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Designing and Implementing Work-Based Learning: Research Findings and Key Lessons from Employers

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Erin Knepler

Research Scientist, NORC at the University of Chicago

Knepler-Erin@norc.org

Claudia Zapata-Gietl

Principal Research Analyst, NORC at the University of Chicago

Zapata-Gietl-Claudia@norc.org

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experiences as they pertain to talent identification—recruiting, training, and connecting work and learning. NORC researchers are grateful for the time and feedback from executives at BHEF, Northeastern University, Columbia University, as well as from skilled practitioners at the Bill & Melinda Gates Foundation, Financial Services Roundtable, Burning Glass Technologies, State Farm Insurance Companies, Northrop Grumman Corporation, Bloomberg, KeyBank, Genworth, Huntington National Bank, TIAA, Comerica, U.S. Bank, Siemens, Wayfair, and Raytheon.

INTRODUCTION

Students today are working while enrolled in school at higher rates than any time in history (Bureau of Labor Statistics, 2019; Carnevale, Smith, Melton, & Price, 2015). Of the 30 million students in the U.S. currently enrolled in high school, college, or graduate school, a large proportion work to offset the rising costs of education and to enhance what is being taught in the classroom. Specifically, 28% of high school students, 72% of undergraduate students, and 82% of graduate students work at least part time while going to school (U.S. Census Bureau, 2013). These students are redefining how they are learning and gaining new skills, becoming part of a movement^① with great potential. Employers in the ever-evolving, knowledge-based economy^② are in need of a skilled labor force (Haigh & Clifford, 2011). Of the almost 47 million job openings that the U.S. economy will create by 2018-2019,

researchers say 63% will require that the employee has at least some college education and work experiences that can demonstrate their abilities (Carnevale, Smith, & Strohl, 2010). Work-based learning experiences are poised to meet the needs of the 21st-century student and the demands of the 21st century workplace.

Research suggests that learning and career progression happen best within a larger context and when paired with experience, observation, or reflection (Association of American Colleges & Universities, 2007; Jarvis, 1987; Kolb, 1984, 2014; Vygotsky, 1978). Evidence suggests that the experience and application of knowledge is crucial to student success (Vygotsky, 1978). For this study, our approach focused on understanding the types of work-based learning in which intentional connections are forged between a student's program of study and the type of work experience he or she seeks and secures. Better understanding the commonalities across these types of experiences allows institutional leaders, practitioners, employers, and policymakers the opportunity to make informed decisions regarding effective work-based learning approaches that align with the needs of students and employers. Although work-based learning approaches often vary in type, structure, cost, and outcomes, we aim to identify shared characteristics of these approaches^③ from an employer's perspective in order to better understand the current landscape of work-based learning in the United States and to give counsel to support more intentional, robust approaches to work-based learning.

Project partners, work-based learning defined, and research methods

NORC at the University of Chicago (NORC), an independent research organization, partnered with the Business-Higher Education Forum (BHEF) and Northeastern University on this research project to

better understand how organizations are approaching work-based learning experiences as they pertain to talent identification—recruiting, training, and connecting work and learning. For the purposes of this research, work-based learning (WBL) is operationally defined as a range of approaches and strategies where individuals learn through a work environment, while also enrolled in an education program that leads to a degree, vocational certificate (e.g., an apprentice aircraft mechanic), or credential. These approaches and strategies allow participants to gain practical experience in their future profession, receive professional supervision for licensure, or gain experience in a professional environment, while completing their degree or certificate. WBL programs may be developed by a business, high school, college, university, industry association, or community organization. For this research, internships^④, apprenticeships^⑤, externships^⑥, cooperative education (co-ops)^⑦, and capstone projects^⑧ are all examples of WBL experiences. A commonly recognized WBL offering is an internship, which is a work experience, typically spanning 6 to 12 weeks, where the intern is expected to perform most of the same tasks as a regular, full-time employee.

THIS STUDY ADDRESSES FIVE RESEARCH QUESTIONS:

- 1. How are employers using WBL within their organization?**
- 2. How do employers identify and partner with business organizations, high schools, colleges, universities, industry associations, and/or community organizations to recruit highly qualified talent for WBL programs?**
- 3. What are the benefits of WBL?**
- 4. How do employers measure the efficacy of WBL?**

5. How are employers planning for future WBL activities?

This study employs mixed methods. A mixed method approach “involves gathering both quantitative information (e.g., via the use of survey instruments) as well as qualitative information (e.g., stakeholder interviews and case study interviews) so that the final database represents both quantitative and qualitative information” (Creswell, 2013, p. 20). The quantitative methods employed in this study were descriptive statistics, including crosstabs with percentages and means. The qualitative method employed in this study were interviews and case study methodology. A case study is a qualitative research design that “investigates a contemporary phenomenon within its real-life context” (Yin, 2003, p. 13). Case studies utilize multiple sources of evidence to explore the phenomenon of interest. Data for this study were collected in three phases and triangulated for analysis.

Phase 1. In order to understand employers’ perspectives on the definitions, use, value, and design principles currently used in WBL experiences, as well as their views on the future of WBL, NORC built off of knowledge gained from a series of roundtable discussions with C-suite executives in Boston, Seattle, and Denver between 2017 and 2018, as well as initiated new data collection. NORC began new data collection by conducting a series of nine, one-hour phone interviews with chief human resource officers (CHROs) at mid- to large-sized companies with established WBL programs. The purpose of these discussions was to understand characteristics of their WBL programs and emerging successes and challenges companies face when implementing WBL programs, and to guide the development of the *Work-Based Learning Employer Survey*. These conversations were recorded and documented for accuracy. The qualitative interviews were essential to understanding current employer perspectives on the use and purpose of WBL in the

context of their companies' larger strategies for acquiring talent. Table 1 provides an overview of the participating companies and the titles of those interviewed for this phase of data collection.

Table 1. Participating companies and titles

Company	Interviewee title
State Farm Insurance Companies	Vice president, human resources
Northrop Grumman Corporation	Vice president and chief human resources officer
Bloomberg	Global head of talent
KeyBank	Senior vice president, chief talent officer
Genworth	Senior vice president, human resources
Huntington National Bank	Chief talent officer
TIAA	Senior executive vice president and chief HR officer, head of talent acquisition, senior vice president, chief talent & rewards officer
Comerica	Senior vice president, director of talent acquisition and chief diversity officer
U.S. Bank	Senior vice president, enterprise talent

Phase 2. Following the CHRO interviews and building on information gathered from the initial roundtables, NORC collaborated with experts to develop the *Work-Based Learning Employer Survey*. Before developing the survey instrument, NORC researchers reviewed a variety of existing surveys on WBL, including surveys conducted of industry-wide WBL in Australia and Canada. NORC's review found that existing studies leave out employer perceptions of the practice of WBL, resulting in a gap in available data on this topic. NORC developed the *Work-Based Learning Employer Survey* to focus on WBL characteristics and perceptions largely uncaptured by prior surveys, with expert input from higher education and workforce scholars from Northeastern University and Columbia University, as well as from skilled practitioners at the BHEF, the Bill & Melinda Gates Foundation, Northrop Grumman Corporation, Financial Services Roundtable, and Burning Glass Technologies. The qualitative interviews with CHROs and the three industry roundtables with C-suite executives hosted by the BHEF throughout 2017 and 2018 informed the development of the quantitative research tool. NORC administered the *Work-Based Learning Employer Survey* in 2018 to CHROs from nine companies around the United States. These companies range in size from 500 to over 25,000 employees and include a broad range of sectors, geographic locations, and size. Of the nine respondents, four worked for companies in private industry, three classified as non-profit, one as a government agency, and one as "other." Three of the organizations have been in operation for 100 years or more, three between 61 and 99 years and three between 31 and 60 years. The nine employers operated in all 50 states and three operated internationally as well. Employers also worked in a variety of sectors, with four of the employers providing services in the financial and insurance sector. See Table 2 for an overview of all of the sectors in which employers reported providing services.

