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The Business Case for Work-Integrated Learning in Mining



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SOCIAL RESEARCH AND DEMONSTRATION CORPORATION
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The Mining Industry Human Resources Council (MiHR) is an independent, non-profit organization that drives collaboration among mining and exploration companies, organized labour, contractors, educational institutions, industry associations and Indigenous groups to identify opportunities and address the human resource and labour market challenges facing the Canadian minerals and metals sector.

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The Social Research and Demonstration Corporation (SRDC)

is a non-profit research organization, created specifically to develop, field test, and rigorously evaluate new programs. SRDC's two-part mission is to help policy-makers and practitioners identify policies and programs that improve the well-being of all Canadians, with a special concern for the effects on the disadvantaged, and to raise the standards of evidence that are used in assessing these policies.

Since its establishment in December 1991, SRDC has completed over 300 projects and studies for various federal and provincial departments, municipalities, as well as other public and non-profit organizations. SRDC has offices located in Ottawa and Vancouver, and satellite offices in Calgary and Montreal.

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Executive Summary

Introduction to Gearing Up and Work-Integrated Learning

The Mining Industry Human Resources Council (MiHR) secured funding in 2017 for a pilot project entitled Gearing Up. This four-year project brings industry and academia together to create over 1250 new student work-integrated learning (WIL) opportunities in the mining sector to change the way students in mining-related post-secondary education (PSE) programs perceive, pursue and acquire the skills needed for in-demand mining careers. WIL is a broad term for practical, work-related instruction for students, and can include paid and unpaid activities ranging from systematic training in apprenticeships, to structured work experiences in co-op positions or internships, to institutional partnerships such as applied research projects or case competitions.¹

Gearing Up is funded by Employment and Social Development Canada's (ESDC) Student Work Placement Program (SWPP), which is intended to help PSE students enrolled in science, technology, engineering and math (STEM) and business programs obtain the work experience needed for jobs in high-demand fields..²

Gearing Up is made up of five components:

1. Industry-education partnerships
2. Attraction of key talent
3. Remove workplace barriers
4. Eight hundred and fifty mining WIL opportunities
5. Evaluation and sustainability

Wage subsidies are tiered to promote early attachment to, and diversity in, high-demand mining occupations. Employers can receive subsidies up to 70 per cent of the wage cost for a placement and the maximum wage subsidy per placement is \$7,000. To qualify, the student and employer must complete the first module of MiHR's Gender Equity in Mining Works (GEM Works) training – helping foster a mining and minerals industry where both women and men have the best opportunities for making great contributions and having rewarding careers.

¹ Academica Group, "Taking the Pulse of Work-Integrated Learning in Canada," Business/Higher Education Roundtable 2016, <http://bher.ca/wp-content/uploads/2016/10/BHER-Academica-report-full.pdf>, 4.

² <https://www.canada.ca/en/employment-social-development/programs/work-integrated-learning.html>

Purpose and Method of Study

MiHR contracted the Social Research and Demonstration Corporation (SRDC) to develop an evidence-based business case focused on the value and benefits of successful WIL initiatives for the Canadian mining sector. Over a six-week period in the spring of 2018, SRDC researchers conducted interviews with eight industry partners, 10 staff or faculty members at PSE institutions, and nine students or new graduates who participated in WIL to gather data on their experiences and insights. In order to prepare for and make sense of the information gathered through the interviews, SRDC conducted a literature scan on the benefits of WIL in mining and related sectors. The following business case for WIL in mining draws from the interviews, secondary research, and includes key messaging to assist MiHR in communicating and promoting the business case for the Gearing Up pilot project.

The Value of WIL as Identified by Employers, Students and Educators

One-hundred per cent of the employers interviewed for this project would prefer to hire a candidate with WIL experience over a candidate without WIL experience. When asked if they would hold to this decision even if the candidate without WIL experience had better academic performance, employers said yes. The interview responses were analyzed to identify common themes why students, employers, and PSE institutions in the mining sector consider WIL valuable. Ten themes emerged that clustered around the benefits of WIL for the three stakeholder groups, and these themes are grouped into three categories that underscore the value that WIL brings to the mining sector:

WIL attracts students to high-demand occupations in the mining industry

WIL opportunities build students' attraction and attachment to the many career opportunities available in the mining sector: Combining relevant PSE curriculum with hands-on WIL opportunities such as those offered by Gearing Up is an effective method of exposing students to industry expertise and stimulating their interest and enthusiasm for careers in mining.

WIL develops a robust pipeline of skilled talent to meet mining industry's labour demands

WIL opportunities develop a more skilled talent pool of new graduates for employers to hire: Gearing Up's WIL opportunities facilitate students' skill development through structured mentorship and knowledge transfer by experienced industry employees. This mentorship assists in mitigating the risk of a sector-wide experience gap stemming from the high number of forecasted retirements from the mining industry predicted for the coming decade.³

Students engaged in WIL experiences bring value to organizations: WIL students provide employers value by applying analytical skills and fresh insights to important projects; students bring energy and enthusiasm to projects and work to accommodate tight timelines and deliverables.

³ Brandon Marshall, "Facts and Figures of the Canadian Mining Industry," 2017, <http://mining.ca/sites/default/files/documents/Facts-and-Figures-2017.pdf>, 44.

WIL is most valuable when the opportunity is meaningful for the student and employer: WIL is most successful when the employer and student approach the experience prepared to offer meaningful work in a learning-oriented role that provides value to industry and to the student's workforce development.

WIL enhances connections between educational curricula and industry requirements: Employers, students, and PSE institutions benefit from increased opportunities to communicate and develop connections between the educational curricula and industry requirements; WIL enhances the relationship-building required for this communication to occur.

WIL provides exposure to the realities of the mining sector, including its emphasis on safety: Because it is difficult to know if one is suited for safety-sensitive roles and remote or underground conditions before experiencing them, students who have had these experiences through WIL and who are still interested in applying for mining positions are especially valued by employers.

WIL provides students the soft skills and professional experience that employers value: Employers prefer to hire new graduates who have completed WIL opportunities over new graduates who have not completed WIL opportunities. Employers and students describe how WIL opportunities foster soft skills related to teamwork, communication, and collaboration in professional settings. Employers viewed candidates with WIL as having a proven track record, an increased likelihood of a more efficient integration into the organization, and higher levels of productivity.

