Microlearning in the Mining Industry

A partnership between Signal Gold, Training Works, Agnico Eagle Mining, and Mining Industry Human Resources Council

Evaluation

TRAINING WORKS
KNOWLEDGE BY DESIGN

Evaluation of the Microlearning in the Mining Industry was completed by:

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AGNICO –
EXECUTIVE SUMMARY

Background

Today's workplace is experiencing a shift in its learning environment. The operational reality of many industries limit the amount of time an employee can leave to train. Additionally, today's employees need to be "adaptable learners" and they must be able to react very quickly to disruption and change, therefore learning must occur in a continuous, effective manner that focuses on behaviour change. The concept of short learning (microlearning), in line of work, either on a mobile phone or tablet was hypothesized to be an answer to these modern organizational learning challenges.

To this end, Signal Gold (formerly Anaconda Mining), Agnico Eagle Mines, Training Works, and the Mining Industry Human Resources Council (MiHR) partnered to create a comprehensive workplace based microlearning delivery model that was piloted and evaluated on over 200 employees within two mining operations (Agnico Eagle Mines - Nunavut, Signal Gold- Newfoundland and Labrador). The key deliverables of this project included:

- Creation of an industry driven micro-learning delivery model.
- Creation of a microlearning program that was be built around the delivery model directed at topics of behaviour-based safety and communication.
- Delivery of a micro-learning program within Signal Gold and Agnico Eagle Mines.
- Creation of a nationally recognized mining micro-credential.
- Creation and implementation of a comprehensive ROI evaluation on the bottom-line impacts of micro-learning.

Research on micro-learning model deployment within the mining industry is relevant to all industry stakeholders, and the research undertaken in this project, and its subsequent results, will serve as a starting point for the application of workplace based microlearning models. Effective deployment of this workplace model will not only help organizations and their people realize their intended objectives but also increase demand driven access to knowledge and skills and optimize application of these skills in the workplace. The speed and effectiveness with which skills development can be deployed in the future will be critical to the safe and productive operation of all organizations. The research contained within this document will provide a blueprint for a workplace based microlearning model that will enhance the ability of industries, employers, and policymakers, to make the right choices and apply the right technological options to ensure safe, effective skills deployment.

Evaluation Context

Throughout the implementation of the microlearning process, evidence of its effectiveness and outcomes achieved were monitored throughout. A pre-survey was administered to all participants at the onset to achieve a base level on key metrics (early 2021). Once microlearning was launched, participant engagement and success of learning was tracked using individual assessments that were completed as a part of the training (ongoing for 6-month period). Similar to the pre survey, this was given to both the control and experimental groups to identify changes in learning at this stage. Finally, a post-survey was administered to the two groups after the 6-month training to capture learnings (August 2022).

In order to determine the impact of the program on the organization and to triangulate findings, interviews with coaches/mentors and organizational leaders were conducted at the mid-point of microlearning (May/June 2022) and upon completion (September 2022).

Additionally, evidence for the effectiveness of the training was captured through administrative data in order to track changes in key performance indicators (e.g., number of incidences, profit; completed throughout the process).

Finally, a six-month follow-up survey was implemented 6-months after the training has occurred in order to determine long term impact and to further test the appropriateness of the training.

Key Findings

Relevance

This Microlearning model was found to be relevant to the needs of the organization. The training model allowed for flexible program delivery and did not require removing workers from the front-line to attend training. In addition, because it was delivered in the line of work application of behaviour change was highly optimized. The microlearning training program itself also provided a behaviour-based approach to health and safety, which helped increase employee engagement, knowledge and behaviour change on this important matter.

This model, as evidenced by the quantitative data found later in this report, was highly effective in targeting skills gaps and behaviour change in the participants While seen as highly relevant to the organization, employees requested that the microlearnig be targeted with more real life scenarios specific to their position/team It was indicated that this would help them to better comprehend how the behavioural skills covered in microlearning can be applied in their day-to-day job and continue to increase behaviour change.

Design and Delivery

It was found that the design of microlearning model fit with the operational reality of the industry. Those participants with less experience in the mining industry were able to gather more takeaways and expressed greater attention and engagement with microlearning.

The delivery model of microlearning allowed it to be integrated into the existing pre-shift meetings, which made it a routine and daily occurrence for employees and coaches. Additionally, the concept of short training videos was appealing for capturing the attention and interest of employees. Although, it was noted that the limited time in pre-shift meetings, made it difficult to have an effective and engaging discussion following the training videos, which is something that coaches would like to have more of.

Microlearning was designed to ensure that mining employees receive the right training to do their job on a continuous basis, which the program successfully achieved. Although, optimizing the design and delivery to ensure it can be delivered, while meeting the needs of the organization is critical to enhancing effectiveness.

Outcomes

Employees completed ten modules in the microlearning program: active listening, mindfulness, workload management, decision making, vigilance, effective inquiry, closed loop communication, assertiveness, team building, and coaching.

It was found that microlearning was successful in increasing behaviours across all ten competencies covered in the program at Agnico. Behavioural change has led to heightened awareness for safety-based practices and behaviours, helping the organization to develop a prevention focused approach to workplace health and safety.

In addition to behavioural change, microlearning provided the opportunity for increased engagement between employees and coaches, generating more conversation on the importance of health and safety across the organization. Furthermore, employees gained the confidence and communication skills to speak up about health and safety matters to other employees and their supervisors.

While it is too early to fully assess the impact of microlearning on organizational safety statistics, injury, and incident rates up until September 2022 suggest that the process plant has experienced a downwards trend. The process plant experienced a decline in incidents and injuries, 27% and 29% YoY from 2021, respectively. With a 39% increase in reported near misses, it is evident that the program has brought a proactive approach and made health and safety top of mind across the organization.

ROI

Microlearning resulted in employer savings of approximately $294,252.41. The complete ROI background and calculation can be found on p.31.

Recommendations

As Training Works looks to implement microlearning across other departments within Agnico and externally, it is important to leverage the feedback from this pilot phase to enhance the relevance and effectiveness of the program. Looking forward, it is recommended to consider the following:

Implement microlearning specific training sessions

Employees and Coaches found the microlearning model engaging during their toolbox talks however felt that there wasn't enough time to fully discuss the topics. They also felt introducing new topics via video daily was too frequent. While consistent health and safety trainings are important, there is opportunity to make for a better experience for employees and coaches. It is recommended to alter the frequency of video based trainings and supplement them with additional forms of microlearning (job aids, checklists, guided discussions etc.). In addition an increase in the amount of time allotted for microlearning trainings to allow for discussion is recommended.

Target those new/less experienced to the workforce/industry

Microlearning is best suited and leveraged as daily reminders to commute knowledge into behaviour as opposed to teaching brand new skills. Ensuring that employees understand the intent and outcomes of the microlearning model will help with learner engagement moving forwards. The behaviour-based approach of microlearning was found to be effective. Those experienced in the industry have received behavioura-based skills trainings in the past and considered the content of microlearning to be repetitive. While microlearning provided them with limited new learnings, it did serve as a reminder to the importance of behavioura-based skills in creating a safe workplace. Greater attention should be paid to onboarding employees to the purpose of microlearning to ensure their expectations align with the model delivery.

Find new ways to engage more experienced workers

It is important to investigate ways to engage more experienced workers, as a behaviour-based training remains highly important and relevant to the industry. With many incidents and injuries occurring as a result of an experienced worker becoming complacent, alternative delivery models may pique their interest and heighten engagement with this audience.

Use human actors/actresses to elevate professionalism

While it didn't take away from the learnings of microlearning, the use of animation impeded on the appeal and relevance. Mentors and coaches noted that some employees were less attentive to the videos because of the type of animation utilized. Consequently, it is recommended to utilize human actors/actresses in the microlearning

training videos to elevate professionalism and broaden the appeal for industrial works of all ages and skill levels.

Include industry examples to enhance relevance

As not all microlearning training videos are relevant to all positions, and some employees lacked the ability to make the connection between the competencies covered in the training and their day-to-day job in mining. To further the impact of microlearning, it is recommended to include more job-specific examples in the training videos and follow-up discussions. This would help to demonstrate how the behaviours covered in microlearning can be applied in the workplace as safety prevention tactics.