Table 2. Industry sectors for employer operations

Which sectors does your company operate in?	Number of companies who work in this sector
Data analytics	1
Education and training	2
Electricity, gas, water, and waste services	1
Engineering	1
Financial and insurance services	4
Health care and social assistance	2
Manufacturing	2
Professional, scientific, and technical services	1
Research	1

Phase 3. Data collection concluded with four in-depth case study interviews with leading WBL providers to gain a deeper understanding of practices. The four, 90-minute interviews were conducted with individuals directly responsible for running or overseeing their company's WBL program, including representatives from Siemens, Bloomberg, Wayfair, and Raytheon, all which have established WBL. These conversations were recorded and documented for accuracy. Information gathered from the case study interviews is detailed in the next section: *Findings: How Employers are Using WBL within their Organization.*

FINDINGS

How employers view WBL within their organization

Each of the organizations included in this study offers at least one type of WBL experience, and some offer more than one type. While employers did not provide formal definitions for the different types of WBL experiences (i.e., internships, apprenticeships, externships, co-ops, and capstone projects), a majority of employers were clear on the concepts underlying WBL. When asked about WBL experiences, employers provided characteristics of their programs, such as length of experience, benefits, and recruitment strategies. The universally common WBL experience for these employers is the summer internship, which lasts anywhere from 6-12 weeks. Table 3 provides an overview of the different types of WBL experiences offered at each organization.

Table 3. WBL offerings by employer

Employer	Employer	Apprenticeships	Externships	Co-ops	Capstone projects
State Farm Insurance Companies	✓			✓	✓
Northrop Grumman Corporation	✓	✓			✓

Employer	Employer	Apprenticeships	Externships	Co-ops	Capstone projects
Bloomberg	✓	✓ (Not in current U.S. market, but in other locations internationally.)	✓		✓
KeyBank	✓				✓
Genworth	✓				
Huntington National Bank	✓			✓	
TIAA	✓				
Comerica	✓				
US Bank	✓				

Internships are the most common type of WBL offered by employers. Nearly half of companies support capstone projects, with a much smaller minority supporting apprenticeships, co-op programs, and externship programs. In addition to engaging in these WBL offerings, more than half noted during interviews that they also support student mentorship programs, classroom instruction, curriculum development within academic programs, and faculty development. In addition to being the most common type of WBL offering, internships are, not surprisingly, the most common type of WBL program in which employers reported being engaged or highly invested (See Table 4). Capstone projects were cited as the

WBL model that companies are most often considering deploying in the near future. Finally, of companies surveyed, more than half are familiar with apprenticeship models (5) as well as capstone projects (5), co-ops (4), and externships (4), but companies are not currently engaged in externship models. Among the companies surveyed, externships represent an area for growth and expansion.

Table 4. Current level of engagement with WBL type

What best characterizes your company's relationship with the various work-based learning models?	Considering deploying this work-based learning model in the near future in my company	Currently engaging with this work-based learning model in my company and wanting to grow it within my company	Highly invested in this work-based learning model and the program is running at full capacity in my company	Familiar/aware of this work-based learning model but not currently engaged in it in my company
Apprenticeships	1	3	0	5
Capstone projects	3	1	0	5
Co-Ops	1	3	1	4
Externships	1	3	1	4
Internships	0	5	2	2

When asked about the length of WBL experiences, surveyed employers indicated the most frequent length was 1-5 months, with experiences most frequently taking the form of internships, as shown in Table 5. These data point to the potential to expand and lengthen WBL experiences, which offers some benefits.¹⁰ Moreover, increasing the length of WBL experiences supports the feedback received about the length of an individual's WBL experience and its perceived value; a majority of those surveyed indicated that a longer WBL experience is more valuable (see Table 6).

Table 5. Typical length of WBL activities

What is the typical length of the following work-based learning activities at your company?	1 - 5 months	6 - 11 months	1 year or longer
Apprenticeships	1	1	1
Capstone projects	1	0	0
Co-Ops	1	2	0
Externships	0	2	0
Internships	7	2	0

Table 6. Does length of WBL reflect perceived value?

Does the length of an individual's work-based learning experience at your company impact its perceived value (i.e., is more time better)?	Yes	No	Don't know

Does the length of an individual's work-based learning experience at your company impact its perceived value (i.e., is more time better)?	Yes	No	Don't know
Co-Ops	2	0	1
Externships	1	1	0
Internships	6	0	1

Subsequently, employers were asked about their perceptions of capstones, co-ops, externships, and internships since those were the most common WBL models used at the participating companies. Tables 7 through 11 present practices of the top four types of WBL offerings (capstones, co-ops, externships, and internships).

Specifically, of the four employers supporting capstones, these companies indicated that they give hiring preferences to capstone participants and that the completion of a capstone project signifies that an individual is ready to enter the workforce, as shown in Table 7. These results suggest there may be a need for a tighter alignment between WBL efforts and academic coursework, since the capstone project carries so much weight for employers. The two companies participating in co-ops make a specific point to connect the co-op experience to the individual's academic program, but are less likely to offer year-round co-op experiences, and to recruit individuals working towards an associate degree (as opposed to a bachelor's degree) for their co-op program (see Table 8). Additionally, these findings indicate that co-ops are more likely to exist as opportunities for students from bachelor's degree programs than for students from associate degree programs, and as partial- rather than full-year programs.

Employers offering externships are more often providing externs with real work projects (see Table 9). The majority of employers with internship programs (see Table 10) indicated they offered paid experiences, but they tend to only offer internships in the summer. Less than half of companies with internships (4) also noted that they are neutral about their ability to connect the internship experience to the individual's academic program. Additionally, employers reported being largely satisfied with their current WBL models, although one did indicate that they were dissatisfied with internships as a model, as indicated in Table 11.

Table 7. Practices of capstone providers

Please rate your level of agreement with practices at your company	Agree	Neither agree or disagree	Disagree
Capstone projects are given the same level of attention and care as the other work-based learning models we utilize at my company	1	0	0
We give hiring preferences to capstone participants	1	0	0
Capstone projects are highly valued at my company	1	0	0
We only offer capstone projects for individuals working towards a bachelor's degree	1	0	0
We offer capstone projects for individuals working towards an associate's or bachelor's degree	1	0	0

Please rate your level of agreement with practices at your company	Agree	Neither agree or disagree	Disagree
Completion of a capstone project signifies that an individual is ready to enter the workforce	1	0	0
If a capstone participant is not working on-site, they are valued as much as individuals participating in other on-site work-based learning experiences	1	0	0
We only offer capstone projects at local institutions where current employees graduated from and where we have an existing relationship	1	0	0

There was not a consensus as to whether completion of the employer's co-op program signified the individual's preparedness to enter the workforce, which is a surprising finding highlighted in Table 8.