WIL experiences affect students' post-graduation career decision-making and employment prospects: Students who complete WIL opportunities experience an increased sense of preparedness for the workforce. There is evidence that suggests that students with WIL experience, especially co-op experience, enjoy higher rates of employment and earnings in their first year after graduation.⁴

WIL experiences may attract a more diverse workforce by building awareness of opportunities with all students' (women, Indigenous, new Canadians) with prior to post-graduation career decision-making and employment prospects: This finding underscores the need to increase the participation of underrepresented groups in WIL opportunities so that they have similar access to these improved outcomes.

WIL engages PSE institutions in innovative opportunities related to mining

WIL partnerships strengthen PSE institutions' curricula and access to resources: Organizing WIL opportunities for students facilitates relationships between industry organizations and PSE institutions. These relationships provide PSEs with information on what skills employers are seeking, employers with a more robust pipeline of talent, and graduating students with access and experience to the cutting-edge tools and technology that they will be expected to use in the workforce.

WIL placements provide the opportunity for industry and academia to foster research and innovation partnerships: WIL opportunities can support the establishment of connections between industry organizations and PSE institutions that can lead to research and innovation-focused partnerships.

⁴ Academica Group, "Taking the Pulse of Work-Integrated Learning in Canada," Business/Higher Education Roundtable 2016, <http://bher.ca/wp-content/uploads/2016/10/BHER-Academica-report-full.pdf>, 19.

The Business Case for Gearing Up

By supporting WIL through Gearing Up, MiHR is fulfilling its strategic efforts to retain the knowledge base of experienced workers employed in Canada's mining sector, through the workforce development of today's STEM and business students. Facilitating partnerships between educators and employers ensures that the curriculum of PSE institutions reflects the needs of the industry at the same time as it provides opportunities for knowledge transfer from experienced to novice employees

Given the predicted skills shortage facing the mining sector, there is a pressing need to develop and recruit from groups that are currently underrepresented in the industry. The offer of tiered wage subsidies is incentivizing industry employers to create new WIL placements for students from these groups – women, immigrants, people with disabilities and first year students – contributing to the early attraction, engagement, and retention of diverse talent. An employer interviewee praised the project's tiered subsidy structure, explaining: "a couple of specific things that I like [about *Gearing Up*] is that it focuses on underrepresented groups. There's an increased incentive to look through the diversity lens. It also provides incentive for first year students, who are the group that struggles the most to get their first work term."

The business case for increasing WIL in the mining sector is clear. As one employer stated,

Out of all the initiatives I have seen, Gearing Up is the easiest and most straightforward. I don't think I could find someone who would say it wouldn't bring value. So being able to engage these students and bring that funding, as a group, if we are all engaging then we can bring awareness to the mining industry and have a workforce that will meet all of our needs.

Background

The Mining Industry Human Resources Council (MiHR) is a national non-profit organization that identifies opportunities and addresses human resource and labour market challenges within the Canadian minerals and metals sector. As part of their work to strengthen the mining labour market, MiHR recently secured funding for a pilot project called Gearing Up that brings industry and academia together to create over 1250 new student work-integrated learning (WIL) opportunities in mining. WIL is a broad term for practical, work-related instruction, and can include paid and unpaid activities ranging from systematic training in apprenticeships, to structured work experiences in co-op positions or internships, to institutional partnerships such as applied research projects or case competitions.⁵ The following definition, adopted by the Higher Education Quality Council of Ontario, captures the many dimensions of WIL: “Work-integrated learning is the process through which students come to learn from experiences in educational and practice settings. It includes the kinds of curriculum and pedagogic practices that can assist, provide, and effectively integrate learning experiences in both settings.”⁶

Funding for Gearing Up is provided by the Government of Canada through Employment and Social Development Canada’s (ESDC) Student Work Placement Program (SWPP). Announced in the 2016 federal budget, SWPP has established partnerships with 10 employer delivery partners to help post-secondary education (PSE) students enrolled in science, technology, engineering and math (STEM), and business programs across Canada obtain the work experience they need to prepare for occupations in high-demand fields for which there are not enough qualified workers.⁷ The federal government recognizes the value of WIL in preparing students for full-time and higher-paying STEM and business employment opportunities than they may otherwise obtain; the government also recognizes the role of WIL in providing employers with new graduates who are skilled and ready to work in STEM or business-related positions.

A major component of SWPP is providing funding for wage subsidies offered to employers that create quality student work placements and that recruit students for these placements by establishing partnerships with PSE institutions. In the case of Gearing Up, all WIL placements are paid opportunities in the mining sector, available to PSE students studying in STEM or business fields. In order to be eligible for a wage subsidy, the WIL position must offer a relevant and meaningful experience that contributes to the student’s graduation requirements for the program. To help achieve its targeted number of new WIL opportunities, MiHR has established a national consortium of mining employers, service providers, industry associations and PSE institutions.

⁵ Academica Group, “Taking the Pulse of Work-Integrated Learning in Canada,” Business/Higher Education Roundtable 2016, <http://bher.ca/wp-content/uploads/2016/10/BHER-Academica-report-full.pdf>, 4.

⁶ Academica Group, 4.

⁷ <https://www.canada.ca/en/employment-social-development/programs/work-integrated-learning.html>

As a SWPP partner, MiHR contracted the Social Research and Demonstration Corporation (SRDC) to develop an evidence-based business case for WIL focused on the value and benefits of successful WIL initiatives for the mining sector. SRDC researchers conducted interviews with industry partners, staff at PSE institutions, and students or new graduates who participated in WIL to gather data on their experiences and insights related to WIL. In order to prepare for and make sense of the information gathered through the interviews, SRDC conducted a literature scan on the benefits of work-integrated learning in mining and related sectors. The business case for WIL in the mining presented here draws from the interviews and this secondary research, and includes key messaging that could assist MiHR in communicating and promoting the business case for the Gearing Up pilot project.

The Study

The key question guiding this research study explores the value of WIL in the Canadian mining sector. It asks:

- What is the business case for mining sector employers and PSE institutions to provide and encourage work-integrated learning opportunities for students in mining-related PSE programs?

To answer this question and provide MiHR with a strong understanding of how the Gearing Up initiative can maximize the benefits of WIL for the three participating groups – mining employers and industry associations, PSE institutions, and students – SRDC conducted:

- A review of previous research on the benefits of WIL in mining and other sectors;
- A brief online survey of eight mining sector employers; and,
- Interviews with 27 stakeholders, including 10 faculty and staff members from PSE institutions that offer WIL opportunities, nine students or new graduates who have participated in WIL experiences, and eight mining industry employers who host or have hosted WIL opportunities.