While the above recommendations would further the effectiveness of microlearning, it was acknowledged to be impactful in its pilot phase with the organization and is seen as a scalable program within and beyond the mining industry.

Conclusion

Overall, the pilot phase of microlearning completed at Agnico was found to be successful in achieving the outputs and immediate outcomes outlined in the Theory of Change. By taking the recommendations provided into consideration, there is opportunity to optimize and enhance the effectiveness of microlearning to scale it across other organizations.

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1.0 PROJECT CONTEXT

1.1 Project Overview

Signal Gold, in partnership with Training Works, Agnico Eagle, and the Mining Industry Human Resource Council conducted a two-year microlearning project in the mining industry. Training Works is an EdTech company with vast experience working in skills development. Working with clients to create training that is relevant and applicable on the job, Training Works understands that each organization and its employees require a unique approach to skills development. This training put learning in the hands of almost 200 participants who work at Signal Gold and Agnico Eagle Mining. The program was a total of two years which included the development and design of a microlearning and coaching program with 6 months of daily microlearning for employees. Employees completed up to 7 minutes of daily microlearning that could be done anywhere, anytime on their computers, mobile devices, and smart televisions. Coupled with onsite coaching and mentoring, this comprehensive blended learning program fits easily into an operator's daily schedule. Agnico Eagle employees engaged in training daily during their toolbox talks which lasted from 12-35 minutes. On average, employees engaged in microlearning for 13.5 minutes a day across 90 working days, equating to 16.4 hours of training per participant and over 1000 hours of training for the organization. A total of 68 MiHR Communication Micro credentials were awarded to the participants at Agnico Eagle.

The mining industry is experiencing shifts in technology, constraints on time and budget for offsite training and employees working in the process plants are deskless. Training Works mining clients seek solutions for onsite training that is relevant and timely. Using their experience and previous collaboration, Training Works proposed daily microlearning as a delivery model for this training. Employees in this industry had demonstrated knowledge gains by using videos, checklists, infographics. They prefer to stay on the job and learn rather than take the time away from their jobs for in-class training that often lasts for days. Employees felt that by incorporating safety training into their daily workday it would help them retain knowledge and be able to apply it. The Future Skills Centre (FSC) is a pan-Canadian organization passionate about creating a future in which everyone has life-long access to high-quality career advice and learning opportunities. The FSC's focus is on strengthening Canada's skills development ecosystem so that Canadians can look to a future of meaningful and relevant lifelong learning opportunities. FSC is funded by the Government of Canada Future Skills Program[1]. In 2019 FSC sought proposals for innovative projects that test and evaluate new or emerging approaches, or that expand, scale and/or replicate promising approaches, to progress the following three objectives:

[1]https://fsc-ccf.ca/wp-content/uploads/2020/07/Strategic-Plan-2020.pdf

1. Support Canadian workers facing labour market disruption to transition to new jobs or industries;
2. Engage employers in more effectively developing and delivering demand-driven solutions to skills gap challenges; and,
3. Optimize skills development systems by building the capacity of service providers to better collaborate with each other and other organizations that could expand or improve their services.

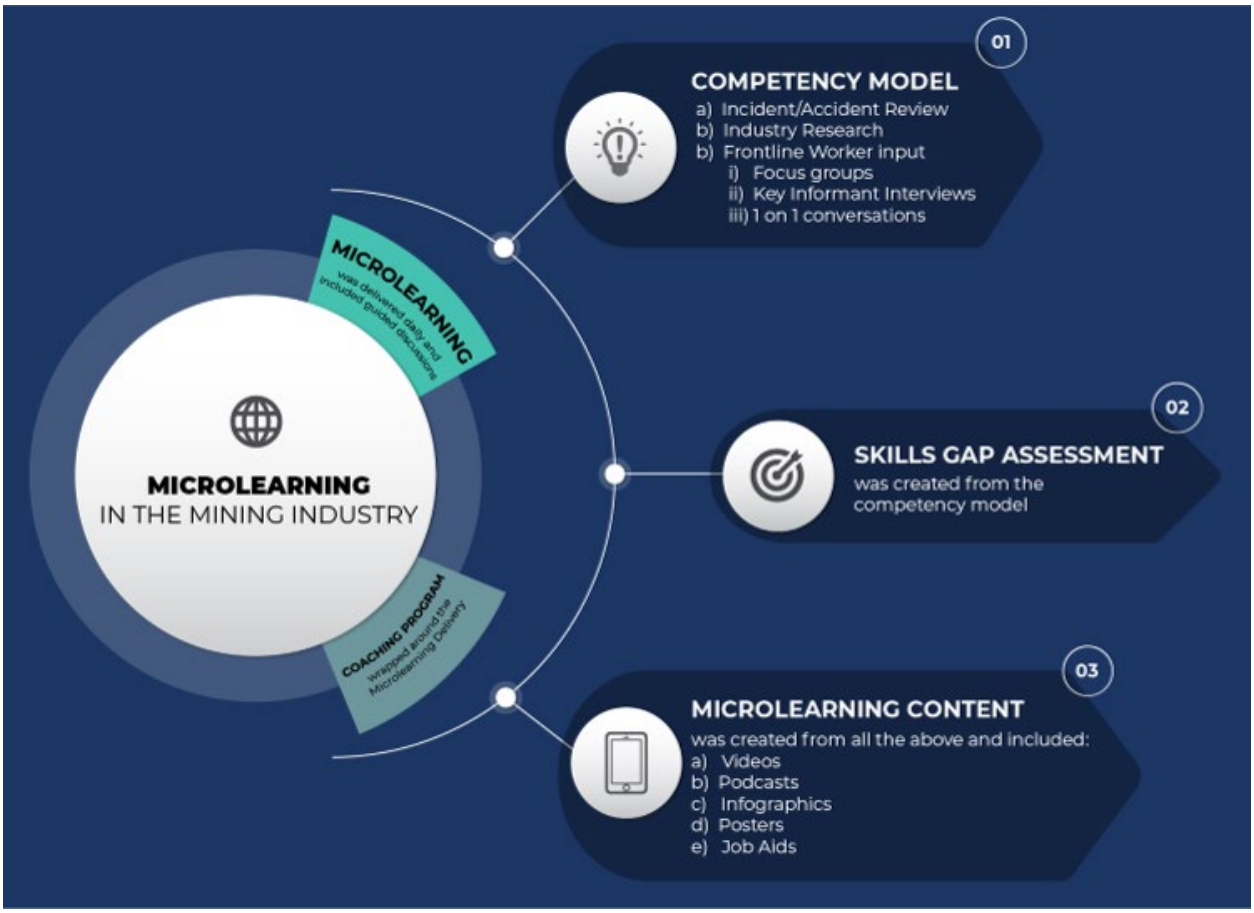
Signal Gold submitted the Microlearning in the Mining Industry project under objective two to engage employers in more effectively developing and delivering demand-driven solutions to skills gap challenges. FSC has invested $930,000 in this innovative project that tests the outcomes of bite-size learning based on each employee's need in their role at the time and focusing on behaviour-based safety and communications. All the training in this program had a diversity lens applied to ensure appropriateness for the target audiences, which include remote, rural, and Northern communities. The additional on-the-job support from coaches and mentors was designed to improve behaviour-based awareness through the hybrid of digital learning and a mentor/mentee on-the-job feedback loop.

The purpose of this microlearning project was to ensure that mining employees receive the right training to do their job on a continuous basis. These employees are limited in the amount of time they can spend away to receive training, the development of this microlearning program and delivery model was to combat this constraint while ensuring knowledge transfer and behaviour change. The goal of this project was to test the effectiveness of a microlearning model on increasing the skills of employees and changing behaviours on the job. The project team also hypothesized that this increase in knowledge and behaviour change would impact the organization by reducing incidents and accidents and increasing productivity. These metrics also affect the overall bottom line growth of the organization and overall ROI.