Table 8. Practices of Co-op Providers

Please rate your level of agreement with practices at your company	Agree	Neither agree or disagree	Disagree
Our co-ops are always paid	2	1	0
We offer year-round co-ops	0	1	2

Please rate your level of agreement with practices at your company	Agree	Neither agree or disagree	Disagree
We [u]only[/u] recruit individuals working towards a bachelor's degree for our co-op program	1	2	0
We recruit individuals working towards an associates or bachelor's degree for our co-op program	0	1	2
We make a specific point to connect the co-op experience to the individual's academic program	2	1	0
Completion of our co-op program signifies that an individual is ready to enter the workforce	1	1	1
We regularly see skills gaps in our co-op participants	1	2	0

The externship providers also varied a fair amount on their requirements for externs; there was no general consensus on whether completion of the externship signified preparedness for the workforce, whether employers frequently observed skill gaps in their externs, or whether employers make a specific point to connect the externship experience to their externs' academic program as shown in Table 9.

Table 9. Practices for externship providers

	Agree	Neither agree or disagree	Disagree
We offer short externship experiences	0	1	2
We offer unpaid externship experiences	0	1	2
We only offer externships in the summer months	0	1	2
We offer externship experiences throughout the year	1	1	1
Externs are paired with one individual in the company to shadow over a multi-week period.	0	2	1
Externs rotate across divisions/departments to learn about the different parts of the company over a multi-week period	1	1	1
Externs have to be working toward an associates and/or bachelor's degree	1	1	1
We make a specific point to connect the externship experience to the individual's academic program	1	1	1
Completion of our externship experience signifies that an individual is ready to enter the workforce	1	1	1
We regularly see skills gaps in our externs	1	1	1
Externs are not given real work projects, they mainly observe current employees	0	1	2

Less than half (4) of surveyed companies offering internships believe that completion of the internship signifies the intern is prepared to enter the workforce. Over half (5) reported regularly seeing skill gaps in their interns. These data suggest that deepening the connection between the internship experience and academic coursework could be a beneficial area for expanded efforts.

Table 10. Practices for internship providers

	Agree	Somewhat agree	Neither agree or disagree	Somewhat disagree	Disagree
Our interns are always paid	6	0	1	1	1
We only offer summer internships	5	1	1	0	2
We offer year-round internships	3	1	4	1	0
Our interns typically receive academic credit from their academic institutions	2	3	1	2	0

	Agree	Somewhat agree	Neither agree or disagree	Somewhat disagree	Disagree
We only recruit individuals working towards a bachelor's degree or higher (i.e., graduate degree) for our internship experience	3	2	1	2	1
We recruit individuals working toward an associates and/or bachelor's degree	3	2	1	2	1
We make a specific point to connect the internship experience to the individual's academic program	3	1	4	1	0
Completion of our internship experience signifies that an individual is ready to enter the workforce	2	2	3	1	0

	Agree	Somewhat agree	Neither agree or disagree	Somewhat disagree	Disagree
We regularly see skills gaps in our interns	3	2	3	1	0

Nearly all surveyed employers were satisfied with their WBL models, which could be because employers chose the WBL model that best fit their needs as noted in Table 11.

Table 11. Employer satisfaction with WBL models

How satisfied is your company with the following work-based learning models?	Not applicable	Satisfied	Dissatisfied
Apprenticeships	5	4	0
Capstone projects	6	3	0
Co-ops	5	4	0
Externships	5	2	0
Internships	0	8	1

In an effort to deepen our understanding of the different WBL models, NORC researchers included data gathered during the four case study interviews with individuals directly responsible to

running or overseeing their company's WBL program at Siemens, Bloomberg, Wayfair, and Raytheon, all which have established WBL programs. The information provides deeper insight into how WBL experiences are used at specific organizations.

Case studies



SIEMENS

Siemens Corporation is one of the world's largest producers of energy-efficient, resource-saving technologies and is a leading supplier of systems for power generation and transmission as well as medical diagnosis. In their Charlotte, North Carolina location, Siemens runs a gas turbine factory where they developed a mechatronics apprenticeship program in 2011. They recruit apprentices from three separate pools of applicants: high school students, students from machining and mechatronics programs at local community colleges, and veterans. As of March 2018, the program had 21 current

apprentices and 16 graduates from the prior year's apprenticeship program. They are also starting apprenticeship programs in other parts of the country.

Siemens began its apprenticeship program in response to a lack of skilled workforce in the areas they needed. They decided that growing their own talent of local individuals would be the best solution. The program they developed, in partnership with Central Piedmont Community College, provides participants tuition in combination with a paid 40-hour-a-week job while they earn an associate degree. In return, Siemens asks for a two-year commitment to working for the company upon graduation.

The intensive training and limited hiring needs keep the program small, at about six apprentices a year. Recruiting starts for high school students with a week-long orientation designed to showcase their aptitude for learning, ability to work with their hands, receptivity to feedback, and other traits. This orientation is followed by a pre-apprenticeship program of five to six weeks, after which only 40% are offered an apprenticeship. The program's investment in its apprentices is high, including tuition, supervision, and training; but the length of time Siemens takes to select apprentices helps assure success for both parties.

This success is seen in employees that can work across the spectrum of job responsibilities, have greater loyalty to the company, and are able to have meaningful productivity. For example, by year three, data from Siemens reveals that apprentices are as productive as incumbent workers. A report analyzing internal production data indicated that one year of the additional capacity provided by an apprentice is "worth an amount similar to the cost of a worker's apprenticeship program" (Helper, Noonan, & Nicholson 2016).

As a company, Siemens hopes to build on these successes by growing the program in other areas of the country in other specialties. One challenge in this growth is removing the stigma around participating in an apprenticeship program rather than a more traditional undergraduate college program; a stigma that is often deeply-rooted for educators, families, and students. While all students need some post-secondary education, not all need a bachelor's degree to find well-paying,

meaningful jobs. Siemens' recruitment of high school students, in particular, brings this issue to the forefront. The company uses relationships with local career counselors to help identify high school students that may be good candidates (Helper et. al, 2016).

Bloomberg

Bloomberg is a global information and technology company, founded in 1981. They provide business and financial information as well as news and insights to customers around the world. Bloomberg employs over 19,000 employees in 176 locations worldwide.

Bloomberg's marquee WBL program is their highly competitive New York City summer internship program. Bloomberg offers a comprehensive and fully-funded experience. All interview and associated travel expenses are covered by Bloomberg and, if a candidate is selected, all summer housing expenses are also covered by Bloomberg; in addition, students receive a stipend for their work. The summer internship is a 10-12 week program that brings together students across the U.S. to work together to solve real problems for clients, collaborate across their product groups, and experience informal enrichment activities (e.g., mentoring, networking, soft skills development), in addition to the day-to-day work activities. While the summer internship program is Bloomberg's most competitive and popular WBL program, the company also recently started offering year-round internship opportunities, and is exploring the potential of creating an apprenticeship program with the City University of New York.