The design of the literature search strategy and interview protocols were based on SRDC's experience documenting the business case for human resources development practices in a variety of domains. The framework incorporates three guiding principles:

- Informants' knowledge is **anchored** to an occupational group or human resources situation with which they are familiar;
- The protocols present clear **counterfactual** situations in which informants assess the costs and benefits of WILs in relation to the pre-WIL situation; and,
- Key cost and benefit categories are harmonized with previous studies – conducted by SRDC or identified in the literature – to provide analogous empirical evidence on the business case for WILs.

The literature scan informed the design of the interview protocols as well as the analysis of the interview responses. Telephone interviews were conducted over a six-week period. The table below summarizes the number of contacts, the number of interview invitations extended to the various stakeholder groups, and the total number of interviews conducted with each stakeholder group. All students invited to participate in an interview responded to the invitation or a reminder email and scheduled an interview. Similarly, two-thirds of the 15 PSE institution faculty or staff members who were invited to participate in the project completed an interview, and no further invitations were extended after the objective of interviewing ten individuals from that group was reached. Industry employers were slightly more difficult to connect with, as just over half of all employers contacted engaged in a telephone interview. Industry employers were also invited to complete a survey on their organizations and experiences with WIL; the survey responses informed the analysis of the interview data but are not presented in this report in order to preserve the confidentiality and anonymity of the respondents.

Table 1 Summary of interview invitations and responses

Stakeholder group	Number of contacts provided by MiHR	Number of interview invitations distributed	Number of interviews completed	Response rate
PSE institution faculty and staff	26	15	10	67%
Students and new graduates	9	9	9	100%
Industry employers	15	15	8	53%

Questions that cannot be answered as a result of this project are those related to salary and employment outcomes, as early-career WIL and non-WIL participants were not interviewed. All students and new graduates interviewed had completed WIL experiences or were engaging in a WIL opportunity. While both of the new graduates had been hired in mining-related fields and credited their WIL experiences with helping them to get the job, the lack of a proper counterfactual group limited the ability to assess the impact of WIL on their career trajectories and compensation.

The Value of WIL as Identified by Employers, Students and Educators

One hundred per cent of the employers interviewed for this project would prefer to hire a candidate with WIL experience over a candidate without WIL experience. Some employers were asked if they would hold to this decision even if the candidate without WIL experience had better academic performance; all of the employers questioned said they would still prefer the candidate with WIL experience. The interview responses were analyzed to identify common themes about why it is that students, employers, and PSE institutions in the mining sector consider WIL valuable. The 10 themes that emerged clustered around the benefits of WIL for the three stakeholder groups, with interviewees describing:

1. The role of WIL opportunities in building students' attraction and attachment to the many career opportunities available in the mining sector;
2. How WIL opportunities develop a more skilled talent pool of new graduates for employers to hire;
3. The value that students engaged in WIL experiences bring to organizations;
4. The positive impacts of WIL when the opportunity is meaningful for the student and employer;
5. The multitude of ways in which WIL opportunities enhance the connections between educational curricula and industry requirements;
6. How WIL opportunities provide exposure to the realities of the mining sector, including its emphasis on safety;
7. How students gain the soft skills and professional experience that employers value through WIL opportunities;
8. WIL experiences on students' post-graduation career decision-making and employment prospects;
9. How partnerships established through WIL experiences strengthen PSE institutions' curricula and access to resources;
10. How WIL opportunities foster research and innovation partnerships between industry and academia.

The following three categories summarize these 10 themes into key takeaways that support the business case for expanding WIL experiences in mining. According to the employers, PSE institution contacts, and students or new graduates interviewed for this project, WIL opportunities serve to:

- Attract students to high-demand occupations in the mining industry.
- Develop a robust and diverse pipeline of new graduates who are equipped with the technical and soft skills required to meet the mining industry's current and future labour supply demands.
- Engage PSE institutions in innovative opportunities for students and faculty in mining related programs.

The following section integrates the literature and interview data to discuss the business case for WIL in mining using these three broad categories, with subheadings focused on the 10 themes identified above.

1. WIL builds students' attraction and attachment to the many career opportunities available in the mining sector

All three stakeholder groups interviewed for this project recognized the value of WIL in the urgent task of developing the Canadian mining industry's future workforce. One PSE contact explained how the "workforce is getting older and there will be a lot of vacant positions in the future, and so I think there is a willingness to take on younger, greener, people into the organization sooner." Employers also described this need and the ways in which their organizations are taking a longer-term approach to workforce development in the face of the current labour market situation. As one employer stated:

Top of mind for us, is that they will be future leaders. We were doing the same thing over and over, and trying to find people that didn't exist, and so we needed to start investing in the young future of the business. You don't get the dividends right away, it takes five to seven years, but it is worth it and we are investing.

The literature on WIL describes how hands-on learning opportunities and relevant PSE curriculum can be key methods for exposing students to experienced employees and developing their pathways toward careers in industries that require both theoretical and practical knowledge.⁸ These points were echoed by a PSE institution contact, who explained:

The sooner we get students getting their hands dirty in the field that they are going to be in, the more 'skin in the game' they have to stay in the program, if that makes sense. If they have no idea what it is like to go underground until year three, they lose interest, they can't do any applications of their learning to what the underground environment is, what happens at mining supply companies, so they aren't as engaged as students.

Another PSE institution contact described how WIL experiences help attract and attach students to careers in the mining sector:

Students without experience and they get on a mine site: that's our favorite. Until you get out there and on site or underground, or ideally both, you can't really understand the scale or scope or the complexities. It fires up their inspiration and passion and they come back with a passion for the industry.

However, investing in WIL opportunities poses a tension for industry organizations that are lean, are trying to establish themselves, or are recovering from a downturn. Employers nonetheless urged their colleagues to offer WIL placements.

⁸ Denise Jackson, "Employability Skill Development in Work-Integrated Learning: Barriers and Best Practice", *Studies in Higher Education*, 40.2, (2015): 350-367.

These employers explained that WIL placements provide tremendous value to the sector, even when the employer does not or is unable to offer employment to WIL alumni, as these experiences serve to kindle students' interest and excitement about careers in mining. Consequently, WIL participants may then share their experiences with other students at a similar stage of planning their future career pathway. One employer enumerated the reasons why companies may be limited in terms of offering WIL opportunities and how Gearing Up will support that work, as well as reasoning for why these hands-on opportunities are a responsibility of the industry:

Building a pipeline of diverse talent, filling gaps and shortages - one of the things for me is that I have to worry about [our organization's] future talent and resources to run the business, but it is important we look at it across the industry. I see it as a responsibility of [our organization] and other organizations to support co-ops and placements. It supports the disciplines to produce engineers to run our industries. If we aren't hiring and supporting students, they don't choose these jobs and then we don't have the resources we need to support the industry going forward.