1.2 What is the microlearning model?

The definition of microlearning varies throughout the training industry, for this project the definition is short learning moments less than 6 minutes in the form of video, podcasts, infographics, job aids and guided discussions relevant to the work environment and tasks. Microlearning is meant to refresh your knowledge and help a worker apply this knowledge in the flow of work. By using familiar scenarios and work environments microlearning demonstrates how specific skills can be used on the job.

The microlearning model (see below) illustrates the delivery model that was piloted at Agnico Eagle Mining (in the process plant specifically). This pilot phase was used to develop greater understanding for whether the microlearning model is scalable within and beyond the mining industry.



The microlearning model began with engaging employees at both Agnico Eagle and Signal Gold to understand the training needs from a management perspective as well as the frontline worker. The project team interviewed key stakeholders within the management and health and safety teams to gain insight into the organization, the current training model, and requirements. The project execution team, Training Works engaged with frontline workers through interviews focus groups and one on one discussions to learn about the skills required to do their jobs safely and their learning preferences as well as the operational reality and challenges to learning on the job. Using this engagement, a review incidents and accidents within the organizations and leveraging industry research the Training Works team in consultation with Signal Gold and Agnico Eagle created a behaviour-based safety competency model including communication.

From the competency model a skills gap assessment was created to assess the employees' understanding of each of the 10 competencies. Training Works utilized their flagship technology Skilltinuous for employee skills assessments and microlearning delivery. Employees answered scenario-based questions as well as self-assessments for each competency.

The microlearning content was developed from the engagement at both organizations, through analysis of the incidents and accidents and the skills gap assessment. During project execution, the training was adapted to also include guided discussions and activities post-microlearning to enhance knowledge transfer.

Microlearning was delivered during the toolbox talks and followed by guided discussions. During these talks the Coach would discuss the topic of the microlearning, deliver it in the form of a video, podcast, poster, infographic, job aid or activity to the team and then follow up with provided questions to increase engagement and interaction of the more experienced team members with the less experienced. By creating this space to talk safety, the teams had the opportunity to use their communication skills, develop their safety skills further, and the potential to increase their safety culture.

The Coaching program was developed to help deliver the microlearning program and help participants with transferring knowledge into behaviour on the job. Each coach attended training sessions with the Training Works project team and given a presentation to understand the project and the competency model they would be using. Further to that coaches received a coaching handbook with each competency explained with behaviours to look for on the job. Early in the microlearning delivery, coaches expressed they needed guidance to deliver the microlearning. The program was adapted to include a Coaching overview, for every microlearning delivered the coach received

directions on how to present the video, activity, or formats, provided notes on what to focus on in the training and discussion questions for a team conversation.

1.3 Why was the model selected?

In alignment with funders, Future Skills Centers "focus on strengthening Canada's skills development ecosystem so that Canadians can look to a future of meaningful and relevant lifelong learning opportunities[2]" microlearning was developed to provide deskless workers with accessible and continuous training opportunities to learn the skills required to stay safe on the job.

Workplace learning is experiencing a drastic shift to support modern requirements. Time and money constraints within an organization limit the amount of time an employee can leave the job to attend training. In addition, today's modern learner must be adaptable and able to react quickly to disruptions within the workplace.

According to Deloitte, today's learner has only 1% of their typical work week to focus on learning and development. Considering time and money constraints within organizations, it is key that learning be quick, contextualized, and continuous to be effective. Additionally, today's learners find themselves untethered to a single computer-based location, especially in a mining environment, making access on mobile devices increasingly important for learner uptake. The same modern learners prefer to be collaborative and learn from and with their peers instead of alone. Including a coaching and mentoring program alongside the microlearning program will address this need.

Nearly half of Canadian jobs are at high risk of being affected by automation over the coming ten to twenty years. Technological disruption is predicted to most impact workers in disadvantaged groups. Workers in low-skill jobs are also most likely to be affected by automation. Rural and remote communities are at a high risk of being affected by job displacement due to training availability and proximity to city centers. It is important to ensure creation and retention of a skilled labour market in order to sustain the community and region. Thus, increasing the need for a scalable development program to avoid worker displacement and provide deskless workers with continuing education.

Additionally, development programs must be continuous in nature to support ongoing skills development within an organization. It is no longer enough to offer single training events within the workplace and to assume knowledge transfer will occur. Most of the knowledge learned in single training events is forgotten shortly thereafter. To best increase skills transfer to the job, learning and development must occur on a continuous basis and be agile enough to apply changes when in demand skills shift.

[2] https://fsc-ccf.ca/who-we-are/#mission

1.4 Microlearning at Agnico Eagle Mining

Agnico Eagle is a leading senior Canadian gold mining company with international operations. Agnico Eagle prides itself on attaining the highest environmental, social and governance standards with the safety of its people as the highest priority. The Meliadine mine was chosen for this project and is in the Kivalliq District of Nunavut.

Commercial gold production began in May of 2019, employing 1194 people onsite including contractors. The mill employs a conventional gold circuit comprising crushing, grinding, gravity separation and cyanide leaching with a carbon-in-leach circuit, followed by cyanide destruction and filtration of the tailings for dry stacking. Metallurgical recoveries are expected to average 96%. In 2021 Meliadine operation has continued to experience growth and employed 1410 people including contractors.

With close to 1500 people working at this site safety is of the utmost importance, Meliadine processing plant was chosen for the microlearning project as the Health and Safety team was looking for new ways to engage with their workers and saw this as an opportunity to grow the Health and Safety Program. The Microlearning in the Mining industry project was initiated with the leadership and management team at Meliadine beginning in 2021. In order to understand the skills required onsite and the operational reality of delivering training in the flow of work, Training Works engaged with members of the leadership team and with frontline workers through focus groups, interviews, and site visits. Delivery of the microlearning began in January of 2022 at Meliadine Processing Plant, with 138 people taking part in the training including the maintenance team and the assay lab. Other operations at Meliadine did not receive the microlearning program. Using a control group, the impact of Microlearning is measured within this evaluation by comparing safety statistics of the Meliadine Processing Plant to the Meliadine operations that did not receive the training. Keep in mind that all other safety programs are delivered through the full operation at Meliadine, however implementation and therefore effectiveness will vary depending on supervisor experience and operational reality, team buy-in and many other factors.

It is important to note that COVID-19 had a significant impact on the project at Agnico Eagle. While Agnico Eagle relies on local Inuit communities for over 20% of its workforce, the operation runs a remote camp site with employees and contractors working on a fly in and fly out schedule. As a protective measure during the pandemic the Inuit workforce onsite were reduced. Employees and contractors flying onto site were also reduced due to travel restrictions and contracting the virus, therefore the microlearning was delayed due to only having skeleton crews onsite in the early months of 2022.

2.0 EVALUATION CONTEXT

The evaluation of the microlearning project expanded over the two-year period lasting from June 2020-August 2022. With the evaluation planning and baseline data collection occurring in 2020-2021, program monitoring and evaluation data collection in 2021-2022, and evaluation reporting in October 2022 to Future Skills.

Preliminary information was gathered and documented at the beginning of the project through interviews, questionnaires and document review. This initial research took approximately six months and concluded by December 2020. This information was used to develop the evaluation framework created by a credentialed evaluator is continuous and will ensure the success of the project.

Upon the development of the digital competency tool and the microlearning program beginning, a more in-depth review of internal safety training, procedures, competencies and gaps took place.

Throughout the implementation of the microlearning process, evidence of its effectiveness and outcomes achieved were monitored throughout. A pre-survey was administered to all participants at the onset to achieve a base level on key metrics (early 2021). Once microlearning was launched, participant engagement and success of learning was tracked using individual assessments that were completed as a part of the training (ongoing for 6-month period). Similar to the pre survey, this was given to both the control and experimental groups to identify changes in learning at this stage. Finally, a post-survey was administered to the two groups after the 6-month training to capture learnings (August 2022).

In order to determine the impact of the program on the organization and to triangulate findings, interviews with coaches/mentors and organizational leaders were conducted at the mid-point of microlearning (May/June 2022) and upon completion (September 2022).

Additionally, evidence for the effectiveness of the training was captured through administrative data in order to track changes in key performance indicators (e.g., number of incidences, profit; completed throughout the process).

Finally, a six-month follow-up survey was implemented 6-months after the training has occurred in order to determine long term impact and to further test the appropriateness of the training.

