-degree, which are reported globally among baccalaureate students participating in WIL. This chapter discusses the findings as they relate to the literature on WIL and within the study's design. Theoretical, methodological, and applied implications of the findings that may interest researchers, legislators and higher education personnel are also noted. Limitations of the study, proposed direction for future WIL research, and a brief summary conclude this chapter.

The chapter contains discussion and suggestions for future research to help answer the study's research questions.

1. Did business or information technology graduates who participated in WIL experiences earn higher cumulative GPAs than did business or information technology graduates not participating in WIL programs?
2. Did business or information technology students participating in a WIL experience demonstrate a shorter time-to-degree period than did business or information technology students not participating in WIL experiences?

Interpretation of Findings

Business and information technology student data from academic years 2011-2012, 2012-2013, and 2013-2014 of West Virginia's 10 community and technical colleges were analyzed. Participant data were not distributed normally, which turned out to be problematic as the

population was overwhelmingly dominated by students who had not participated in a WIL experience (i.e., 75%). A sample of student data drawn from three institutions in the population – New River Community and Technical College, Pierpont Community and Technical College, and West Virginia Northern Community College – resulted in a more normal distribution, which made some analysis possible. Independent *t*-tests produced findings that were at odds, however, with the extant literature. Work-integrated learning (WIL) experiences of students in the sample reflected no association with either cumulative GPA or faster time-to-degree at the two-year period. WIL experiences, however, did appear to have a significant effect on faster time-to-degree at the three-year period, when compared to graduation at the three-year period for participants without WIL experiences.

These findings were not what was anticipated when the study was designed. Academic benefits for WIL students in baccalaureate degree programs have been well documented by scholars. Binder, et al. (2015), Blicblau, et al. (2016), and Gomez, et al. (2004) found WIL participants demonstrated higher academic performance based on grades, while Drysdale, et al. (2015) and Parks, et al. (2008) determined WIL participants were motivated to both complete their academic programs sooner and change their majors significantly less frequently. The findings of this study did align, however, with one study conducted by Grover-Bisker (2011) that found participants in a co-op program did not achieve significantly higher GPAs.

Another potential reason the findings of this study differed from those of other scholars is due to the distribution of the data of the sample. A normal, or Gaussian, distribution, when charted on a histogram, is a symmetrical, unimodal, bell curve. The normal mean is 0.0 with a standard deviation of 1.0, and the mean, median and mode are equal. The data associated with the sample participants were not, however, normally distributed. The mean for data contained in

the GPA variable was 3.19 with a standard deviation of .494, but when charted on a histogram the distribution appeared within normal parameters. See Figure 14.

The distribution of data in the graduation at two-year and three-year periods, however, were more skewed. Data in the two-year graduation period variable had a mean of 1.77, a standard deviation of .422, and a skewness of -1.308. Data in the graduation at three-year period variable had a mean of 1.33, a standard deviation of .472, and a skewness of .730. The data in the graduation at three-year period, however, were more normally distributed than those of the graduation at two-year period. Overall, while these data may have resembled those of the total participants, the absence of a normal distribution can lead to a risk of a type II error.

A possible alternative for the findings of this study to vary from the findings of other researchers may be community college students are different from their peers at baccalaureate-degree granting institutions, which have dominated previous such studies. As an example, 71.2% of the sample participants of this study were recipients of need-based financial aid, in the form of Pell grants. An average of 36.8% total enrollment at West Virginian baccalaureate degree-granting institutions received Pell grants during the academic years 2011-2012, 2012-2013, and 2013-2014 (West Virginia Education Policy Commission, 2014).

Another reason for the findings of this study to differ from those contained in the literature may be found in this study's design. An assumption on what qualifies as a WIL experience was made early in the study. Rather than qualitatively explore the WIL experiences at each community college campus in West Virginia to determine if the experience of each individual course should be included in the study due to the adherence of best practices found in the literature related to WIL (i.e., learning objectives understood by all parties, collaborative assessments, reflection by the student, professional development opportunities, etc.), the author

chose to accept the experiences as WIL if each institution's course catalog description included language indicating the course was a work-based placement. Anecdotally, the author is aware work-based placements are sometimes difficult for students or faculty to locate. Alternative assignments like research papers and case studies on industry-related issues are occasionally substituted for work-based placements. Since industry-related research is also included as a component of WIL found in the literature review, the author of the study decided the effort of incorporating a qualitative component to the study would not affect the study's outcomes. The possibility exists this was an error.