Wayfair is an American e-commerce company headquartered in Boston, Massachusetts, with offices and warehouses throughout the United States as well as in Canada, Germany, Ireland, and the United Kingdom. The company, founded in 2002, sells home goods and decor items through five different websites.

Wayfair's partial year co-op programs provide highly structured projects that are tied to teams across Wayfair who have established goals and supports for participants. Teams propose positions to HR staff, who work to ensure that co-op participants have a valuable experience and that the teams can adequately support their work. Co-op participants are mentored and given access to interesting projects in order to promote a productive WBL experience for the participant and company.

Wayfair sees co-op students as important contributing members of the team to which they belong. As a result, their targets are organically driven and stem from individual program need rather than WBL-specific targets.

Additionally, campus recruiting is seen as an investment on the part of the company in its long-term ability to hire full-time candidates. The success of Wayfair's program has improved application rates to technical roles, and they credit that to an improved employer brand as successful co-op participants spread the word to others.

Given Wayfair's young age as a company, they are making plans to track conversion and career success in comparison to non-intern hires. Part of their plans also include expanding their campus engagement efforts to include providing scholarships. WBL at the company will also diversify as Wayfair begins an initiative with Apprenti, a program of the Washington Technology Industry Association (WTIA) Workforce Institute, a nonprofit organization that addresses labor shortages in the

technology industry by identifying potential candidates to hire.

⑪ Wayfair and Apprenti plan to launch an engineering apprenticeship program that will have individuals hired to work in software engineering roles in Wayfair's Boston headquarters.

Raytheon

Raytheon is a technology and innovation company specializing in defense, civil government, and cybersecurity solutions. The company, founded in 1922, is headquartered in Waltham, Massachusetts and has 64,000 employees worldwide.

Raytheon offers traditional summer internships as well as part-time internships or co-op opportunities during the academic year. The co-op offerings tend to be more prevalent in the Northeast and offer the opportunity for longer employment and deeper learning experiences than what a traditional 10-week internship can offer. Raytheon's co-op experiences offer challenging work, exposure to real-world projects, mentoring from experienced engineers, an opportunity to work with advanced equipment, insight into work/life "fit" within the company, and networking opportunities with other internship and co-op participants and professional engineers. Despite the company's preference for the longer and deeper experience that a co-op experience can offer, Raytheon is limited in the number of co-op participants they can bring on because not all institutions are structured to offer students the flexible schedule that a co-op experience requires.

The co-op program that Raytheon offers is structured so that co-op participants overlap in their tenure, making it possible for several co-op participants to contribute to a longer-term project. This structure also allows for training of the incoming co-op participant by the out-going co-op participant. Nonetheless, the four-month term of the co-op still means regular turnover and necessitates an investment in on-

boarding. The payoff, however, is clear to Raytheon. Raytheon has actively tracked their WBL data for the past several years. In 2018, they converted 81% of interns and co-ops to full-time hire, of those that were eligible for full-time employment. Additionally, there is a strong focus on recruiting women and individuals of color in STEM. One-third of college hires are diversity candidates. Additionally, according to data from Raytheon, 40-50% of co-op applicants and 29% of internship applicants are female; word-of-mouth recruiting is especially useful among women.

How employers partner with schools, industry associations, and/or community organizations

While all of the employers offered WBL experiences, seven of the nine partnered with schools or other educational providers. Of those seven, all currently partner with local universities, but a smaller number (3) also partner with local community colleges as displayed in Table 12. Expansion into community college partnerships can provide employers with expanded talent pools for jobs that do not traditionally require four year degrees. Manufacturing, in particular, can benefit from partnerships with community colleges because of the stackable credentials and ability to develop and offer short-term education and training programs. Some companies also partner with high schools.

Table 12. Employer WBL partners

Where does your organization currently engage in partnerships regarding workforce training or skills development for students? (select all that apply)	Number of companies
Local universities	7

Where does your organization currently engage in partnerships regarding workforce training or skills development for students? (select all that apply)	Number of companies
Community colleges	3
Technical schools	2
High schools	4
Boot camps	0
Professional associations	2
We are not involved in any public-private partnerships	0

Employers reported multiple entry points for their WBL efforts with education providers, with academic departments or colleges and institutional administrators being the most commonly cited (See Table 13). On the employer side, WBL partnerships were managed by either central HR functions (4) or individual departments/operating units (3). For two employers participating, the management of their WBL was shared between both their central HR function and the individual department or operating unit where the WBL experience was housed.

Table 13. Employer contact person with education provider

Who do you work with at colleges and universities or other education providers for most work-based learning efforts?	Number of companies
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Who do you work with at colleges and universities or other education providers for most work-based learning efforts?	Number of companies
Institutional administrator	5
Individual professor/faculty member	3
Academic department or college	6
Career Services or a similar group	2
Other	0

When looking at the types of interactions employers had with their education partners, we see a wide range of frequency of communication and causes for communication, as indicated in Table 14. The majority of employers working with local universities reported having frequent communications at the beginning, throughout, and at the end of each WBL experience to strengthen ongoing and future WBL activities. High schools showed a similar pattern, with employers communicating with high school partners at the beginning and at the end of projects. However, our evidence suggests that there is much less communication happening between employers and community colleges, technical schools, and professional associations. Future studies should pay careful attention to communication patterns, exploring variations from these outcomes as well as explanations for the differences, as communication differences may be an artifact of the type of WBL offering. This is a promising area for future research.

Table 14. Interactions with WBL partner contacts by education partner type

How would you categorize your interactions with institutions with whom you have work-based learning partnerships?	Local universities	Community colleges	Technical schools	High schools	Profe: assoc
We have frequent communications throughout the work-based learning experience as part of our partnership	4	1	1	2	1
We communicate at the beginning of the work-based learning experience to recruit participants	5	2	2	4	2
We communicate at the end of each work-based learning to evaluate and improve future work-based learning	4	1	2	3	1

How would you categorize your interactions with institutions with whom you have work-based learning partnerships?	Local universities	Community colleges	Technical schools	High schools	Profe: assoc
We communicate once to establish the work-based learning and never again	0	0	0	0	0
We communicate only when issues arise with work-based learning participants	1	0	1	1	0
We do not communicate problems or issues with work-based learning participants	0	0	0	0	0

How would you categorize your interactions with institutions with whom you have work-based learning partnerships?	Local universities	Community colleges	Technical schools	High schools	Professional associations
We do not have frequent communications throughout the work-based learning experience as part of our partnership	0	1	0	0	0

Approximately one-third of participating employers are deeply involved in curricular activities at institutions. For example, in 2005, State Farm launched the State Farm Research & Development Center at the University of Illinois' Research Park. This research facility brings together State Farm staff and University of Illinois students to support high-level research (e.g., actuarial research). This partnership offers real-world data experiences to enhance the academic program. Another example is the partnership between Northrop Grumman Corporation and Antelope Valley College, the City of Palmdale, the Los Angeles County Office of Community and Senior Services, Goodwill, and the South Valley Job Center of California. Northrop Grumman Corporation led the development of the curriculum for the advanced manufacturing program, which was approved by the U.S. Department of Education. If individuals complete 16 weeks of training in the program, they are guaranteed an interview with Northrop Grumman Corporation for a position on

the team that fabricates and assembles large aircraft. Other companies, like Bloomberg, provide equipment and case study materials to colleges and universities to give students firsthand experience with the type of data and equipment they would use as an employee of the company. Engaging with institutional faculty and administrators on academic programs allows for greater alignment of the curriculum with industry needs.