The evaluation covers all aspects noted by the Future Skills Center:

- Evidence
    - The evidence journey began with a rigorous assessment of an intervention's logic model and theory of change. As interventions demonstrate preliminary

evidence of success, they are ready for more rigorous evaluation with the ultimate aim of preparing for impact evaluation and cost-benefit analysis to generate the quality of evidence necessary to inform scaling decisions.

- Implementation
    - As interventions mature, we have set quality benchmarks and use techniques, such as rapid-cycle evaluation, to support projects through an ongoing cycle of continuous learning and program improvement.
- Relevance
    - As evaluation findings emerge, we update our assessment of each intervention's relevance to our mandate and its potential to have an impact at a pan-Canadian scale. This assessment process is conducted in collaboration with provinces and territories and other key stakeholders in Canada's skills development ecosystems. The results of this assessment are critical input to decision-making for reinvestment.

2.1 Theory of Change

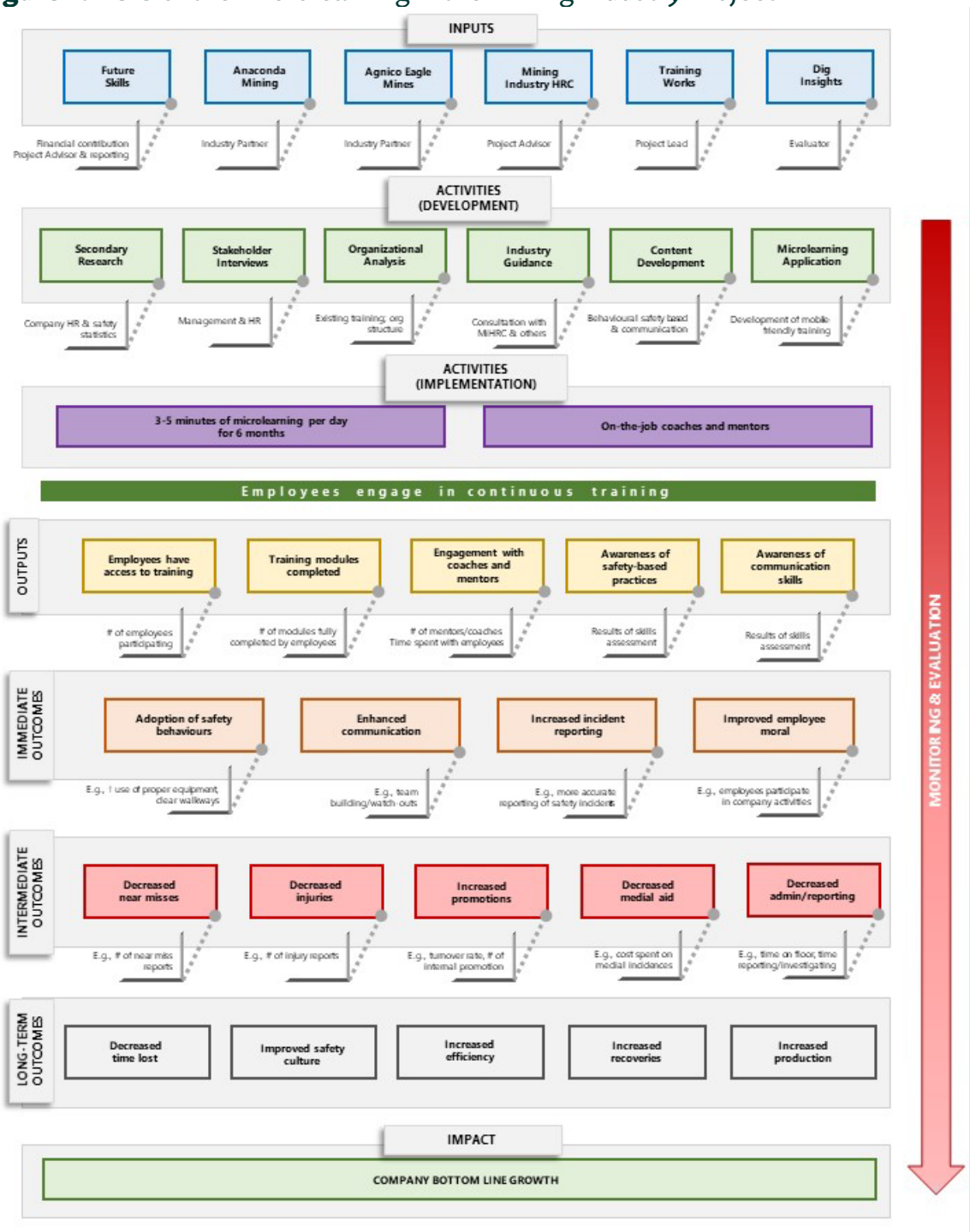
A TOC is a map indicating the logically related aspects of an initiative. It shows, at a broad conceptual level, the links among an initiative's inputs, activities, outputs and outcomes.

The definitions for each component of the TOC include:

- **Inputs:** Financial and human resources used to deliver activities, produce outputs and accomplish outcomes.
- **Activities:** The "how" – actions, initiatives, or specific programs implemented to produce outputs.
- **Outputs:** The "what" – direct products or services produced from the activities. Outputs are usually tangible or quantified.
- **Outcomes**: The "why" – changes that occur as a result of the outputs of the program, project or initiative. Outcomes can be short-term (immediate) or medium-term (intermediate).
- **Impacts:** The bigger picture or long-term outcomes. Impacts are usually influenced by other confounding factors and cannot be solely contributable to the program, project or initiative.

Figure 1 illustrates the progression of the project from development to implementation and evaluation. The development of the microlearning program and delivery model combines prescriptive and contextualized continuous training and an on the job mentoring program to ensure transfer of knowledge and behavior change. The intended outcome is to increase communication and safety incident reporting, to decrease safety incidents by improving the overall safety culture of the organization and thus in-turn improve the organizations efficiency and productivity.

Figure 1: TOC of the Microlearning in the Mining Industry Project



2.2 Evaluation Framework

An evaluation framework is an important preparatory tool in the evaluation process because it allows for advanced consideration of the evaluation approach, to identify data requirements for project stakeholders, and to determine how these requirements will be met.

Below is an evaluation and performance measurement framework for the evaluation of the Microlearning Mining Industry project and includes:

- Core evaluation issues (relevance, design and delivery, outcomes);
- Evaluation questions covering the core evaluation issues; and
- Methods for data collection.

The evaluation questions and the corresponding indicators listed below are based on the document reviewed, an in-person workshop and conversations held with program staff to reflect the present iteration of the programs.

Note: Asterisk * indicates Future Skills Common Outcomes Framework Indicators

Table 1: Evaluation Framework

Indicator	Methodologies				
	Doc Review	Admin Data	Learning Assess.	Participant Surveys	KI Interviews
Participant Information (baseline/post survey)					
*Gender				X	
*Age				X	
*Location				X	
*Marital Status				X	
*Children				X	
*Education				X	
*Indigenous Identity				X	
*Francophone				X	
*Newcomer Status				X	
*Racialized status				X	
*Disability				X	
*Industry and Occupation	X				
*Employment Status	X				
*Source of income	X				
Relevance					
Alignment between the project and Future Skills	X				X
Alignment between the project and the mining industry	X				X
Perception of the effectiveness and flexibility of the project's design to be responsive to evolving needs and objectives	X				X
Ability/sufficiency to adjust the program to larger sector needs	X				X

Indicator	Methodologies				
	Doc Review	Admin Data	Learning Assess.	Participant Surveys	KI Interviews
Perception of the relevance of the microlearning topics to participants and the sectors	X			X	X
Design and Delivery					
Number of courses/topics created	X				X
Number of courses/topics completed		X			
Number of participants engaged		X			
Number of mentors actively involved in the project		X			
Perceptions on the effectiveness of the training				X	X
Perceptions on the mode of delivery (6 months/ microlearning/app usage & functionality)				X	X
% of learning assessments completed			X	X	
Outcomes					
% of participants who show an increase in knowledge in safety-based practices			X	X	
% of participants who show increased communication skills			X	X	
% of participants who show an increase in adoption of safety-based behaviours on the worksite			X	X	
% of mentors who report an increase in participant knowledge in safety-based practices				X	X
% of mentors who report an increase in participant communication				X	X
Perceived change in safety behaviours in the workplace				X	X