Implications of Findings

This study's findings and lack thereof may change the understanding of work-integrated learning (WIL) theory, methodology, and application, especially in West Virginia. The effect socio-economic status has on graduation at the two-year mark, though ancillary to this study, and the finding WIL significantly affects graduation at the three-year period could support learning theories associated with McRae's (2015) exploration of supportive systems needed with effective WIL frameworks. Other scholars (Gamble, et al., 2010; Mutereko & Wedekind, 2016) who noted the student risks associated with WIL experiences should also be interested in the effect Pell grant status and WIL experiences have on faster time-to-degree.

This study broadens understanding in the field by studying the WIL experiences of community college students, a focus which is lacking in the literature and furthers the WIL field of research. The lack of a conclusive determination that WIL has an effect on grade point average (GPA) for community college students could spur a reconsideration of the field's understanding of the academic benefits of WIL experiences. The inclusion of associate degree-

seeking students into WIL-related study designs could, however, turn out to be a confounding variable.

The application of this study's findings would be beneficial to the practice of higher education faculty and administrators of higher education and workforce-related organizations. WIL experiences are expensive to execute, as noted by Clark, et al. (2016) and Fleming (2015). If community college students do not benefit academically through increased cumulative GPA and if significant findings related to a reduction in time-to-degree are seen only at the three-year period (150% of time required for degree completion), perhaps less emphasis on WIL for community and technical college students should be considered. If the new model of performance-based funding includes points for graduation at the three-year period, then the opposite could be true. West Virginia legislators currently fund a model of WIL known as "Learn and Earn." As of 2016, 250 community college students had participated in 24 Learn and Earn experiences statewide that cost a total of $806,000 annually (Hohmann, 2016). This cost does not reflect the cost to the colleges and the companies for the supervision and assessment of the WIL student and the management of the program. Higher education officials in West Virginia have recently received millions of federal Department of Labor dollars for WIL-related grants (i.e., Bridging the Gap, $6.175 million; Tech Hire, $4 million; Apprenticeships in Motion, $4.5 million, etc.)[7]. Although employment, not academic, benefits of WIL were associated with these federal awards, the author of this study believes professional practitioners and perhaps organized labor- related institutions in West Virginia will have an interest in the findings of this study.

[7] The focus of most of these grant awards were for the expansion of non-traditional apprenticeships

Limitations and Recommendations for Future Research

This study had a post-facto, non-experimental design and data were used in this study for purposes other than that for which they were collected. Because of this, there were limitations in addressing the research questions. It was also the case some variables relevant to the study were not available because they were not collected or because they were removed to protect the confidentiality of the sample or population. This was the case for the time-to-graduation research question and demographic analysis of participants. Data collected for many variables were nominal level data. The author knew only that participants graduated two years or three years from their initial enrollment in their business or information technology degree programs. The author does not know if the students were registered in summer terms. This information would have been helpful in calculating a transformed variable that reflected the total number of semesters enrolled. Other examples of nominal level data were found in the age group, minority group, and economic status variables. Having a participant's birthdate, racial identity, and actual income level either was not collected or not shared with the researcher to protect the privacy of the participant.

Another limitation of the secondary analysis of existing data is the researcher who was analyzing the data did not collect the data and was thus potentially unaware of either the existence of or rationale for gaps, oversights or omissions in the data collection process. An example of gaps, oversights, or omissions in the data collection process was mentioned previously in this chapter related to the generalization of WIL experiences by the research designer. These could possibly limit the explanatory power of interpretations based on the dataset.

The data collected were the data available. The data available were heterogeneous in nature, which was a major limiting factor. The grouping variables did not have equal numbers of participants and the data within the variables were not always normally distributed. Additionally, slight differences in data distribution limited the type of statistical tests appropriate to use. After much analysis, only the GPA data was determined to be normally distributed, so it was the only variable on which a robust independent samples *t*-test could be used. The two-year graduation period data were the least normally distributed. Neither an independent samples *t*-test nor Pearson's chi square test resulted in finding a significant difference in the means of participants having WIL experiences and the means of participants not having WIL experiences. The three-year graduation period variable generated more normally distributed data that resulted in a finding of significant differences between the means of the two groups of participants according to the independent samples *t*-test that was used.