Identifying and establishing partners is a large part of building and growing WBL programs. Employers described four considerations when identifying partners: (1) whether institutions are within their company's geographic footprint, (2) whether institutions have large numbers of students graduating in programs aligned with technical skill needs, (3) diversity recruiting goals, and (4) existing relationships within the company. Notably, the level of effort required to coordinate with individual schools and the associated outreach activities have the potential to make new partnerships a challenge, especially if there is not one person or one team owning the effort required to build these relationships. The potential for an outside organization or third-party entity that could coordinate and manage the partnership work (e.g., Handshake, WayUp, Symplicity), could potentially be appealing to employers. Maintaining institutional partnerships takes considerable time, energy, and financial support; working with a third-party entity could limit the burden of coordination on employers.

Employers also looked to different types of educational partners and WBL models for different roles within their company. For example, at TIAA, schools have been selected based on a scoring system that rates schools on the programs schools offer and how those schools align with hiring needs. A strong need in information technology (IT), for example, may lead to a partnership with a school with a strong IT program. Similarly, Northrop Grumman Corporation wants 25% of hires to be early career engineers and uses their internship program as a major pipeline for these roles. For Northrop

Grumman Corporation's fabrication work, they partner with community colleges and assist with the design of apprenticeship programs, especially around curriculum development. Finding and keeping qualified candidates is a challenge at all skill levels, but companies that maintain a robust roster of educational partners and have the ability to utilize different WBL models (e.g., internship compared to apprenticeship program) have more flexibility in meeting diverse hiring needs.

WBL programs are excellent opportunities for employers to explore whether a student is a good fit for their organization without the need to commit to a long-term situation (Divine, Linrud, Miller, & Wilson, 2007). Additionally, WBL programs are often considered an important spoke in a company's larger hiring strategy to find and hire permanent employees with reduced turnover (Knemeyer & Murphy, 2001). Strong employer and institutional relationships can help yield a steady stream of talent (Divine et al., 2007). A report from the National Network of Business and Industry Associations (2015) further examines WBL opportunities from the employer's perspective and considers the various high- to low-touch models of WBL programs offered to be models that can lead toward better outcomes.

Benefits of WBL

Employers offer WBL programs to engage with institutions and identify a more diverse pool of potential employees, train potential employees, and hire skilled individuals. Individual employers, however, may implement similar WBL programs in the service of different strategic goals. For example, during the interview, many mentioned brand recognition for future employees as an underlying goal for their internships and capstones. While not all WBL participants will convert to being full-time employees, their positive experiences may be transmitted to others through word-of-mouth, including to other potential employees that have not gone through a

company's WBL program. Some employers see WBL experiences as an opportunity to expose participants to their company culture, products, and ethos. For example, KeyBank sees engagement with freshman and sophomores as a way to engage students in the brand earlier, "to get more cream-of-the-crop applicants down the road." Other companies, including Northrop Grumman Corporation, indicated that increased diversity goals are paramount and drive their WBL strategies. Similarly, State Farm's internship initiative began as a way to increase minority representation. Many of the communities in which State Farm offices operate are not highly diverse, which translates into an increased effort to hire diverse talent. Other companies, like KeyBank, make efforts to increase minority and female representation in investment banking by reaching out to on-campus student groups for their WBL program; through these efforts, KeyBank has doubled its minority and female representation in the last five years, proving that WBL programs can contribute to strategic hiring goals. For these companies, WBL is a way to reach out to underrepresented populations while also providing them opportunities to gain and demonstrate skills.

Employers cited a variety of attributes that lead to effective WBL programs. In particular, nearly all of the employers mentioned teaching knowledge and skills using work tasks that contain essential elements of the profession (See Table 15). Additionally, including opportunities to learn 21st century skills (i.e., teamwork, problem-solving, and collaborative work skills) was also cited as an important attribute of effective WBL programs, as these opportunities can showcase who works well as part of a team.

Table 15. Attributes of an effective WBL program

Please indicate to what extent the following attributes are important for an effective work-based learning program at your company

Teaching knowledge and skills using learning tasks that contain essential elements of the work done by those in the profession

Important Somewhat important Somewhat unimportant Not important

8 1 0 0

Activities include social, cultural, and organizational aspects (i.e., how work is structured and carried out, interactions, and teamwork) as well as the specialized technical skills of a job

7 2 0 0

Opportunities to learn teamwork, problem-solving, and collaborative work skills (i.e., 21st century skills)

9 0 0 0

Using equipment, tools, and materials actually used in production and services by employees in the occupation	5	4	0	0
Learning activities result in real products or services of use to clients, customers or company	2	7	0	0
One experienced worker is identified and assigned to the work-based learning participant as mentor, coach, and coordinator of learning activities and progress	6	1	1	1
Work-based learning involves independent activities requiring participant initiative and responsibility	5	3	1	0
Location of learning reflects the realistic demands of the workplace	7	1	1	0

When asked to rank the top three “21st century skills” emphasized in their WBL programs, employers selected “communication” most frequently (see Table 16). Surveyed employers also selected critical

thinking and collaboration as top skills.

Table 16. Top three emphasized 21st Century Skills in WBL

What 21st Century Skills are highly emphasized in your company' work-based learning program(s)?	1st	2nd	3rd
Critical thinking	3	3	0
Creativity	1	1	0
Collaboration	1	1	4
Communication	3	3	2
Information literacy	0	0	0
Media literacy	0	0	0
Technology literacy	0	0	0
Data literacy	0	0	0
Flexibility	0	0	2
Leadership	0	0	2
Initiative	2	2	1
Productivity	0	0	0
Social Skills	1	1	0

When asked about primary motivations for engaging in work based-learning, the surveyed employers indicated that building the talent pipeline is the primary motivation for engaging in work-based learning as indicated in Table 17. Unsurprisingly the majority of employers reported that their WBL was at least somewhat integrated with their overall human capital strategy and at least somewhat important in addressing skill shortages (See Tables 18 and 19).