Indicator	Methodologies				
	Doc Review	Admin Data	Learning Assess.	Participant Surveys	KI Interviews
*% of participants with increased employment opportunities (including change in employment)				X	
*% of participants with increased employment earnings (sources)				X	
*% of participants who were overall satisfied with the program				X	
*% of participants with increased job satisfaction				X	
*% of participants with increased opportunity to enroll in further training or education programs (if yes, types or program enrolled)				X	
Perception of ability for career advancement				X	
# of safety courses completed (in addition to microlearning)					
Turn over rates (employee engagement)		X			
#/% of internal staff promotions					
Level of safety compliance		X			
Level of environmental compliance		X			
# of incidence reports by • Area (e.g., processing, mining, maintenance) • Incident type (e.g., lost time, near miss, property damage) • Cause (e.g., failure to be attentive, failure to be secure, improper lifting)		X			
# of injury reports by • Area (e.g., processing, mining, maintenance) • Incident type (e.g., lost time, near miss, property damage) • Cause (e.g., failure to be attentive, failure to be secure, improper lifting)		X			

Indicator	Methodologies				
	Doc Review	Admin Data	Learning Assess.	Participant Surveys	KI Interviews
Perception of emergency preparedness				X	X
Hours of HR training required		X			
Hours of safety training required		X			
Enablers to programs success				X	X
Barriers to programs success				X	X
Perception of unintended outcomes				X	X
Economic performance					
Cost saving around staffing time vs. in-classroom training		X			
Operating statistics • Number of operating days • Product mined • Tonnes per operating day • Operating costs		X			
Costs/efforts towards safety • OHS directives issues • Inspections • Safety meetings • Violations • Site orientations		X			
Cost of program per participant vs. economic performance change (bottom line growth)		X			

Based on the framework, a mixed/multi-method approach was implemented which included a document review, administrative data analysis, key informant interviews, surveys, and learning assessments.

Document Review

Dig conducted a document review to gain an understanding of the microlearning project including its relevance, intended outcomes, implementation and outcomes achieved to date. Below is a list of documents that were reviewed:

- Number of injury reports
- Number of incidence reports
- HR/Safety trainings
- Operating statistics
- Costs/efforts towards safety

Administrative Data

Training Works provided Dig with administrative data from the organizations to analyze the scope of training completed and the achievement of outcomes. This included data on:

- Training hours
- Safety courses completed
- Employee turnover
- Level of safety compliance
- Level of environmental compliance

Key Informant Interviews

Key informant interviews were conducted to gather a deeper understanding and to explore any questions that emerged as a result of the findings from other evaluation methods. In total nine key informant interviews were conducted with key stakeholders including:

- Participants (N=3)
- Supervisors (N=3)
- Project Manager
- Health and Safety Superintendent
- Process Plant Superintendent

The detailed interview guides can be found in Appendix A.

Participant Surveys

Surveys were completed pre, and post program to gauge participants experience and learnings. Full survey results can be found in Appendix C.

Survey	Number of Completes
Pre	37
Post	34
6-Month Follow-Up	23

Skills Assessments

Analyzing industry information, incidents, and accident reports, and learning firsthand information from frontline workers the competency model for this project was delivered. From here a digital competency tool was utilized to identify the skills gap to be addressed in the microlearning program. Key behaviors within each of the 4 communication competencies were aligned with behaviours required in MiHR's National Occupational Standards for Minerals Processing Operator. Both scenario-based questions and self-assessment questions were curated with consultation from the health and safety team. Training Works Skilltinuous platform was populated with the competency model and the assessment questions. Participants were introduced to the Skilltinuous technology and given a guided tour through the process as well as a technology guide to consult if they struggled with the process. The digital competency tool was used to understand the skill level of the workforce before the microlearning and

identify the skills gap in the 10 competencies. Once the microlearning was complete Skilltinuous was used to identify the knowledge gained in each of the 10 competencies.

Survey	Number of Completes
Initial Skills Assessment	95
Final Skills Assessment	79
Participants Completed Initial & Final	58

3.0 LIMITATIONS

Annual data included in the report covers the period of January-September annually. With 2022 data only being available up to September, this allowed the year-over-year change in the organization to be evaluated accurately. This period is also inclusive of the time in which microlearning took place at the process plant.

It is important to note that the safety statistics in the final evaluation (section 5.2.3) include a comparison of the Agnico organization to the process plant (the pilot site for microlearning). The impact of microlearning on safety statistics could be seen when evaluated against the rest of the organization, that did not partake in microlearning.

Furthermore, the final evaluation is being completed immediately following the conclusion of the microlearning project. This evaluation was conducted immediately after the completion of the program and is difficult to assess the long-term impact at this point however there has been a noted change in behaviour, knowledge and culture as seen throughout this document.

4.0 FINDINGS

This section presents the findings and supporting evidence from the final evaluation of the microlearning program.

4.1 Relevance

Finding: Microlearning model was found to be relevant to the needs of the organization and the mining industry. The training program provided a behaviour-based approach to health and safety, which helped increase employee engagement on this important matter.

While seen as highly relevant to the organization, employees anticipated microlearning to pertain more to their organization or industry. As the project progressed, training content and follow up discussions were directed towards employees specific position/team, to help them better comprehend how the behavioural skills covered in microlearning can be applied in their day-to-day job.

4.1.1 Relevance to the Mining Industry

Workplace health and safety is of high importance, and at the Agnico organization has always been held to a high standard. Although, finding the time to gather and train employees without impeding operational efficiency can be challenging in the mining industry. The Microlearning model of delivery was introduced at Agnico to provide employees with ongoing behaviour-based health and safety training in a time effective manner, while bringing a proactive approach to workplace health and safety.

"We learned how to provide the right information to employees and develop a routine for safety prevention tactics."
- Coach

"Helped the organization realize that we can always talk more about safety."
- Coach

The Microlearning model also helped to bring new delivery methods to the organization and the mining industry and provide better structure to health and safety trainings. This helped to increase engagement and discussion between employees and coaches.

"We were looking for new ways to improve H&S, new ways to talk about it. Most incidents are related to behaviour, so microlearning made sense. It also provided supervisors with content to present and engage over."
- Leader

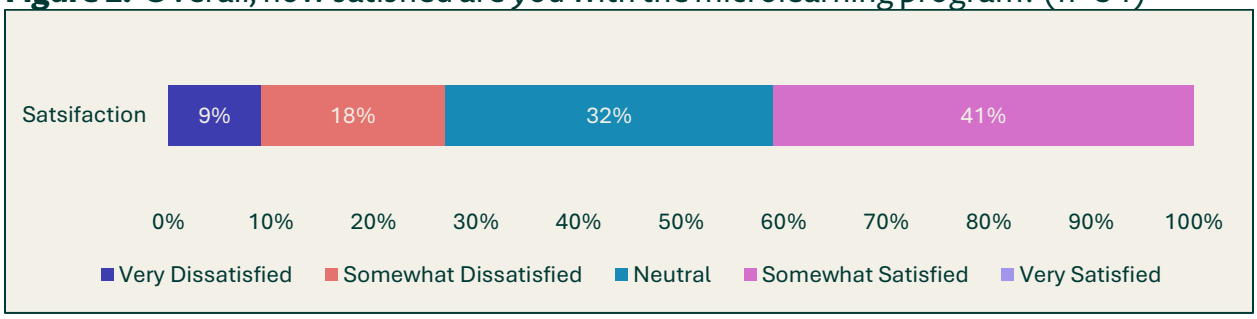
Overall, microlearning delivery model was found to be relevant to the needs of the organization and the mining industry. Providing a different approach to health and safety training for employees is something that mentors and leaders hope to see expand within the organization and the industry.

"I hope it's going to continue. The formula is really good. It goes well with the philosophy of the organization."
- Leader

4.1.2 Relevance to Employees

Overall, 41% of employees (Figure 2) expressed satisfaction with microlearning as it helped them understand the impact of their behaviours on themselves and others, which is an integral component of creating a safe working environment.