[...the support through Gearing Up] helps deal with the cyclical challenges we face as a sector. One of the things that has been an issue for resources sector is that when prices are down - companies limit the number of WIL opportunities that they offer and new graduates that they hire. It is very short sighted - when prices turn, there are a limited number of skilled students with work experience. Gearing Up provides that bridge because it is partially subsidized - I am hoping it will encourage employers to support students and prevent the huge swings we get historically.

Key takeaway: Combining relevant PSE curriculum with hands-on WIL opportunities such as those offered by *Gearing Up* is a key method for exposing students to industry expertise and stimulating their interest and enthusiasm for careers in mining.

2. WIL develops a more skilled talent pool of new graduates for employers to hire

Ensuring an ongoing and adequate workforce is not as simple as hiring new workers equipped with technical or business knowledge and skills. The retirement of the industry's long-time skilled workers, who have been a core part of the mining workforce over their careers and who withstood its cyclical nature, will result in "significant loss of industry knowledge and experience," according to the 2017 *Facts & Figures of the Canadian Mining Industry* report produced by the Mining Association of Canada (MAC).⁹ As a result, MAC predicts a "new set of challenges" related to the replacement of seasoned workers by relatively inexperienced workers.¹⁰

⁹ Brandon Marshall, "Facts and Figures of the Canadian Mining Industry," 2017, <http://mining.ca/sites/default/files/documents/Facts-and-Figures-2017.pdf>, 44.

¹⁰ Ibid, 46.

The Advisory Council on Economic Growth's report on equipping Canada's workforce with skills for the future describes the need for an increase in the number and diversity of WIL opportunities for Canadians of all ages, in order to provide intensive practice in workplace environments that will prepare PSE students with the skills and experience required by the Canadian economy.¹¹ In addition to the human resources issues related to its aging and retiring workforce, the mining sector—and specifically the exploration sector—is challenged by market volatility that can make it difficult to provide stable employment that will enable new workers to progress along their learning curve and retain skilled workers who have become disengaged.¹²

Taken together, these challenges have exacerbated the Canadian mining industry's projected shortage of skilled workers. In its 2017 report on employment and hiring in the Canadian mining industry, MiHR estimates that the sector will need to hire 87,830 new workers over the next decade to meet industry demands at their current level and to replace the 52,630 workers – nearly 25 per cent of the industry's current workforce – forecasted to retire in the same period.¹³ In an expansionary scenario, where the market demand for Canadian mined commodities increases, the sector will need to hire over 130,000 workers.¹⁴

As one student observed, WIL experiences provide tremendous skills-building opportunities by offering mentorship and training, from highly experienced colleagues in the workplace, while they are still in a learning-focused employment role:

Listening to the people who are actually building it, valuing their opinions and perspectives was a good experience. As students, we have minimal experience and we get out into the field and learn from people who have 10-15 years experience and they are going to teach you things you never even thought of.

Without meaningful opportunities to engage with mining sector employers and experienced employees, who hold knowledge and excitement about the sector, students may lack exposure to mining and instead choose alternate careers, which would increase the risk of a knowledge and experience gap. As one student described:

I was the only student on site and the age difference was substantial. A lot of people are planning to retire and there is a visible experience gap. The baby boomers, they will be retiring and there is a big knowledge gap so a transfer of knowledge through the co-op is pretty critical.

¹¹ Advisory Council on Economic Growth, "Learning Nation: Equipping Canada's Workforce with Skills for the Future," December 2017, <https://www.budget.gc.ca/aceg-ccce/pdf/learning-nation-eng.pdf>, 21.

¹² Mining Industry Human Resources Council "Mining Labour Market Outlook for British Columbia, 2016-2026," 2017, https://www.workbc.ca/getmedia/f7c01e3e-ea59-416b-90aa-2725ebb9c250/Mining_Labour-Market-Outlook-Report-for-BC_Feb-2017.pdf.aspx, 80.

¹³ Mining Industry Human Resources Council, "Canadian Mining Labour Market Outlook," 2017, https://www.mihhr.ca/pdf/publications/National-Report-2017_EN_WEB.pdf, 51.

¹⁴ Mining Industry Human Resources Council, "Canadian Mining Labour Market Outlook," 2017, https://www.mihhr.ca/pdf/publications/National-Report-2017_EN_WEB.pdf, 51.

To mitigate the risks of this shift, MAC strongly recommends that government and educational institutions ensure that new entrants to the industry have the skills required for in-demand mining positions, and that “new employees have opportunities to learn from experienced employees during training programs and on the job to gain valuable workplace experience.”¹⁵

Highlighting the time-sensitive need and value of WIL, one employer concluded their interview by stating:

The most important thing is to get the message across to the various companies of the industry around the importance of work-integrated learning and the responsibility of all companies in the mining sector to ensure that a talent pipeline exists for the future.

Faced with these challenges, companies may prefer to hire more experienced employees who would require less training than new graduates; however, they also realize that WIL may have a role to play in developing that workforce, as indicated by one employer:

Obviously, we need to eventually build a sustainable workforce that is not only experienced people but those that will grow with the organization. To build an organization from every age group - when I completed the [SRDC] survey, I realized that our age distribution is tilted toward more senior experienced people in terms of experience [at our organization].

Key takeaway: WIL facilitate students’ skill development through structured mentorship and knowledge transfer by experienced industry employees, thereby mitigating the risk of a sector-wide experience gap as a result of the high number of retirements from the mining industry that are being predicted for the coming decade.

3. Students engaged in WIL bring value to organizations

While the quotes above may seem imply that bringing on students is costly to organizations, it is important to highlight the tremendous value that employers ascribed to the students they have brought on for WIL opportunities. As one employer stated:

It's something that we always say but it is coming to crunch time and we need to get that talent and interest now or we won't have the talent to keep the business and industry going. It's a complementary thing - the students add great value so it's not like we are just training them to be okay in the future. We get value now and the more we do that, the better set up we will be in the future.

Similarly, several employers noted that students bring fresh perspectives and an eagerness to the work, making them ideal for focused projects. As one employer reflected:

We use interns to fulfill project that are important for us but that permanent staff would not be able to prioritize. We benefitted from having them working on these specific projects for a few months to get the job done for us.

¹⁵ Ibid, 46.