In the future, quantitative studies regarding academic or even employment benefits of WIL for community college students should to the extent possible include random samples of equal size among the samples or populations so more robust analyses can be attempted. This might be possible with the inclusion of additional data available resulting from the emphasis on "Learn and Earn" WIL experiences made by West Virginia higher education officials and resources provided by state and federal legislators. Qualitative studies assessing the types of WIL experiences available to community and technical college students would be helpful in determining whether best practices are being followed. It might be interesting to determine if the type of WIL delivered to the students (i.e., co-ops from which best practices are derived, apprenticeships, internships, or practica) resulted in significant improvements to cumulative GPA or shorter time-to-degree. If best practices are not currently applied to WIL experiences for

West Virginia community college students, such findings could be helpful in explaining why academic benefits like increased GPA were not found in this study.

Summary

After consideration of this study's descriptive analysis and within the context of the study's findings, it does not appear the perceptions of the academic benefits of work-integrated learning (WIL) experiences, such as higher grade point average and faster time-to-degree purported by global scholars, were borne out in this sample of community and technical college students in West Virginia. There was, nonetheless, a significant association between WIL and graduation at a three-year period. These findings may have implications for higher education researchers, practitioners, and legislators due to performance and grant award funding. This claim should be explored in future studies to verify the findings and examine potential reasons for which these benefits were not realized in this participant group.

REFERENCES

Alteraifi, A. (2005). Closing the "knowledge-doing gap" at the United Arab Emirates University. *Journal of Cooperative Education & Internships, 39*(2), 13-25. http://search.ebscohost.com.marshall.idm.oclc.org/login.aspx?direct=true&db=aph&AN=28456999&site=ehost-live

Arslan, R., & Surmen, A. (2009). Highlights of an integrated education project for automotive education in Turkey. *Journal of Cooperative Education & Internships, 43*(2), 1-6. http://search.ebscohost.com.marshall.idm.oclc.org/login.aspx?direct=true&db=aph&AN=79613369&site=ehost-live

ASHE-ERIC Higher Education Report [ASHE-ERIC]. (2002). Transforming the curriculum: Preparing students for a changing world. *ASHE-ERIC Higher Education Report*, 29(3), 1–101. DOI: 10.1002/aehe.2903. https://onlinelibrary.wiley.com/toc/15546306/2006/32/3

Apprenticeship.gov [Apprenticeship]. (n.d.). Apprenticeship overview. https://www.apprenticeship.gov/employers

Bandaranaike, S., & Willison, J. (2015). Building capacity for work-readiness: Bridging the cognitive and affective domains. *Asia-Pacific Journal of Cooperative Education*, *16*(3), 223-233. https://digital.library.adelaide.edu.au/dspace/bitstream/2440/97926/3/hdl_97926.pdf

Bartkus, K. R. (2007). A review and synthesis of scholarly research in cooperative education and internships: Part I an analysis of quantitative research published outside the *Journal of Cooperative Education and Internships*. *Journal of Cooperative Education & Internships*, *41*(1), 56-96.

http://search.ebscohost.com.marshall.idm.oclc.org/login.aspx?direct=true&db=aph&AN=28457000&site=ehost-live

Bennett, K. (2008). Managing experiential education: Work-integrated learning in the context of a cost-benefit analysis. *Journal of Cooperative Education and Internships, 42*(2), 34-44. http://search.ebscohost.com.marshall.idm.oclc.org/login.aspx?direct=true&db=aph&AN=33198940&site=ehost-live

Binder, J. F., Baguley, T., Crook, C., & Miller, F. (2015). The academic value of internships: Benefits across disciplines and student backgrounds. *Contemporary Educational Psychology, 41,* 73-82. doi:10.1016/j.cedpsych.2014.12.001. https://doi-org.marshall.idm.oclc.org/10.1016/j.cedpsych.2014.12.001

Blicblau, A., Nelson, T., & Dini, K. (2016). The role of work placement in engineering students' academic performance. *Asia-Pacific Journal of Cooperative Education, 17*(1), 31-43. http://files.eric.ed.gov/fulltext/EJ1114038.pdf