Table 17. Top three primary motivations for engaging in WBL

What are your primary motivations for engaging in work-based learning?	1st	2nd	3rd
Building talent pipeline	9	0	0
Corporate responsibility	0	1	1
Improved corporate image	0	0	1
Reducing the future costs of recruitment	0	1	0
Trial opportunity before hiring in a permanent position	0	2	0
Alleviating skills shortages for my industry	1	1	1
Lower labor costs	0	0	0
Talent acquisition	0	2	1
Enhanced competitiveness	0	2	1

What are your primary motivations for engaging in work-based learning?	1st	2nd	3rd
Increasing diversity in my company	0	0	2
Giving back to the industry/profession	0	0	0
Access to new thinking and new ideas	0	0	2

Table 18. Integration of WBL with human capital strategy

	Integrated	Somewhat integrated	Somewhat not integrated	Not Integrated
Please indicate to what extent your company's work-based learning initiatives are integrated into a broader human capital or workforce planning strategy?	2	5	2	0

Table 19. Importance of WBL in addressing skill shortages

Important	Somewhat important	Somewhat unimportant	Not important
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	Important	Somewhat important	Somewhat unimportant	Not important
How important to your company's human resource strategy, if at all, are work-based learning experiences in addressing skills shortages?	4	3	2	0

Similar to the importance of building a talent pipeline through WBL programs, eight of the nine employers surveyed reported that hiring an individual who participated in their WBL as a full-time employee ranked as a top indicator of success (See Table 20). More specifically, four of the nine employers ranked conversion to full-time employment as the primary indicator of success, and two of the nine employers ranked it as their second most important success indicator. Retaining individuals for more than two years after full-time hiring is ranked by seven of the nine employers as another top indicator for success. Only one employer reported that promoting an individual within the first three years of working is a top indicator of success.



Eight of the nine employers surveyed reported that hiring an individual who participated in their WBL as a full-time employee ranked as a top indicator of success.



Table 20. Top three success indicators for WBL experiences in your company

What are the top success indicators for work-based learning experiences at your company?	1st	2nd	3rd
The individual performs well and exceeds expectations of their work-based learning experience (i.e., the individual is good at their job)	4	1	0
The Individual comes back the following semester or year for another work-based learning experience	0	3	1
The individual is hired as a full-time employee	4	2	2
The individual is retained for more than two years after hiring them full-time	0	3	4
The individual is promoted within the first three years	0	0	1

Maturity and formality of WBL

The WBL offerings varied in maturity across companies as did the formality of companies' individual WBL Programs. The nine participating companies' WBL offerings were at varying stages of development. For example, Comerica, considered their programs to be in the early stages, as they organizationally define the goals and curriculum of the program in relation to their larger human resource goals. Other companies, such as Northrop Grumman Corporation and State Farm, built out a progression of experiences, typically internships, which serve as a longer-laddered experience providing both the student and the employer with exposure and deeper understanding of what the student may be like as a future employee; nonetheless, they are still developing strategies for

tracking and maximizing strategic hiring goals. On the robust end, programs such as Bloomberg's are fully developed, including a highly competitive summer internship program with a well-articulated curriculum, schedule, professional and financial supports, and recruiting system which provide a seamless, well-rounded experience. Bloomberg is looking at new and exploratory ways to do more to prepare the future workforce through other avenues, such as apprenticeships and increased local partnerships.

Using WBL to give back

The focus on teaching and learning was a strong underlying component of how employers approach WBL at their organizations. Some components of WBL programs serve as a way for companies to give back to the community, whereas other programs have strong reciprocal benefits. A recurring theme among CHRO's was the desire to find candidates that exhibit the ability and desire to learn. This philosophy for talent acquisition is a motto for Huntington National Bank's CHRO: "recruit for potential, attitude, and train for skill." It was further stressed that in a changing hiring environment, these types of attributes are critical to a company's workforce. WBL experiences provide a singular window into the attitude and potential of new hires through day-to-day exposure to participants' work habits and interactions with other employees.

At State Farm, for example, the company's relationship with local high schools and co-op program translates primarily into increasing graduation rates rather than hires for State Farm. The focus in this program is the learning opportunity for the student. In their collegiate internship program, State Farm requires summer interns to present innovative ideas to senior leaders inside the company at the end of their internship experience, providing both interns and senior leadership an opportunity to learn from each other.

Measuring the efficacy of WBL

One critical way to ensure that WBL practices are performing as employers expect is to measure effectiveness. We asked employers a series of questions to understand how and for what areas of their WBL programs they are using measurements to track their return on investment. As discussed above, employers largely consider their WBL practices to be successful if an individual is hired as a full-time employee. Of the employers participating in the survey, five were able to provide conversion rates for WBL to new hires (see Table 21). Employers also tracked a variety of other measures related to decreases in recruiting costs and retention of new hires from the WBL. When employers were asked to report their return on investment (ROI) measures for their WBL programs, conversion to full-time employees was a measure used by six of the nine employers engaging in internships, by all three employers engaging in apprenticeships, by one of four employers engaging in externships, and two of four employers engaging in co-ops, as indicated in Table 22.¹² Two of the nine employers offering internships are not tracking ROI measures; this is a potential area for growth. Data indicate that companies are more aware of the importance of collecting this data and are looking to expand their capacity in this space.

Table 21. Conversion rate for WBL to new hires

>50%	41-50%	16-20%	11-15%	Do not have that data readily available
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	>50%	41-50%	16-20%	11-15%	Do not have that data readily available
Approximately what percentage of work-based learning participants are converted to new hires?	2	1	1	1	4

Table 22. ROI measures by WBL

How is return on investment (ROI) measured for each of your company's work-based learning activities?	Apprenticeships	Capstone projects	Co-ops	Externships	Internships
Conversion into full-time employees	3	0	2	1	6
Productivity	2	0	1	1	3
Participant learning outcomes	1	1	1	2	5

Job performance during the program	2	0	1	1	4
Retention of new hires from work-based learning program	3	0	1	1	5
Decrease in recruiting costs	3	0	1	1	2
ROI is not measured	0	0	1	0	2

WBL programs take time and effort to build and need to be well aligned with a company's strategic hiring goals. Employers were asked to describe what success looks like for their organization, as it relates to WBL. While each employer provided a unique response to that question, overall, success means finding a good employee, the ability to convert interns or other WBL participants to full-time hires, increasing the pipeline of potential future hires, providing a meaningful work and cultural experience, and increased productivity (i.e., how employees perform over time and if they are promoted). At Northrop Grumman Corporation, for example, the number one predictor of a quality hire is if that individual had an internship. Their second predictor of success is if the individual has a family support network nearby. Information about a candidate gleaned through WBL participation forms a critical part of the information they use to understand their potential hires.

While all participating employers in the study collect data on the diversity of individuals participating in WBL programs and all track conversion rates (i.e., moving from intern to full-time employee), hiring goals differ by company and there is not a clear model for what types of data to collect or how to establish a target conversion rate. For example, Bloomberg and Northrop Grumman Corporation aim for a 90% conversion rate, TIAA aims for 60% in 2019, KeyBank recently hit 72%, and Huntington National Bank's is 50%. Other companies, like TIAA, measure factors like diversity throughout their pipeline, and how diversity is reflected in the recruitment for their WBL programs. They take into account who applies, who gets interviewed, who gets the internship, and who converts into a full-time hire in order to understand where their recruitment efforts are most successful. While these data collection efforts provide snapshots in time of the number of employees hired, greater clarity and planning are needed about how data can be used to improve strategic hiring goals and future workforce development.