This perspective was emphasized by another employer contact who described their experience offering WIL opportunities to students:

For us, interns are providing a lot of energy, a lot of analytical skills. For example, they are so quick and fast in their deliverables. Put them on any project and they have much more flexibility to accommodate the needs of the project. Say we have a short-term project and we are looking for analytical ability and don't need experience - they are learning the business and they are providing us with their experience in analytics, and we are gaining their interpersonal skills. They are very good when it comes to specific projects.

As these interview excerpts highlight, developing student talent brings value in the immediate term, while at the same time preparing pipeline of skilled workers who will carry the mining industry into the future.

Key takeaway: WIL students provide employers with value and capacity by applying their analytical skills and fresh insights to important projects; students bring energy and enthusiasm to projects and work to accommodate tight timelines and deliverables with flexibility.

4. WIL impacts are most positive when the opportunity is meaningful for the student and employer

There are several takeaways based on the three employer quotes provided above, describing the value and contributions that students bring to organizations. One in particular being that students thrive and bring value when given structured and specific projects; two, they have the focus and energy to conduct high-priority projects that require flexibility and analytical skills; and three, projects benefit from the fresh perspectives and insights that students can offer. These points are summarized in the following quote from an employer interviewee:

Some tasks are best suited for younger employees [...] you can get a young person to go into a situation and write a report and then have a more senior person help them to synthesize that information. Making sure everyone is aligned to the outputs so that we are not investing the time of a high-paid salary on a lower-salary task. Work that is repetitive and not as challenging for people who have worked for longer can be challenging for people who are starting out and it offers a fresh set of eyes on things. The nice thing about students is that they come in hungry. They want to learn, they want to a statement, a contribution, so you provide a framework to allow that to happen successfully.

Relatedly, providing WIL opportunities has positive impacts for senior employees as well; as one employer explained:

You are responsible for fostering the next generation of our workforce. Our supervisors and senior people can vividly remember their time in these junior positions - they get the fact that they are responsible for or are empowered to shape the next generation of the mining workforce and a lot of them take great pride in it. They want to be able to do that.

Key takeaway: WIL is most successful when the employer and student approach the experience prepared to offer meaningful work in a learning-oriented role that provides value to the industry partner and to the student's workforce development.

5. WIL enhances the connections between educational curricula and industry requirements

The PSE institution contacts invited to participate in interviews about the value of WIL experiences responded promptly and with enthusiasm. This high level of engagement is an indication of the value that Gearing Up's education partners ascribe to the initiative and to WIL in general. As one interviewee explained:

[WIL] is the beating heart of our operation. Our role as a college is to produce graduates who are industry-ready, and the best way we see to do that is to embed our students in the industry in question.

The quote above exemplifies educators' awareness that they prepare students with the technical skills required for the occupations they expect to hold after graduation, but that a new graduate's ability to supply the labour market with the skills needed to grow Canada's economy is reliant on a combination of technical knowledge and practical experience. The interviews with all 10 PSE institution contacts emphasized their interest and commitment to forging relationships with employer and industry partners that will allow students registered in their programs to gain hands-on experience in workplaces that align with their academic training. As such, all showed a high degree of interest in Gearing Up, and those educators with industry contacts indicated that they are actively promoting the wage subsidies and other benefits of the initiative to mining sector employers.

The PSE contacts interviewed for this project also emphasized how building strong relationships with industry partners through WIL opportunities can open doors that provide larger cohorts of students (i.e. whole classes) with relevant hands-on learning experiences. Several PSE interviewees described how relationships with industry employers provide institutions with a variety of student learning experiences, such as increased student access to live demonstrations and guest lectures, experiences in underground mine sites, or the opportunity to access tools and technology that would otherwise be cost-prohibitive, such as mining equipment or industry-specific software. A PSE contact summarized these benefits by explaining:

We keep a very good relationship with the labour market - by having our students go there [to WIL placements], we understand what their needs are so we are able to adjust what we do to meet labour market needs. It also helps with institution in terms of use of equipment or other donations. It makes it easier to ask for money or for them to donate to us the equipment that they are replacing. It's also a way for us to find members for our Program Advisory Committees. The more links we have and the more we talk to these kinds of people the more we know. We improve the curriculum through Program Advisory Committees where we meet once a year to talk about what we do, but very often if an employer is hosting one of our students for an eight-week placement, it is an opportunity to hear what the employers expects that student to know or skills they expect them to have.

Taken together, all of these experiences improve the relevance of course curricula and students' in-classroom learning by providing a stronger pulse on industry requirements and expectations. Some institutions have Program Advisory Committees such as the one described above, where industry experts review program curriculum on an annual basis to ensure that what is being taught reflects the technical skills that students will be expected to have at graduation. Others, however, update their curricula through direct relationships with industry partners and/or feedback from students returning from WIL experiences. Both types of relationships between PSE institutions and employers strengthen the content delivered in the classroom and help to ensure that it reflects the knowledge needed in industry occupations. As one PSE institution contact explained:

If we are constantly talking to the companies about opportunities for students to work with them, we get to learn what the needs are of the mining industry and we are better able to adjust the curriculum or create workshops that are relevant and that teach skills that are relevant to what the professionals use now in the industry.

It is also important to note how students who are returning from WIL opportunities help to enhance the relevance of the content delivered in-class, and add a new dimension to the discussion with their classmates. As one PSE institution contact explained:

Those students coming back into the classroom have been useful for enriching the educational environment. So, if we have students going out and doing work placements in the mining industry it's something that makes the classroom experience richer because they are attuned to that kind of thinking. It brings a diverse perspective.

As engaged learners with enhanced applied knowledge, these students were equipped to ask better-informed questions about what they were learning in the classroom, thereby deepening the applicability of course content to real-life mine site experience.

Key takeaway: All three stakeholder groups – employers, students, and PSE institutions – benefit from increased opportunities to communicate and develop connections between the educational curricula and industry requirements; WIL enhances the relationship-building required for this communication to occur.

6. WIL provides exposure to the realities of the mining sector, including its emphasis on safety

WIL can provide students with the lived experience of what it means to work in the mining sector. As alluded to in the above discussion on the value of practical experience in mining, the unique circumstances of the industry – which may include travel to remote sites, working underground, withstanding Canada's weather – require both prerequisite technical knowledge and the work experience to confidently make adjustments for any unpredicted conditions one might encounter on a mine site. One employer described how WIL experiences are “such growth opportunities,” explaining:

For example, for a mining engineer... there's a difference in learning about surveying and doing a surveying course, and learning about being safe, and learning safety protocols and then going out to survey in a pit and climbing on piles.