Chao, G., & Gardner, P. (2008). Young adults at work: What they want, what they get, and how to keep them. White paper prepared for MonsterTRAK.com. http://ceri.msu.edu/publications/pdf/yadultswk3-26-09.pdf

Chen, J. (2017). Where and when did Benjamin Franklin say "Tell me and I forget, teach me and I may remember, involve me and I learn?" [web log comment] https://www.quora.com/Where-and-when-did-Benjamin-Franklin-say-Tell-me-and-I-forget-teach-me-and-I-may-remember-involve-me-and-I-learn

Clark, L., Rowe, A., Cantori, A., Bilgin, A., & Mukuria, V. (2016). The power dynamics and politics of survey design: Measuring workload associated with teaching, administering

and supporting work-integrated learning courses. *Studies in Higher Education*, *41*(6), 1055-1073. https://doi-org.marshall.idm.oclc.org/10.1080/03075079.2014.966071

Coll, R., & Zegwaard, K. (2006). Perceptions of desirable graduate competencies for science and technology new graduates. *Research in Science & Technological Education*, *24*(1), 29-58. http://search.ebscohost.com.marshall.idm.oclc.org/login.aspx?direct=true&db=eric&AN=EJ734527&site=ehost-live

Complete College America. (n.d.). Data dashboard. https://completecollege.org/data-dashboard/

Cooperative Education and Internship Association. (2016, November). History of Cooperative Education and Internships. http://www.ceiainc.org/about/ history/

Corporate Voices for Working Families. (2012, Sept.). A talent development solutions: Exploring business drivers and returns in learn and earn partnerships. https://www.tn.gov/content/dam/tn/tntoolkit/documents/LearnEarn_Report2_web.pdf

Crebert, G., Bates, M., Bell, B., Patrick, C., & Cragnolini, V. (2004). Ivory tower to concrete jungle revisited. *Journal of Education and Work, 17*(1), 47-70. Doi: 10.1080/13639080042000174192. https://research-repository.griffith.edu.au/bitstream/handle/10072/5455/26129_1.pdf?sequence=1

Crichton, A. (2009). *CAFCE - From impossibility to reality.* Canadian Association for Co-operative Education. http://www.cafce.ca/history.html

Dewey, J. (1938). *Experience and education*. New York, NY: Touchstone. https://archive.org/stream/ExperienceAndEducation-JohnDewey/dewey-edu-experience_djvu.txt

Drysdale, M. T. B., Frost, N., & McBeath, M. L. (2015). How often do they change their minds and does work-integrated learning play a role? An examination of 'major changers' and career certainty in higher education [Special issue]. *Asia-Pacific Journal of Cooperative Education, 16*(2), 145-152. https://files.eric.ed.gov/fulltext/EJ1113579.pdf

Eastern Mennonite University [EMU]. (n.d.). Resources. https://resources.emu.edu/confluence/display/LancHandbook/Professional+Practice

Facer, K., Thorpe, J, and Shaw, L. (2012). Co-operative education and schools: An old idea for new times? *Power and Education, 4*(3), 327-341. https://journals.sagepub.com/doi/pdf/10.2304/power.2012.4.3.327

Fleming, J. (2015). Exploring stakeholders' perspectives of the influences on student learning in cooperative education [Special issue]. *Asia-Pacific Journal of Cooperative Education, 16*(2), 109-119. https://files.eric.ed.gov/fulltext/EJ1113539.pdf

Freire, P. (2005). *Pedagogy of the oppressed*. New York: The Continuum International Publishing Group Inc. https://commons.princeton.edu/inclusivepedagogy/wp-content/uploads/sites/17/2016/07/freire_pedagogy_of_the_oppresed_ch2-3.pdf (Original work published 1968)

Freudenberg, B., Brimble, M., & Cameron, C. (2010). Where there is a WIL there is a way. *Higher Education Research & Development, 29*(5), 575-588. http://search.ebscohost.com.marshall.idm.oclc.org/login.aspx?direct=true&db=eric&AN=EJ897189&site=ehost-live

Gamble, N., Patrick, C., & Peach, D. (2010). Internationalizing work-integrated learning: Creating global citizens to meet the economic crisis and the skills shortage. *Higher Education Research & Development, 29*(5), 535-546.