Figure 2: Overall, how satisfied are you with the microlearning program? (n=34)



Employees recognized the importance of health and safety in the workplace setting, and especially the mining industry. Therefore, participating in daily training was seen as valuable for the safety of themselves and others. Agnico successfully achieved an 83% completion rate of the microlearning program (95 employees started, 79 employees completed). Furthermore, it was found that microlearning was effective in getting employees thinking more about their behaviors and actions while on the job.

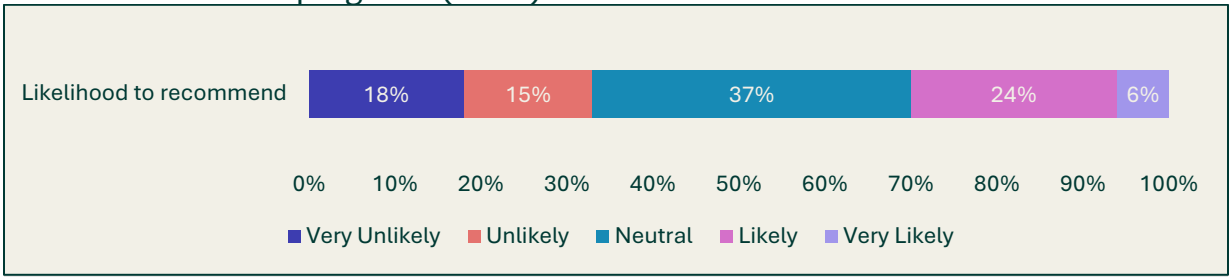
"Before working it's helpful for thinking more about the task."
- Employee

"Reminder to focus on safety, and all small things that can help."
- Employee

"Reminds to pay more attention to my surroundings."
- Employee

Although, some employees felt the training material did not directly relate to employees' day-to-day job at Agnico, it was found that only 27% of participants (Figure 2) were not satisfied, as they didn't feel they were able to learn from the program as they hoped. Some employees struggled to understand how the behavioural skills covered in microlearning can be applied in the workplace and their role at Agnico.
The 33% of employees that stated they would be unlikely to recommend (Figure 3) attributed it to the lack of mining industry applications in microlearning. Moreover, 30% of participants would recommend (Figure 3) the microlearning program as it increased awareness of their behavioural actions in the workplace.

Figure 3: Based on your experience in the program, how likely are you to recommend someone else to the program? (n=34)



Overall, microlearning helped bring awareness to the importance of behaviour-based safety skills in the workplace. The inclusion of mining industry examples and applications in the program would help some employees better understand how these skills can be applied in their position at Agnico. Enhanced relevance would also increase employee satisfaction with the program.

4.2 Design & Delivery

Finding: It was found that the design of microlearning model was effective in providing safety refreshers to employees. The behaviour-based approach of microlearning delivery model was seen as a reiteration and reminder of what experienced employees had learned over the course of their career. For new employees, it provided them with new learnings and consistent reminders of safety practices.

The delivery model of microlearning allowed it to be integrated into the existing pre-shift meetings, which made it a routine and daily occurrence for employees and coaches. Additionally, the concept of short training videos was appealing for capturing the attention and interest of employees. Although, it was noted that the limited time in pre-shift meetings, made it difficult to have an effective and engaging discussion following the training videos, which is something that coaches would like to have more of.

The Microlearning delivery model was designed to ensure that mining employees receive the right training to do their job on a continuous basis, which the program successfully achieved. Although, optimizing the design and delivery to ensure it can be delivered, while meeting the needs of the organization is critical to enhancing effectiveness.

4.2.1 Microlearning Design

Microlearning was designed as a behaviour-based training program using the competency model outlined in Table 2. The competency model was created through analysis of incidents and accidents, to understand what behaviours or lack thereof were contributing to these incidents and accidents. From there key informant interviews were held with employees in the organization to understand the skills needed to perform their jobs safely and any skills gaps they identified themselves. From there it was understood

that Situational Awareness and Communication were the top skills identified by the workers and industry research as well. To verify this, several focus groups with the organization were conducted to discuss in detail both communication and situational awareness.

The competency model had ten competencies overall, four concentrating on communication and six to develop the skills needed to increase situational awareness. The communication competencies were aligned with MiHR National Occupational Standards to ensure participants could receive a micro credential from MiHR in Communication for the Minerals Processing Operator NOS. The other six competencies were presented to and reviewed by a Human Factors Expert and then reviewed and approved by the organizations Health and Safety Manager/Superintendent.

Table 2: Microlearning Competencies Model

Competency	Description
Mindfulness	Mindfulness is being present in the moment. You think about the outcomes of your actions before you finish the task. You think about the impact of your words before you say them.
Vigilance	Vigilance means to keep your focus and stay alert while doing tasks at work. To be safe at work you must always keep an eye on the people, the machines, and your work site.
Active Listening	You listen to understand the speaker's message.
Effective Inquiry	You ask questions with purpose.
Closed Loop Communication	You use a 3-step process when you speak. You state the message, you wait for the listener to tell you their version of the message and you confirm when they are correct.
Assertiveness	You make sure your message is heard and addressed.
Strategic Decision Making	You use a 5-step process to decide. 1. Identify the problem 2. Gather information 3. Consider your options 4. Decide on a path forward 5. Evaluate your decision
Team Building	You are a part of a team working towards a goal. To reach the goal your team works well together and continue to improve and learn.
Workload Management	You understand how to manage your tasks with the team and goal in mind. If you are a manager or supervisor, you are able to assign tasks to individuals based on their role in the company and skill level.
Coaching	Coaching is already a big part of day-to-day tasks at your company. By coaching others, you are sharing your know-how and skills. You help members of your team to become safe in the workplace.

Once the competency model was approved, a skills assessment was completed by the employees to assess their levels for each competency, also completed upon the completion of microlearning. Behavioural change was also assessed in the pre, and post surveys employed completed. These results will be detailed in the following section.

Overall, the behaviour-based model of microlearning was found to be effective for newer/less experienced employees in the industry or workplace setting. It brought attention to skillsets that will help them to remain safe while performing their job and ensuring others are acting in a safe manner.

Communication is key to safety.. if unsure ask supervisor or someone who knows. Do NOT be shy to bring up safety concerns.
- Employee

For long-standing employees in the mining industry, microlearning served as a valuable reminder of the impact their behaviours have on workplace health and safety. Microlearning provided a reminder of the skills employees should be applying on a daily basis to stay safe on the job.

"It has helped with reminding me to ask for help when I'm lost or confused with the job. This program is good for new employees coming into the industry."
- Employee

"It was more of a reminder program than a learning one."
- Employee

"I feel like it's more geared to industry newcomers, and not the broad workforce we have here."
- Leader

4.2.2 Microlearning Delivery

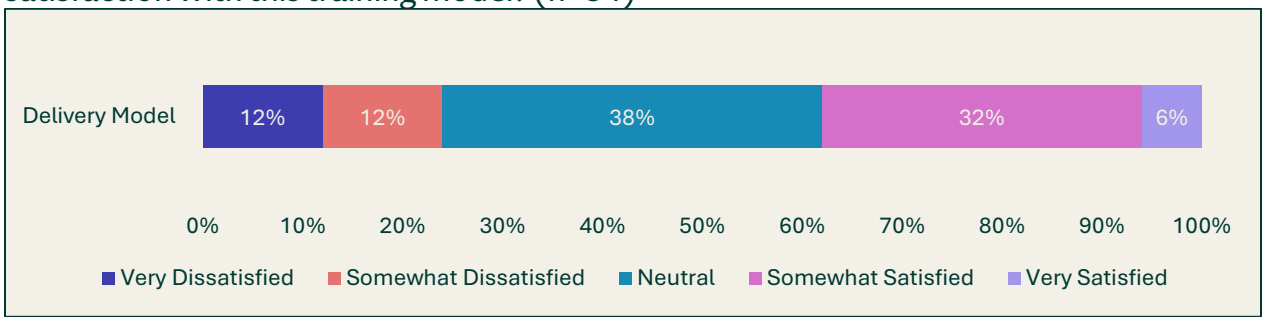
With employees being constrained to a limited amount of training time in their workday, the microlearning delivery model was designed to be a quick and effective training tool to ensure that employees receive consistent training. To combat time limitations, mining employees completed approximately four minutes of training per day, followed by a collaborative discussion with other employees and coaches. The purpose of the discussion was to generate conversation to enhance learning on the safety topic covered, with the hope that employees would continue the conversation while on the job site.