Another employer described how WIL provides exposure to what he described as “the reality of the mining industry”:

It's not just preparing a plan or designing a mine. It is everything that happens around it. Key learning for them and they understand what they contribute and how to sell it and communicate it to the miners who will have to go underground and do it. They don't see that in school.

The students interviewed for this project described how their WIL experiences opened their eyes to how situations in the field will usually be different from what is expected, requiring on-the-fly adjustments. As one student recounted:

Getting into the work experience really demonstrated how we had a great plan in our system [before arriving onsite] and we were trying to execute it, but we were constantly modifying it due to scheduling conflicts, weather, missing parts, and human error. It really enhances your education [...] knowing that a plan is only as good as a plan, and the real world is full of curveballs so you have to be resilient and accommodate change. We were working in middle of nowhere, and so we had be resourceful to find tools and parts and repurpose waste materials.

Another student explained:

Mining isn't easy to teach - each situation is unique and experience based. In courses, they try to give us knowledge and general rules but in most situations you defer to experience – to people who have been on the site or have experience in the past. Everything is different wherever you go, so there is no substitute for experience.

In addition to recognizing all of the skills-related benefits of WIL, employers also interpreted a candidate’s WIL experiences as evidence that a new graduate is aware and better prepared for the unique circumstances of the industry than inexperienced graduates. As one employer described, “we see differences [in job candidates who have completed WIL experiences versus those who have not] because of our unique set up for the industry. We are fly in/fly out and remote-based. If they have been through that before you can assume they would be more experienced and proven in those areas. They are not going to be a showstopper.”

Similarly, safety awareness was another skill that employers and students described as being honed through WIL:

The learning curve is longer for the ones that haven't completed WIL. If we talk about the safety aspect, if they haven't been exposed to a mine they need more supervision. For us specifically, if we know that they have gone through a work term where they have to do rotations, we like that too.

- Employer interviewee

Understanding work priorities - safety is the key priority, always, and you won't always understand that until you go into the field. You are a better candidate for employment after you get that early work experience.

- Student interviewee

As one PSE institution contact stated, “Getting this experience confirms that this is an area they want to go into, something they want to do.”

Key takeaway: Employers value students and prospective employees who have experience in safety-sensitive roles through WIL.

7. WIL provides students with the soft skills and professional experience that employers value

Experience in a professional work environment provides students with the opportunity to develop the soft skills and organizational-savvy that employers' value. In fact, a survey conducted by the Canadian Council of Chief Executives (now the Business Council of Canada) revealed that some employers even tend to emphasize soft skills, including people skills, communication skills, problem solving skills and analytical abilities, over hard skills.¹⁶ As one employer explained in response to a survey focused on the skill needs of major Canadian employers:

*Our entry-level employees are expected to gain experience and technical knowledge on the job and through training. However, core competencies such as initiative, communication skills and resourcefulness must be present during the selection process.*¹⁷

The desire to hire candidates with developed and demonstrated soft and sector-relevant skills like safety may be one reason why 32 per cent of large private sector employers in Canada expect at least one year of relevant full-time experience for entry-level positions, and why 17 per cent of employers expect at least two years.¹⁸ These results are from a 2016 survey conducted by the Business Council of Canada, which also revealed that respondents identified co-op programs and other forms of WIL as “among the most important sources of relevant work experience [...] work-integrated learning provides recruiters with important references and the assurance that an applicant has the workplace skills to hit the ground running.”¹⁹

Because of their WIL experience in the field, students described how they developed the skills to communicate professionally with contractors and subcontractors at mine sites to align everyone to ongoing changes to the original plan in a clear and professional manner. Students described how these work experiences would enhance their employability and career success as new graduates, but also how they applied the communication and other interpersonal skills they gained through these experiences to the context of group projects and case competitions upon their return to the classroom. These examples demonstrate how gaining soft skills in the context of an employment environment had an immediate effect on their learning and professional development.

¹⁶ Canadian Council of Chief Executives, “Preliminary Survey Report: The Skill Needs of Major Canadian Employers,” January 2014, <http://www.ceocouncil.ca/wp-content/uploads/2014/01/Preliminary-report-on-skills-survey-Jan-20-2014-2.pdf>, 6.

¹⁷ Ibid, 7.

¹⁸ Aon Hewitt, “Developing Canada’s Future Workforce: A Survey of Large Private-Sector Employers,” Business Council of Canada 2016, <http://thebusinesscouncil.ca/wp-content/uploads/2016/03/Developing-Canadas-Future-Workforce.pdf>, 6.

¹⁹ Ibid, 6.

One student described the specific experiences that contributed to the development of his communication skills:

I gained communication skills through a lot of experiences during my work term where I was communicating with a senior employee with 40 years of experience, people who are driving trucks, and new people on the mine site. You gain a lot of skills that you can't learn in the classroom. I learned how to communicate while being calm and non-confrontational.

Students who have completed WIL opportunities explained how accumulating this relevant work experience and developing these soft skills will increase their employability and facilitate their entry into the labour market. As such, they strongly recommend that other students pursue WIL, no matter where they are at in their educational programs. As one student stated:

Mostly don't underestimate yourself. As a first year student, I assumed that no one would want to hire me and that isn't the way to think about it at all. There are lot of people out there who want to hire a cheap student for the summer and even if you are just doing basic fieldwork or grunt work, anything you can get on your resume is helpful and will make you a better candidate. It is not beneficial to wait. And do not to be discouraged if you don't get a job. You have to keep applying and there will be one that will give you a shot that will be worth it [...] If you are a first year student, it might be a lower job that's boring and basic but other [future] positions [by employers] should be about increasing their learning, carrying students up instead of keeping them stagnant. The student is getting the best from the work experience and the employer is getting the benefit of having the student. It has be meaningful and useful for everyone.

That WIL positions can be useful to students and employers both in the immediate sense and longer-term is reflected in the literature. The Business Council of Canada study referred to above reveal an increase in the number of entry-level employees hired directly through WIL programs since 2013, which serves as evidence that employers do see significant value in developing and identifying candidates through WIL opportunities.²⁰ Employers interviewed for this project described WIL placements as being akin to extended job interviews where they could observe and evaluate the fit between the student and the organization. One employer described the recruitment-related benefits of WIL experiences for the organization and candidate, explaining:

WIL is an opportunity to showcase the organization and industry for the student to consider for their career. It gives the company the opportunity to assess the student, their work ethic, their contributions on the job, and it is a probationary period prior to making the hiring decision. It reduces the recruitment costs if you don't have a successful recruitment.

As described earlier, all of the employers interviewed for this project said yes when asked whether a candidate's WIL experience made a difference in their hiring decision.