Gardner, P., & Bartkus, K.R. (2014). What's in a name? A reference guide to work-education experiences. *Asia-Pacific Journal of Cooperative Education*, *15*(1), 37-54. https://files.eric.ed.gov/fulltext/EJ1113556.pdf

Gardner, P. D., & Motschenbacher, G. (1997). Early work outcomes of co-op and non-co-op engineers: A comparison of expectations, job level, and salary. *Journal of Cooperative Education*, *33*(1), 6-24. https://wilresearch.uwaterloo.ca/content/legacy/3311997GardnerEarlyWork.html

Gardner, P., & Perry, A. (2011). The role of cooperative and work-integrated education in graduate transition into the workplace. In R. K. Coll & K. E. Zegwaard (Eds.), *International handbook for cooperative and work-integrated education: International perspectives of theory research and practice* (pp. 313-320). Lowell, MA: World Association for Cooperative Education.

Gault, J., Redington, J., & Schlager, T. (2000). Undergraduate business internships and career success: Are they related? *Journal of Marketing Education*, *22*, 45-53. https://digitalcommons.wcupa.edu/cgi/viewcontent.cgi?article=1001&context=mark_facpub

German Academic Institute for International Education (2018). International University of Cooperative Education [web page]. http://german-academic-institute.eu/university-of-cooperative-education/

Gomez, S., Lush, D., & Clements, M. (2004). Work placements enhance the academic performance of bioscience undergraduates. *Journal of Vocational Education & Training*, *56*(3), 373-385. https://www.tandfonline.com/doi/pdf/10.1080/13636820400200260

Groenewald, T., Drysdale, M., Chiupka, C., & Johnston, N. (2011). Towards a definition and models of practice for cooperative and work-integrated education. *International Handbook for Cooperative & Work-Integrated Education* (2nd ed.).(pp. 17-34). Lowell, MA: World Association for Cooperative Education.

Grover-Bisker, E. (2011). Textbook pages to salary wages: An examination of the relationship between cooperative education and early employment outcomes (Order No. 3515821). Available from ProQuest Dissertations & Theses Global. (1024734347). https://search-proquest-com.marshall.idm.oclc.org/docview/1024734347?accountid=12281

Hanneman, L., & Gardner, P. (2010). Under the economic turmoil a skills gap simmers. *Collegiate Employment Research Institute Research Brief 1-2010*. http://www.ceri.msu.edu/wp-content/uploads/2010/01/skillsabrief1-2010.pdf

Helyer, R., & Corkill, H. (2015). Flipping the academy: Is learning from outside the classroom turning the university inside out? *Asia-Pacific Journal of Cooperative Education*, *16*(2), 121-135. https://files.eric.ed.gov/fulltext/EJ1113583.pdf

Hohmann, G. (2016, Mar. 9). *State's 'Learn and Earn' program helps students go to college and pay bills at home*. West Virginia Press Association. https://wvpress.org/wvpa-sharing/states-learn-earn-program-helps-students-go-college-pay-bills-home/

Jackson, D. (2015). Employability skill development in work-integrated learning: Barriers and best practice. *Studies in Higher Education*, *40*(2), 350-367. doi:10.1080/03075079.2013.842221 https://www.tandfonline.com/doi/full/10.1080/03075079.2013.842221?scroll=top&needAccess=true

Jackson, D., & Wilton, N. (2016). Developing career management competencies among undergraduates and the role of work-integrated learning. *Teaching in Higher Education, 21*(3), 266-286. Doi: 10.1080/13562517.2015.1136281 http://eprints.uwe.ac.uk/28030/1/The%20development%20of%20career%20management%20competencies%20and%20role%20of%20Work-Integrated%20Learning%20-%20Jackson%20%26%20Wilton.pdf

James, W. (1907). Pragmatism: *A new name for some old ways of thinking* [Lect. 6]. "Pragmatism's Conception of Truth." Cambridge University, Columbia University. Boston: NY. https://www.gutenberg.org/files/5116/5116-h/5116-h.htm