Moreover, while tracking diversity and conversion metrics seems to be fairly common practice, more work is needed on measuring return on investment (ROI). While some companies, such as Northrop Grumman, specifically mentioned being in the early phases of collecting this type of data, one company, Bloomberg, was quick to detail what they are tracking:

While Bloomberg has been able to track ROI in terms of hiring costs and are not seeing the financial payoff, they are not deterred from continuing to offer their WBL program. For Bloomberg, building the talent pipeline for future hires and having brand ambassadors across the United States are other key reasons for continuing with this work and are frequently cited when discussing the program's worth.

Defining and collecting ROI metrics requires patience, as meaningful data may take several years to collect. Ensuring robust data infrastructures and having data tracking tools in place will allow companies to collect data while determining how they want to use ROI metrics for decision making. Companies should consider defining explicit outcome metrics and establishing structures to track data.

How employers are planning for future WBL activities

The employers we spoke to plan on expanding, formalizing, and innovating their WBL programs over time. While employers often use multiple WBL strategies (e.g., offering internships or co-ops, engaging capstone projects with institutions) to fulfill their recruitment goals, these strategies were often at different stages of development depending upon the employer. For example, Huntington National Bank has a well-established internship program but has recently expanded into co-ops and capstones, which provide the potential for extended exposure to students.

Several companies described themselves as in the “infancy stage” of collecting employee analytics but were able to detail how the data they currently have are being used for continuous improvement purposes. Moreover, other employers mentioned efforts underway to further grow their WBL programs. For example, Bloomberg has a successful apprenticeship program underway in London where individuals work four days a week with the company while attending an education program in engineering or analytics one day a week. Bloomberg would like to see a similar model brought to their United States offices. They currently are in talks to work with a network of employers to bring an apprenticeship model to their New York offices. Another employer, KeyBank, would like to start comparing the cost of intern conversions to entry-level hires as a result of this research. Finally, Genworth is considering expanding the pathways for individuals who have been out of the workforce and is

considering developing “returnships” (i.e., a pathway for individuals that have been away from the workforce for a period of time and are looking to re-enter in a similar or new role). Genworth indicated seeing a spike in these types of potential employees and were looking for research on the topic.

Expansion plans also extended into new populations, new types of institutional partners, and new geographic areas. For example, Huntington National Bank is considering partnerships with bootcamps and community colleges in order to recruit for positions that may not require an undergraduate degree, but rather need more specific technical training and skills development. Once recruited from the bootcamps, Huntington National Bank intends to continue investing in the individual’s education and training in order to plan for long-term career development.

WBL programs need dedicated resources to develop a competitive and sustainable program. WBL programs seen at mid- to large size companies require dedicated financial and staffing resources to ensure the success. Many participating employers detailed the year-round recruiting and programmatic elements that go into having a robust WBL program—campus visits, recruiting talks, and student interviews. Following this phase, time is spent securing work and team assignments for WBL participants, developing supplemental programmatic activities (e.g., networking events, special speakers, events), performance evaluations and data collection, and future planning and hiring. For companies that are continuing to expand and formalize their WBL programs, the required time and effort is often substantial. Comerica’s CHRO stressed this point when we asked about growing their program: “Time and resources are stopping us from advancing our internship program. We need to reprioritize how they get things done. Having an internship program is more than just a task that’s assigned to someone. We have a full program – it’s a job.”

When asked about barriers to expanding WBL, employer's most often cited barrier is the time commitment associated with expanding the length of the WBL experiences (see Table 23).¹³

More research is needed to better understand how the time commitment is distributed among employees. For example, future research could explore whether responsibilities are added on to an individual's workload or are detailed as a specific task in a job description.

Table 23. Barriers preventing your company from expanding WBL

	Apprenticeships	Capstone projects	Co-ops	Externships	Interns
Not enough work	1	0	0	1	2
Monetary cost/budget constraints	2	0	1	1	2
Insufficient resources within my company	1	0	0	1	1
A lack of space to accommodate participants	0	0	0	0	2
Administration time required	0	1	1	0	2

	Apprenticeships	Capstone projects	Co-ops	Externships	Interns
Supervision time required	1	1	1	1	2
Length of time commitment over the period of the work-based learning experience	1	1	2	2	4
My company is too small	0	0	0	0	0
Access to quality participants	0	0	1	0	0
We do not have any barriers keeping us from changing the length	1	0	0	1	1

As noted previously, employers are using WBL as a way to build a pipeline of future employees, so we asked them how open they are to expanding current WBL offerings. The majority of employers surveyed are either open to immediate change or open to change in the future (see Table 24). Employers engaging in internships were most likely to say that they were open to change right now (seven of the nine employers).

Employers listed various reasons for changing, including wanting a broader range of opportunities and more flexible timeframes and work arrangements, providing more programs for production workers, and the desire to build pipelines earlier through K-12 alignment and more partnerships with specific programs in schools across the country.

Table 24. Openness to expanding current WBL offerings

In the future, is your company open to changing and going beyond the work-based learning programs that have been implemented in the past?	No, we are not open to change and we are not considering it	Yes, we are open to change, but now is not the right time	Yes, we are open to change right now
Internships	0	2	7
Apprenticeships	2	3	4
Externships	1	4	4
Co-ops	1	4	4
Capstone projects	3	3	3

The types of investments for future WBL practices were also wide ranging and uncertain. While most companies reported being open to change, it was not clear how their investments would change WBL programming in the future. In addition to being unsure about the types of investments in the future of WBL, the second clearest

trend was the intention, shared by four employers, to increase funding for apprenticeships, co-ops, and internships, as shown in Table 25.¹⁴

Table 25. Types of investment in future WBL

What type of investment will your company make towards the following work-based learning programs in the future?	Unsure	We will not be making any additional investments	More time	More staff	Increased funding
Apprenticeships	2	0	0	0	1
Capstone projects	1	0	0	0	0
Co-ops	2	0	0	0	1
Externships	2	1	0	0	0
Internships	4	1	1	1	2
TOTAL:	11	2	1	1	4

When employers were asked about current investments in WBL, they reported a wide range of investment levels in WBL (see Table 26), between \$1,000 and \$1 million¹⁵ with expected increases in their annual investments between \$5,000 and \$200,000 (see Table 27). We also asked employers about some specific ways that they might consider changing their WBL engagement. Seven of the employers

indicated that they might consider offering a virtual WBL experience for an individual that cannot physically come to their company's location; additionally, seven might increase the number of WBL participants at their company if there were a trusted third party that could help run the program, as indicated in Tables 28 and 29. The viability of using third-party providers to facilitate WBL programs is an area for future research. For example, the company Apprenti partners with community-based organizations and colleges to help identify and refer diverse candidates for apprenticeship. They recruit, train, and place talent into technology-related roles.