²⁰ Hewitt, 6.

One employer explained their perception of the differences between candidates with WIL experience versus those without by stating:

Whether they have WIL experience is one of the first things I look for and it is a huge weighting factors for us. I have been doing this for a long time and through this experience I have had good experience with students with high grades and WIL, and they are good, but I have also seen a lot of examples of students with high grades and no WIL or work experience and they do not have the ability to collaborate, work on teams, get up and go to work, and know what are the expectations of work.

When this same employer was asked if they would choose a candidate with WIL experience but lower grades over a candidate with high grades and no WIL experience, they still said yes, explaining:

If they [the candidate with WIL but lower grades] have a proven track record and references about their abilities to convert learning into practical application, they usually have better skills with regard to collaboration, teamwork and understanding of what is required to get job done and add value to the role that they are in.

A PSE contact explained that he had heard something similar from a mining industry colleague:

One of my colleagues from the mining industry emphasizes that grades aren't as important as experience with mining. A+ students with no experience will be passed over for a student with lower grades but who have experience in mining. Mining companies invest a lot in their people so there is a lot of on the job training - there can be a lot of attrition, so having students that have had mine site experience and who know what that life, culture, experience is like and who still want to pursue a career in mining - that is a much safer experience for the company.

Some students learned during the co-op interview process that employers prefer experience and soft skills to academic achievement. For example, when asked what advice they would provide to student considering a WIL opportunity, one student stated:

I would recommend going to co-op instead of graduating early. A lot of co-ops, they don't even ask for a transcript because they are looking at experience. They want you to be well-integrated, a people person, because a lot of knowledge will come over time with the work experience. They aren't expecting a new grad to be one of their best employees.

As one employer explained, WIL experience and the soft skills and professional work experience through these opportunities helps students and new graduates to integrate faster and bring value to the work more efficiently:

There's a big difference. In just the way that they integrate, the speed that they integrate in the workforce. They have a much quicker and easier understanding of work assignments, what is expected of them, who to talk to when they have questions, and so on.

Key takeaway: Employers prefer to hire new graduates with WIL experience. WIL fosters soft skills related to teamwork, communication, and collaboration in professional settings, providing a proven track record and increased likelihood of a more efficient and productive integration into an organization.

8. WIL affects students' post-graduation career decision-making and employment prospects

WIL increases students' awareness and attachment to roles in the mining industry, and enhances their technical and soft skills, thereby making them more enticing to employers as job candidates. At the same time, they also empower students with the opportunity to test out different roles and responsibilities, which may help to focus students' post-graduation career decision-making. These various roles also provide students and employers with the opportunity to build more extensive professional networks than if they did not participate in WIL.

One student spoke about the benefits of gaining exposure to a variety of roles in a short period of time during WIL experiences, and how this enhanced her career decision-making confidence. As she described:

I gained skills in adaptability, going into different work environments that included group work, working alone, in high-paced positions, high-stress positions, and slow pace positions. A lot of people who just go through their degree, they aren't prepared for the different work environments that they will be in after they graduate.

The value of this opportunity to try a variety of positions was also highlighted by an employer that explained:

It is a good benefit to see a variety of work experiences: the more exposure you can get helps you adapt to certain situations and provides ideas for the current role you are in [after you get hired].

Through these experiences, a student can determine whether remote work or underground work is suitable for them, or whether they would prefer a more business-focused role. Determining this preference early on in one's career can help promote attachment to the sector and to a particular career trajectory. Research shows that graduates from co-op programs, one of the most popular forms of WIL, are more likely to secure employment after graduation and experience higher earnings. A longitudinal study of 10,000 university graduates found that those who completed co-op programs earned salaries in their first year of employment that were 22 per cent higher than those of their peers who did not complete co-op programs.²¹ As one PSE representative stated:

The students that graduate with co-op experience get paid \$10k more than students who don't do co-op. They have two years of work experience as compared to students who didn't do co-op.

While further research is needed to investigate the relationship of causality between co-op experience and earnings after graduation, this interview data suggests that improved job readiness and the accumulation of work experience are WIL-related factors that improve the post-graduation earnings of candidates who have participated in WIL.

²¹ Academica Group, "Taking the Pulse of Work-Integrated Learning in Canada," Business/Higher Education Roundtable 2016, <http://bher.ca/wp-content/uploads/2016/10/BHER-Academica-report-full.pdf>, 19.

Research also shows that university co-op graduates are more likely to have paid off their education-related debt after graduation.²² This finding may have to do with the fact that co-op work terms provide students with income during the course of their studies; at the University of British Columbia, mining engineering co-op students earn a mean monthly salary between \$4,240 and \$4,535 per month.²³ While this project did not provide an opportunity to track differences in earnings between candidates with and without WIL experiences, all student interviewees spoke about how WIL would or did improve their employment prospects. When asked what advantages WIL provides with regard to employability, one student explained:

Competitiveness, a foot in the door... A lot of the time, you will find opportunities to come back to the companies that you have worked for, which is what I have done. Especially in poor market conditions, a lot of companies are not willing to take a risk on a candidate that they haven't worked with before. So the co-op position is basically an extended interview. There is little risk for the company because you are on a fixed term contract. They are evaluating you constantly and if you are making a good impression, they will want to bring you back as a full time employee. The company that I did my last [WIL] role with, I have been hired back in a full-time engineer-in-training position and I just graduated in April.

Being hired back by an organization where they completed a WIL position also speaks to the value of WIL for building a professional network, the importance of which was noted by almost all of the student interviewees. One student described Canada's mining industry as "a small community" while another said, "the number one [benefit of WIL] is the networking opportunities. I built a much more substantial network. In geology and the sciences, it is who you know more than what you know." Another student stated, "Building relationships in the industry is important. The industry is small compared to a lot of other [industries] so there's a higher chance of getting work later [through relationships]."

The emphasis on networking underscores the importance of challenging persistent barriers to diversity in the mining industry if the sector associations are committed to expanding the demographics of the sector workforce. With a tightening market for talent, the mining sector must institute programs and policies that will support the entry of underrepresented groups, including women – who accounted for only 17 per cent of the mining sector workforce in 2016²⁴. Factors including a lack of career awareness or negative perceptions about careers in mining, and a lack of supply of qualified women, indicate that there is a need to make the sector more amenable to participation by a diverse workforce.²⁵ In order to counter some of the systemic barriers to women's participation in the sector, MiHR developed a suite of training products related to gender equity in mining. An e-learning component of this training will be delivered as part of students' and employers' Gearing Up participation²⁶.

²² Ibid, 19.