Jung, C. G. (1946). *Psychological types: The psychology of individuation*. London: Keagan Paul, Trench, Trubner & Co., LTD. https://monoskop.org/images/8/8d/Jung_Gustav_Carl_Psychological_Types_1946.Pdf

Knouse, S. B., & Fontenot, G. (2008). Benefits of the business college internship: A research review. *Journal of Employment Counseling, 45*(2), 61-66. http://web.a.ebscohost.com.marshall.idm.oclc.org/ehost/pdfviewer/pdfviewer?vid=10&sid=7aa2b4b0-102e-402d-86fb-9cb2d48070d5%40sessionmgr4008

Kolb, David. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs: NJ. Prentice Hall. https://www.researchgate.net/publication/235701029_Experiential_Learning_Experience_As_The_Source_Of_Learning_And_Development.

Lave, J., & Wenger, E. (1991). Practice, Person, Social World. In Situated Learning: Legitimate Peripheral Participation (Learning in Doing: Social, Cognitive and Computational

Perspectives, pp. 45-58). Cambridge: Cambridge University Press. doi:10.1017/CBO9780511815355.004

Law, B., & Watts, A. G. (1977). *Schools, Careers and Community: A study of some approaches to careers education in schools*. London, UK: Church Information Office (pp. 8-10)

Lentz, B. F., Holland, G. M., & Alloy, M. (2011). *Estimates of the impacts of the varieties of work-integrated learning.* Non-refereed paper presented at the meeting of the 2011 WACE World Conference on Cooperative & Work-Integrated Education in Philadelphia, PA. https://www.waceinc.org/philly2011/conference_proceedings/Non-Refereed%20Papers/United%20States/BARNEY~1.PDF

Lewin, Kurt (June 1947). "Frontiers in Group Dynamics: Concept, Method and Reality in Social Science; Social Equilibria and Social Change." Human Relations. 1: 5–41 https://journals.sagepub.com/doi/10.1177/001872674700100103

Maskooki, K., Rama, D. V., & Raghunandan, K. (1998). Internships in undergraduate finance programs, *Financial Practice and Education, 8* (No. 2, 1998), 74-82.

Mate, S., & Ryan, M. (2015). Learning through work: How can a narrative approach to evaluation build students' capacity for resilience? [Special issue]. *Asia-Pacific Journal of Cooperative Education*, *16*(2), 153-161. https://files.eric.ed.gov/fulltext/EJ1113541.pdf

McRae, N. (2015). Exploring conditions for transformative learning in work-integrated education [Special issue]. *Asia-Pacific Journal of Cooperative Education, 16*(2), 137-144. https://www.ijwil.org/files/APJCE_16_2_137_144.pdf

Molseed, R. T., Alsup, J., & Voyles, J. (2011). The role of the employer in shaping students' work-related skills. *Journal of Employment Counseling, 40*, 161 - 171. 10.1002/j.2161-1920.2003.tb00867.x. https://www.ijwil.org/files/APJCE_16_2_137_144.pdf

Murphy, G., & Calway, B. (2008). Skilling for the Workforce: A tertiary education response to enrich professional development. *Tertiary Education and Management, 14*(2), 95-109. http://search.ebscohost.com.marshall.idm.oclc.org/login.aspx?direct=true&db=eric&AN=EJ873147&site=ehost-live

Mutereko, S., & Wedekind, V. (2016). Work integrated learning for engineering qualifications: a spanner in the works? *Journal of Education and Work, 29*(8), 902-921. Doi: 10.1080/13639080.2015.1102211 https://www.researchgate.net/publication/283616643_Work_integrated_learning_for_engineering_qualifications_a_spanner_in_the_works

Narayanan, V., Olk, P., & Fukami, C. (2010). Determinants of internship effectiveness: An exploratory model. Academy Of Management Annual Meeting Proceedings, E1-E6. doi:10.5465/AMBPP.2006.22898555. https://journals.aom.org/doi/pdf/10.5465/ambpp.2006.22898555

Newhook, R. (2013). Perceptions of risk in co-operative education. Journal of Cooperative Education and Internships, 47(1), 78-93. http://search.ebscohost.com.marshall.idm.oclc.org/login.aspx?direct=true&db=aph&AN=93648713&site=ehost-live