"Being short is really good, it's hard to keep the attention of everyone."
- Coach

The design of the microlearning program was found to be effective, with coaches being able to incorporate the training videos and discussion into daily toolbox talks (pre-shift meeting). It can be problematic for the organization to arrange company-wide trainings, therefore being able to integrate into a pre-existing meeting helped to make it a routine.

It was found that 40% of employees were satisfied with the microlearning delivery model (Figure 4), given that it could be incorporated into the preexisting toolbox talks – a time when all employees can gather pre-shift.

Figure 4: For this program you will complete about 5 minutes of training per day while on shift and receive feedback and support from coaches. How would you rate your satisfaction with this training model? (n=34)



While making microlearning a routine was effective for some, 24% of employees were not satisfied with the model (Figure 4). Employees and coaches noted that incorporating microlearning into toolbox talks limited the effectiveness of the training for the following reasons:

1) Limited time

With some videos running longer than four minutes combined with a discussion, microlearning was consuming 10+ minutes of their toolbox talk, in which they have other day-to-day topics that need to be covered during this time. Microlearning often felt rushed, and the limited time impeded on the quality of discussion and takeaways.

"We already have so much to cover during our daily toolbox talks, that it was hard to fit microlearning in to. It felt forced and rushed which took away from it, the guys just wanted to get started with their day."
- Coach

2) Frequency

In addition to managing time in the daily toolbox talks, employees and coaches also emphasized that daily microlearning videos was too frequent and caused employees to become unengaged. While the topic of safety is highly important to the organization, employees weren't as attentive and interested in the videos as the program progressed.

"If we ever go with phase 2 my suggestion would be weekly. Hard to manage with the toolbox meeting."
- Coach

"One video per week/two weeks – could be 30 minutes of real-time scenarios that can be presented every rotation, or in the monthly safety meeting would be more effective. We could have better discussion, and employees might be more engaged."

- Coach

Additionally, it was noted by employees and coaches that the cartoon elements of the training videos made it less appealing and relevant to employees. While it didn't take away from their learnings, training videos using human actors/actresses would be more professional and suitable for the audience.

"Cartoons are for kids not for industrial workers."
- Employee

5.0 OUTCOMES

Finding: Employees completed ten modules in the microlearning program: active listening, mindfulness, workload management, decision making, vigilance, effective inquiry, closed loop communication, assertiveness, team building, and coaching.

It was found that microlearning was successful in increasing behaviours across all ten competencies covered in the program at Agnico. Behavioural change has led to heightened awareness for safety-based practices and behaviours, helping the organization to develop a prevention focused approach to workplace health and safety.

In addition to behavioural change, microlearning provided the opportunity for increased engagement between employees and coaches, generating more conversation on the importance of health and safety across the organization. Furthermore, employees gained the confidence and communication skills to speak up about health and safety matters to other employees and their supervisors.

While it is too early to fully assess the impact of microlearning on organizational safety statistics, injury and incident rates up until September 2022 suggest that the process plant has experienced a downwards trend. The process plant experienced a decline in incidents and injuries, 27% and 29% YoY from 2021, respectively. With a 39% increase in reported near misses, it is evident that the program has brought a proactive approach and made health and safety top of mind across the organization.

5.1 OUTPUTS

5.1.1 Employees have access to training

Providing accessible training for employees is challenging in the mining industry and more and more employees are wanting to engage with training in the flow of work. Microlearning was welcomed in the Agnico organization, and the delivery model was successful in meeting their needs.

"The videos were quick enough that it was easy to understand the message."
- Employee

"The videos were well made. But I feel they were more suited a younger audience. It didn't take away from the learning, but real people could have made it more applicable to my job."
- Employee

While safety has always been top-of-mind for the organization, coaches recognized that microlearning is an effective tool to increase awareness and discussion of workplace health and safety for Meliadine processing plant employees.

"Helped the organization realize they weren't talking enough about safety."
- Coach

"Health and safety is a priority for the organization, but it can be hard to promote in the operation and provide the right tools. This is what microlearning was useful for. Other areas of the organization have expressed interest in the program."
- Coach

5.1.2 Training modules completed

Over the course of the microlearning program, employees completed ten modules, which algin with the competencies outlined in Table 2 and include the following:

- Active Listening
- Mindfulness
- Workload Management
- Decision Making
- Vigilance
- Effective Inquiry
- Closed Loop Communication
- Assertiveness
- Team Building
- Coaching

With most workplace accidents being behaviour-related, the idea of a behaviour-based health and safety program was appealing to Agnico. Although, upon completing the program coaches expressed the need for the modules to be better tied to the organization and the mining industry.

"It was useful, but the behaviours were not tied enough to day-to-day activities. It could make coaching hard when employees weren't understanding how it relates to them."
- Coach

"To have an impact, we need to have something more adaptable. At the end, we combined the videos with the reality we have on site and the feedback was better. Involve more actual workers on-site in the videos will be more relevant and impactful."
- Coach

Overall, the behaviour-based approach of microlearning was found to be effective and should be carried forward, but there is an opportunity to better relate the modules with the organization and industry.

5.1.3 Engagement with coaches and mentors

The Microlearning delivery model helped to increase engagement between employees and coaches and mentors. Most notably, the training provided coaches with content to present to employees, which aided in generating discussion. This also helped to ensure consistent knowledge sharing across all departments and shifts.

From the coach's experience of being a supervisor, it can be difficult to formulate a collaborative discussion with the team. The training played a valuable role as a "thought starter" to get the conversation flowing between employees and coaches.

"I told the guys it's your program not mine, so they will only succeed if they participate. Once they got started it was good conversation."
- Coach

Most notably, the microlearning delivery model helped employees to overcome barriers of identifying and calling out health and safety risks to their colleagues and supervisors. Therefore, microlearning has also helped to increase engagement between employees.

"There is more of an eye for safety. Employees are not afraid to speak up to their colleagues. They are even talking to each other instead of going straight to the supervisor."
- Coach

5.1.4 Awareness of safety-based practices

The Microlearning delivery model was successful in making safety practices top-of-mind for employees. Completing ongoing safety trainings helped employees to become more aware how their behaviours contribute to a safe workplace. Previous organization safety

training had limited focus on behavioural skills, therefore this model served as a valuable learning opportunity and reminder to both new and experienced employees.

"It's important to take the time for thinking."
- Employee

"I learned how to be more receptive to new information."
- Employee

"Learned how to work within a group."
- Employee

"Made me more aware of things I wouldn't not watch for."
- Employee

Furthermore, Table 3 outlines the results of the employee skills assessment completed by employees pre and post microlearning. The Microlearning delivery model was successful in increasing behavioural skills across the ten competencies covered in the program. Total knowledge gain for organization in behaviour based safety was 19.13%. The competencies which incurred significant change in the Agnico organization include, active listening, decision making, effective inquiry, closed loop communication, and team building.

Table 3: Skills Assessment Results

Competency	Pre (N=95)	Post (N=79)	Change
Active Listening	81.14	84.36	3.22
Mindfulness	82.89	83.77	0.88
Workload Management	80.87	82.05	1.19
Decision Making	82.00	84.23	2.23
Vigilance	83.09	84.55	1.46
Effective Inquiry	83.05	86.73	3.69
Closed Loop Communication	83.38	86.07	2.69
Assertiveness	83.44	84.95	1.51
Team Building	84.90	87.16	2.26
Coaching	82.43	83.06	0.64
Total			~ 20%

Additionally, Appendix B outlines the results of the behavioural assessment that employees completed as a part of the pre and post survey. Corresponding with the skills assessment results (Table 3), microlearning was effective in increasing skills across all ten competencies.