²³ <http://pd.apsc.ubc.ca/salaries>

²⁴ Brandon Marshall, "Facts and Figures of the Canadian Mining Industry," 2017, <http://mining.ca/sites/default/files/documents/Facts-and-Figures-2017.pdf>, 44.

²⁵ MiHR, "Strengthening Mining's Talent Alloy: Exploring Gender Inclusion," 2015, https://www.mihr.ca/pdf/MiHR_Gender_Report_EN_WEB.pdf, 6.

²⁶ Ibid, 45.

Key takeaway: Students with WIL experience have an increased sense of workforce preparedness. There is evidence that suggests that students with WIL experience, especially co-op experience, enjoy higher rates of employment and earnings in their first year after graduation. This finding underscores the need to increase the participation of women and other underrepresented groups in WIL.

9. Partnerships established through WIL strengthen PSE institutions' curricula and access to resources

The enthusiasm from PSE contacts to participate in this project highlights the perceived value of these opportunities for students and employers, with PSE institutions poised as the intermediary connecting these two groups. This conceptualization also seems to be reflected by the literature on WIL, as reports and research on the benefits of WIL for PSE institutions is less extensive than the literature on the benefits for students and employers. However, there is some research that shows that internships – a form of WIL – serve to enhance PSE institutions' student recruitment and enrollment by making the institution's programs more desirable to students who value the opportunity to gain hands-on work experience during their educational training.²⁷ Relatedly, WIL also improves PSE institutions' reputation for producing candidates who are work-ready, which contributes positively to their reputations and in turn raises their profile among potential applicants.²⁸

The relationships between industry and educational partners have the potential to expand beyond immediate learning, as described in the WIL literature on how these relationships can provide financial support that helps ensure the quality and sustainability of programs that prepare skilled talent for the mining industry.²⁹ This point was acknowledged by several PSE contacts, who described how these partnerships can lead to new scholarships for students and other forms of economic development for PSE institutions:

Partnering with various employers and building those relationships is always helpful so that when development, fundraising and other folks are looking to advance a campaign... they like to keep tabs and know who our partners are and where our students are going because it is helpful for the case of "you are getting our students" for fundraising.

Key takeaway: Implementing WIL facilitates relationship building between industry and academia, resulting in increased resource-sharing to ensure graduating students have access and experience to the cutting-edge tools and technology they will use in the workforce.

²⁷ Rick Weible, "Are universities reaping the available benefits internship programs offer?", *Journal of Education for Business*, 85.2 (2009): 59-63.

²⁸ Ibid, 63.

²⁹ Ibid, 63.

10. WIL fosters research and innovation partnerships between industry and academia

The literature also discusses the value of WIL for facilitating research-focused academic-industry partnerships.³⁰ One employer described how mining companies are “increasingly turning into technology and innovation companies, with artificial intelligence and different technologies, and remote technology machines.” This indicates that there is great value in developing partnerships with academic institutions in order to achieve industry objectives including and beyond workforce development. As one PSE contact described:

On the research side of things, we try to help companies innovate in the way they want to when they don't have resources in house. They are new to grant writing, proposal writing, research and we hold their hand through that process. Through our applied research process, we can help companies do R&D in house while employing a graduate [of our program...] Fantastic that there are new programs to hire students and we can to build a relationship with that company. [...] The more we do the WIL, the more we get to know a company's activities and the more we can help them innovate within their operations. It builds a strong workforce for the sector and helps scope out future research projects.

Key takeaway: WIL helps establish connections between industry and academia that can lead to research and innovation-focused partnerships.

³⁰ Ibid, 60.

The Value of MiHR's Gearing Up Project for the Canadian Mining Sector

Given WIL's concrete benefits for students, new graduates, employers and PSE institutions, it is unsurprising that the Mining Association of Canada is calling for "industry to work collaboratively with government and educational institutions to ensure that new entrants to the industry have the skills required for high-demand jobs within mining."³¹ However, the workforce development system includes three stakeholders – students or new graduates, employers, and education providers – with varying priorities.³² In order to improve education and employment outcomes for all stakeholders, the McKinsey Center for Government report recommends the following: improve data collection and dissemination so that all parties are knowledgeable and prepared to manage performance; initiate more sector-wide collaborations to share the costs of enhancing education and training; and create an education-to-employment "system integrator" that coordinates and monitors activity in order to increase and improve innovations.³³

The launch of Gearing Up contributes to these three objectives by establishing a national consortium of mining employers, service providers, industry associations and PSE institutions, and by providing wage subsidies to encourage and support employers in bringing on students at all stages of their education. Moreover, Gearing Up's offering of tiered wage subsidies that encourage industry employers to create new WIL placements for students from groups that are underrepresented in the mining industry – women, immigrants, people with disabilities, and first year students – provides an incentive for the early attraction, engagement, and retention of diverse talent in the sector. The value of these incentives was recognized by an employer, who stated, "a couple of specific things that I like [about Gearing Up] is that it focuses on underrepresented groups. There's an increased incentive to look through the diversity lens. It also provides incentive for first year students, who are the group that struggles the most to get their first work term."

By supporting WIL through Gearing Up, MiHR is fulfilling its strategic efforts to retain the knowledge base of its existing workforce through knowledge transfer to the next generation. Achieving this goal through ongoing relationship-building and collaboration between educators and employers ensures that PSE curriculum reflects the needs of the industry at the same time as it develops a pipeline of workers who have the skills and experience to meet employer needs. Engaging students early will strengthen their engagement and attachment to the mining industry and enhance their post-WIL classroom learning, thereby graduating candidates for employment with strong technical and soft skills.

³¹ Marshall, 46.

³² Mourshed, Farrell, and Barton, 85.

³³ Mourshed, Farrell, and Barton, 85.

The requirement that all students and direct supervisors participating in the Gearing Up complete the first 20-minute module of the MiHR's Gender Equity in Mining Works (GEM Works) training will also contribute to the institutional change necessary to reduce systemic barriers to women's equitable participation in the industry.³⁴

Thus, the business case for increasing WIL opportunities in the mining sector is clear. As one employer stated;

Out of all the initiatives I have seen, Gearing Up is the easiest and most straightforward. I don't think I could find someone who would say it wouldn't bring value. So being able to engage these students and bring that funding, as a group, if we are all engaging then we can bring awareness to the mining industry and have a workforce that will meet all of our needs.

³⁴ Mining Industry Human Resources Council, "Gearing Up Program Applicant Guide," April 2018, https://www.mihrc.ca/pdf/GearingUp_Applicant_Guide_Apr2018.pdf.



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