Niehaus, M. (2005). University of Cincinnati co-op: 100 years of success. *UC Magazine. December 2005*. http://magazine.uc.edu/issues/1205/success1.html

Parks, D. K., Baldwin, A., Fenster, M. J., & Onwuegbuzie, A. J. (2008). A four component model of cooperative education. *Journal of Cooperative Education & Internships*, *42*(1), 41-49. https://wilresearch.uwaterloo.ca/content/legacy/CEIA_Journal_42_1_41_49.html

Partners for a Competitive Workforce. (n.d.) *Case Study: Manufacturing Institute's Return on Investment Calculator*. http://www.competitiveworkforce.com/case-studies/case-study-manufacturing-institute-develops-investment-calculator/

Perry, A. (2011). *Treading through swampy water: Graduates' experiences of the post-university transition*. (Unpublished doctoral dissertation). University of Canterbury, Christchurch, New Zealand. https://aprilperry.weebly.com/uploads/4/5/6/1/45613049/april_perry_phd_dissertation.pdf

Perry, P. (1989). Firms want more from marketing schools. *Marketing News*, *23*(15), 1-2.

Piaget, J. (1936). *Origins of intelligence in the child*. London: Routledge & Kegan Paul. https://www.pitt.edu/~strauss/origins_r.pdf

Price, D. A. (1987). The practicum and its supervision. In K. J. Eltis (Ed.), *Australian Teacher Education in Review*, (pp. 105–133). Bedford Park, South Australia, Australia: South Pacific Association for Teacher Education Inc.

Price, P. C., Jhangiani, R. S., & Chiang, I. A. (2015). *Research methods in psychology* (2nd ed.) [Online Version]. Mountain View, CA: Creative Commons. https://opentextbc.ca/researchmethods/

Raymond, M. A., McNabb, D. E., & Matthaei, C. F. (1993). Preparing graduates for the workforce: The role of business education. *Journal of Education for Business*, *68*(4), 202-206. http://web.a.ebscohost.com.marshall.idm.oclc.org/ehost/detail/detail?vid=0&sid=aeb59533-4ba4-4c6d-a7c9-155110ebe95a%40sdc-v-sessmgr01&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#AN=9305190545&db=aph

Rogers, C. R. (1951). *Client-centered therapy; its current practice, implications, and theory*. Oxford, England: Houghton Mifflin. https://onlinelibrary.wiley.com/doi/abs/10.1002/1097-4679%28195107%297%3A3%3C294%3A%3AAID-JCLP2270070325%3E3.0.CO%3B2-O

Rowe, P. M. (2015). Researcher's reflections on what is missing from work-integrated learning research [Special issue]. *Asia-Pacific Journal of Cooperative Education, 16*(2), 101-107. https://www.ijwil.org/files/APJCE_16_2_101_107.pdf

Salkind, N. J. (2010). *Encyclopedia of Research Design* [Online Version]. Thousand Oaks, CA: Sage Publications, Inc. http://search.ebscohost.com.marshall.idm.oclc.org/login.aspx?direct=true&db=nlebk&AN=474297&site=ehost-live

Smith, C. (2012). Evaluating the quality of work-integrated learning curricula: A comprehensive framework. *Higher Education Research & Development, 31*(2), 247-262. Doi: 10.1080/07294360.2011.558072. https://research-repository.griffith.edu.au/bitstream/handle/10072/45402/75615_1.pdf;jsessionid=B62F51EE157C01ECD9C86B53EE5256CB?sequence=1

Sprandel, H. (2010). *Cooperative education and employment outcomes for post-graduation business students* (Doctoral dissertation). ProQuest (UMI No. 3395617). https://search-proquest-com.marshall.idm.oclc.org/pq1academic/docview/304848368/fulltextPDF/624CF00A625B4348PQ/1?accountid=12281

Tanaka, Y. (2015). *The economics of cooperative education: A practitioner's guide to the theoretical framework and empirical assessment of cooperative education.* New York, NY: Routledge.

United States Census Bureau [Census] (2017). *American FactFinder*. https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF

Washor, K. S. (2015). *Bridging the soft-skill gap from education to employment through internships* (Doctoral dissertation). ProQuest (UMI No. 3688828)

West Virginia Council of Community and Technical College Education [WVCCTCE]. (2019). About growing and educating WV's workforce. https://www.wvctcs.org/master-plan

West Virginia Higher Education Policy Commission [HEPC]. 2014. West Virginia Report Card. http://www.wvhepc.edu/wp-content/uploads/2015/01/Annual-Report-2014-lr.pdf?