Table 26. Annual investment in WBL

	\$1,000- \$29,999	\$30,000- \$99,999	\$100,000- \$200,000	\$200,001- \$500,000	\$500,001- \$999,999
Approximately how much does your company invest annually in work-based learning experiences?	1	2	2	1	2

Table 27. Expected change in annual investments in WBL

	Increase of \$100,000 - \$200,000	Increase of \$30,000 - \$99,000	Increase of \$11,000 - \$29,000	Increase of \$6,000 - \$10,000	Increase of \$5,000 or less
How much do you expect your company's annual investments in work-based learning experiences to change	2	1	2	1	1

Table 28. Willingness to consider virtual WBL

	Might consider it	No	We already offer it
Would your company offer a virtual work-based learning experience for an individual that cannot physically come to your company's location?	7	1	1

Table 29. Willingness to increase WBL participants with third party assistance

Yes Maybe No

	Yes	Maybe	No
Would you increase the number of work-based learning participants at your company if there were a trusted third party that could help run the program for / with your company?	2	7	0

Finally, we asked employers to indicate what additional needs they had in order to increase their engagement in WBL. Three employers responded with the following comments, largely centered on the supervisory demands of WBL:

- *More hands-on supervision from management.*
- *Our staff is so busy ... I would not want to try to implement a more expanded program without knowing current leadership and staff are willing and able to do the people management required.*
- *HR could not take this on without significant support from department staff.*

There are also constraints on participants in engaging in WBL. For example, there are students who cannot afford to participate in WBL for financial reasons. Employers' ideas for supporting these students included apprenticeships, where students are paid and education is paid for by the employer, often in exchange for commitments to work after completion of the apprenticeship program; and paying for expenses related to internships, such as providing housing and job sharing.

CONCLUSIONS AND RECOMMENDATIONS FOR THE FUTURE

The purpose of WBL experiences for students are to learn specific types of knowledge and skills, as well as expectations of the workplace (Candy & Crebert 1991). WBL experiences provide students with opportunities to engage with clients, learn technical skills, and increase their understanding of professionalism. Employers engaging in apprenticeships, capstones, co-ops, externships, and internships all indicated that developing technical expertise, professionalism, and customer service are important areas of knowledge and skills that WBL participants should gain.

For employers, this research suggests a number of ways in which WBL programs are beneficial:

1. WBL programs contribute to strategic hiring goals and a company's public profile
2. Engaging with institutional faculty and administrators on academic programs allows for greater alignment between curricula and industry needs
3. A successful WBL program includes building a pipeline of highly qualified and trusted individuals

However, WBL programs are demanding to run. In particular:

4. WBL programs need dedicated resources to develop a competitive and sustainable program

5. Building and maintaining partnerships between industry and academia takes considerable time, energy, and financial support; these resources should be built into programs
6. Employers plan on expanding, formalizing, and innovating their WBL Programs over time, but time is a barrier

Finally, most programs would benefit from tracking additional measures of the effectiveness of WBL programs and their ROI:

7. Efficacy measures vary across the maturity of WBL programs as well as the formality of individual WBL Programs
8. Companies need to better define explicit outcomes metrics and establish structures to track WBL data

Policy and practice implications

The final part of this research includes nine recommendations for the WBL policy and practice landscape. The first five recommendations are focused towards the employer audience and the last four offer ways to expand research in the future.

Recommendation 1. Structure WBL programs with clearly communicated data-driven outcomes and benefits.

It is critical to consider outcomes before implementing a particular WBL approach (e.g., internship vs. apprenticeship). This requires a careful examination of the specific program aspects and aligning those with student learning outcomes and employers' goals. Students are usually solely responsible for drawing parallels between their academic experiences, decisions, and career and economic outcomes (Bailey, Jenkins, & Jaggars, 2015), but there is

room for explicit linkages. If the research can more clearly point to long-term effects of certain WBL practices, practitioners and policymakers may be able to more adequately structure programs and interventions to support students engaged in WBL programs in greater skill development, educational attainment, and successful transition into the job market.

Recommendation 2. Provide additional guidance for how employers can track ROI.

Two of the nine employers participating in the survey that offer internships are not tracking ROI by one of the operationalized definitions of ROI (e.g., conversion into full-time employees, productivity, participant learning outcomes, job performance during the program, retention of new hires from WBL programs, decrease in recruiting costs). This is a potential area for growth. Data from the phase I qualitative interviews indicate that companies are aware of the importance of collecting this data and are looking to expand their capacity in this space. For some nascent programs, ROI data collection is difficult given the lack of long-term data. However, determining the metrics and establishing an early tracking system can help guide employers to better understand how their investments are being realized and can move employers to more productive places to focus their WBL.

Recommendation 3. Explore and expand WBL partnerships to include community colleges.

Only a small number of the employers surveyed partnered with local community colleges. A similar finding emerged from interviews with CHROs. However, employers in the case studies reported that their community college partnerships provided them with additional talent pools for jobs that do not traditionally require four-year degrees. Manufacturing, in particular, can benefit from partnerships with community colleges. Other employers may find unidentified

talent pools for jobs traditionally considered only for individuals with a bachelor's degree or in a bachelor degree program at community colleges.

Recommendation 4. Examine the breadth of communication between employers and a variety of educational partners.

Data from the survey show that frequent communication most often takes place at the beginning and end of projects between employers and local universities and high schools. There is, however, little communication between employers and other education organizations such as community colleges, technical schools, and professional associations. Careful attention should be given to communication patterns in future iterations of this survey, as data may fluctuate with higher representation of employers offering apprenticeships with technical schools or community colleges as partners, for example.

Recommendation 5. Create stronger linkages between academic coursework and work-based learning experiences.

A majority of employers participating in the survey that hosted internships noted that they are neutral about their ability to connect the internship experience to the individual's academic program. This may be an area to expand efforts to deepen the connection between the internship experience and academic coursework.

Recommendation 6. Promote and make data publically available to allow companies to learn from one another.

Data, when clearly communicated, can drive the success of WBL programs and future recruitment and hiring practices. Understanding the impact of WBL programs is still a relatively new field of study. Researchers and employers stand to learn from one another and can benefit from best practices in terms of tracking and

identifying what elements to measure. More transparent tracking of outcome measures and sharing of data have the potential to widen the knowledge base of this new research area.

Recommendation 7. Conduct more research to understand resources required for creating and managing a WBL program.

Time is a nonrenewable resource and this point was emphasized by employees responsible for creating and managing WBL programs. When asked about barriers to expanding WBL, employers most often cited the time commitment associated with expanding the length of the WBL experiences as a barrier. Employers need to consider if the time commitment is added on to an individual's workload or if it is detailed as a specific task in an individual's job description. This kind of data can inform analyses of how and where employers are investing the most in their WBL programs and potential strategies for expansion.

Recommendation 8. Conduct longitudinal studies to better understand the impact of WBL over time.

Longitudinal studies are needed in order to assess the benefits over time of the various WBL models for students, employers, and institutions. This research could focus on a number of useful questions, such as: How is job retention affected by clear coordination between academic goals and professional goals? Are students more likely to advance in their careers at a quicker pace if they have these experiences? How are employers benefitting from academic partnerships (beyond supplying students to participate in WBL programs)? What is the ROI for employers?

Recommendation 9. Conduct more research that captures the views of students and employers on WBL experiences.

Both students and employers need to be at the forefront of the conversation about WBL experiences, beyond just the academic community and educators. Example questions include: *What works well about various WBL approaches? What is challenging? What supports are present and absent? How have students' and employers' goals aligned and shifted over the course of the WBL experience/program?* The more student and employers voices are present in this type of research, the more prescient subsequent questions will be. The more the field can learn about WBL best practices and characteristics, the better likelihood there is for more alignment between academic and professional experiences.

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