World Association of Cooperative Education Advancing Cooperative & Work-integrated Education [WACE]. (n.d.). The best of co-op; A guide to the leading institutions & employers. https://www.waceinc.org/eGuides/eGuide2019/BOCGuide_201819_NoPgNo.html

Xia, J., Caulfield, C., & Ferns, S. (2015). Work-integrated learning: Linking research and teaching for a win-win situation. *Studies in Higher Education*, *40*(9), 1560-1572. https://espace.curtin.edu.au/bitstream/handle/20.500.11937/18365/227816.pdf;jsessionid=D497A3898CA74B380561F7ADC82A68C2?sequence=2

Zegwaard, K. E. (2015). Building an excellent foundation for research: Challenges and current research needs [Special issue]. *Asia-Pacific Journal of Cooperative Education, 16*(2), 89-99. https://files.eric.ed.gov/fulltext/EJ1113538.pdf

Zegwaard, K. E., & Coll, R. K. (2011). Exploring some current issues for Cooperative Education. *Journal of Cooperative Education & Internships, 45*(2), 8-15. https://www.researchgate.net/publication/291294806_Exploring_some_current_issues_for_Cooperative_Education

APPENDIX A

IRB EXEMPTION

MARSHALL UNIVERSITY.
www.marshall.edu

Office of Research Integrity

August 7, 2019

Laura McCullough
116 Deer Valley Drive
Hurricane, WV 25526

Dear Ms. McCullough:

This letter is in response to the submitted dissertation abstract entitled "*Perceptions of Academic Benefits of Work-Integrated Learning among West Virginia Community and Technical College Students.*" After assessing the abstract it has been deemed not to be human subject research and therefore exempt from oversight of the Marshall University Institutional Review Board (IRB). The Code of Federal Regulations (45CFR46) has set forth the criteria utilized in making this determination. Since the study does not involve human subjects as defined in DHHS regulation 45 CFR §46.102(e) it is not considered human subject research. If there are any changes to the abstract you provided then you would need to resubmit that information to the Office of Research Integrity for review and determination.

I appreciate your willingness to submit the abstract for determination. Please feel free to contact the Office of Research Integrity if you have any questions regarding future protocols that may require IRB review.

Sincerely,

Bruce F. Day, ThD, CIP
Director

APPENDIX B

APPLICATION FOR DATA

Last Modified July 25, 2017

Research Proposal Application

The West Virginia Higher Education Policy Commission (HEPC) has developed a process whereby external researchers may request extant data from HEPC to conduct research and program evaluation studies germane to postsecondary education.

All individuals or organizations requesting access to these data must complete this Research Proposal Application and submit it to the HEPC Division of Policy and Planning. If the project is approved and the data requested are available, a Data Disclosure Agreement will be developed and must be signed prior to the release of any potentially identifiable student data. Please complete each section of the application fully. If any fields are left blank, the application will not be considered.

Section I. Your Contact Information

Name of Principal Investigator or Requestor:	Laura Leslie McCullough
Organization (If applicable):	Marshall University
Phone Number:	304-205-6611
Email Address:	Laura.mccullough@bridgevalley.edu
Address:	116 Deer Valley Drive
City:	Hurricane
State:	WV
Zip Code:	25526
Today's Date:	08/09/2019

Section II. Additional Investigators

1. *List the names, contact information, and role of any additional investigators participating in the research that will have access to the data requested.*

Research role			
☐ *Co-Researcher*	☐ *Professional/Technical Staff*	☐ *Support Staff*	☒ *Other – Committee Chair*
Name	*Dr. Bobbi Nicholson*	*Email* bnicholson@marshall.edu	
Research role			
☐ *Co-Researcher*	☐ *Professional/Technical Staff*	☐ *Support Staff*	☐ *Other – Explain*
Name		*Email*	
Research role			
☐ *Co-Researcher*	☐ *Professional/Technical Staff*	☐ *Support Staff*	☐ *Other – Explain*
Name		*Email*	

1