Making safety training a regular occurrence in the organization was a critical success factor to increasing awareness of safety-based practices. While the delivery model of microlearning has proven to be effective, it was emphasized by employees and coaches that daily trainings were too frequent and detracted from employees' interest and participation in the training. Moving forward it would be valuable to implement a delivery model into the organization that enforces regular safety trainings without being overbearing on employees and coaches.

"It should be regular, maybe once a week and not every day."
- Employee

5.1.5 Awareness of communication skills

Communication was encompassed across four of the ten competencies covered in the microlearning program. For the organization, this was a behavioural skill seen as highly valuable, especially given bilingualism in the Agnico organization. As seen in Table 3 above, microlearning was effective in increasing closed loop communication skills specifically, but communication was a skill that integrated across multiple modules of the microlearning program (e.g., team building, coaching, active listening).

Participants echoed that the development of communication skills was a key takeaway of microlearning. It elevated awareness and understanding of the role of proper communication in workplace health and safety.

"It has helped to communicate clearly the tasks at hand."
- Employee

"A daily reminder of the importance of proper communication."
- Employee

"Getting the skills to better communicate with others."
- Employee

5.2 IMMEDIATE OUTCOMES

5.2.1 Adoption of safety behaviours

As discussed in section 5.4 and 5.5, microlearning was successful in producing behavioural change amongst employees. The trainings were effective in putting safety behaviours at the forefront for employees in their day-to-day job which has led to more thought and discussion around safety behaviours in the organization. It is also important to recognize a target for the health and safety team is to increase the safety behaviours of their workforce. The goal is to move employees up the scale from never or sometimes using a safety behaviour to the target of always using that behaviour. Once these behaviours increase there will be a reflection seen in incidents and accidents onsite.

"It gives you a different approach to your job and the people around you. If you aren't sure, you think a little more about it. What to do? What are the risks involved?"
- Employee

It has also been acknowledged that the organization has not been able to see and measure the long-term extent to which microlearning has made an impact at the time of this evaluation. Although, coaches expressed that microlearning has been an effective tool for informing and reminding employees of safety behaviours on-the-job.

"At this point I don't think people have changed their behaviours that much. It's hard to know if you saved an incident."
- Coach

5.2.2 Enhanced communication

Microlearning was successful in developing communication skills across the organization. The trainings helped both employees and coaches develop skills to better communicate with one another. The communication microlearning was aligned with the national occupational standards for Minerals Processing Operator where MiHR awarded 68 communication micro credentials to the participants.

Through engagement with other employees and coaches, microlearning has helped employees to feel more comfortable communicating in the workplace, leading to less hesitation about bringing up safety concerns to other employees or supervisors. As language is a barrier for some employees of Agnico, microlearning has provided communication tactics for navigating a bilingual workplace.

"Microlearning was effective in providing a basis for how to start changing behaviours. It's hard to say at this point if it has a difference. But I think it has employees thinking about and discussing health and safety more."
- Coach

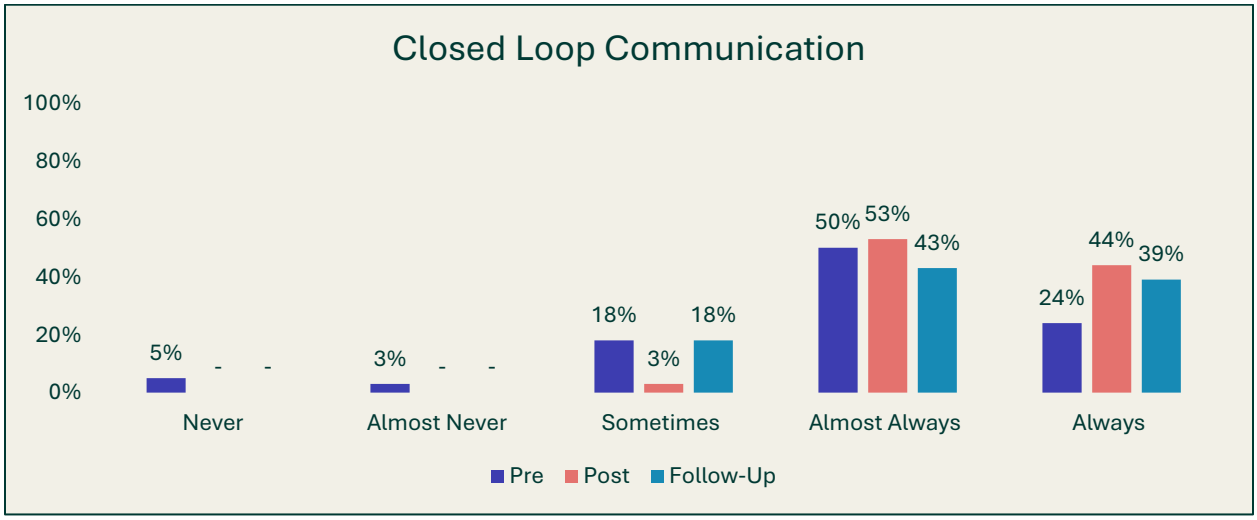
"I don't see a different attitude yet, but I see more discussion."

- Leader

While communication was a skill that was integrated across microlearning modules, Figure 5 exemplifies that upon completion of microlearning 97% of employees use closed-loop communication, known as a three-step process – state the message, listener tells their version, confirms when it is correct.

"The program has reminded me to make sure my message is clear and understood when I talk."
- Employee

Figure 5: Please read each one carefully and then rate where you think your current behaviours are on a scale from 1-5. (1 - you never do this behaviour to 5 - you always take part in this behaviour)



Refer to Appendix B for results of all competencies covered in microlearning.

Similarly, coaches and employees have recognized that microlearning has helped to generate conversation, made employees more comfortable to speak up, and emphasized a preventative approach to workplace health and safety in the organization.

"The biggest learning was how to provide the right information to employees and develop a routine for safety prevention tactics."
- Coach

"Made it easier to say something if someone is doing wrong."
- Employee

"Communication is key to safety. If unsure ask supervisor or someone who knows. Do NOT be shy to bring up safety concerns."
- Employee

5.2.3 Increased incident reporting

Agnico continues to diligently report on incidents that occur across organization. Refer to Figure 6 and 7 below for the annual breakout of incident type. Refer to Appendix D for comparison graphs by incident type. Note: process plant statistics are reflective of the part of the organization where microlearning occurred. Organization stats refer to overall (without the process plant). This is included to best understand the impact microlearning was able to have on the process plant. Stats are presented year over year from January to September to allow comparison.

Incidents

Figure 6: Process plant annual incidents by type (January-September)

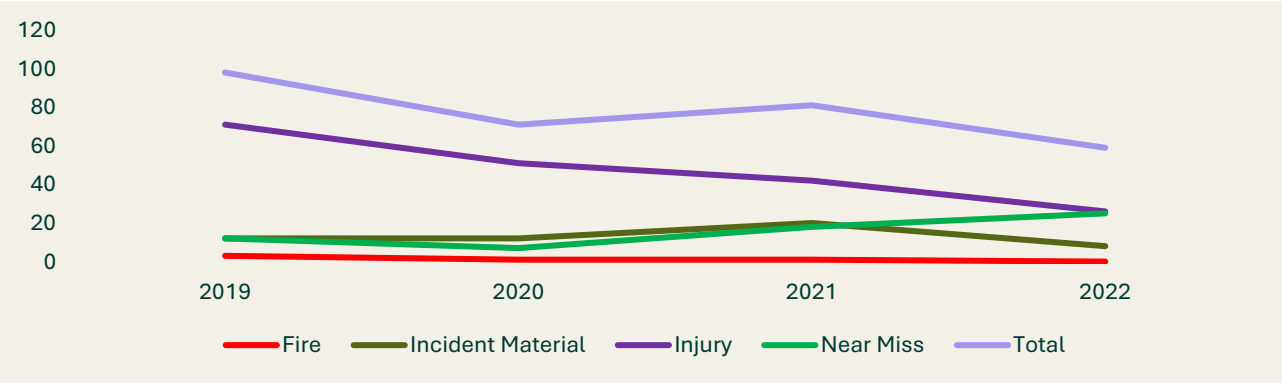
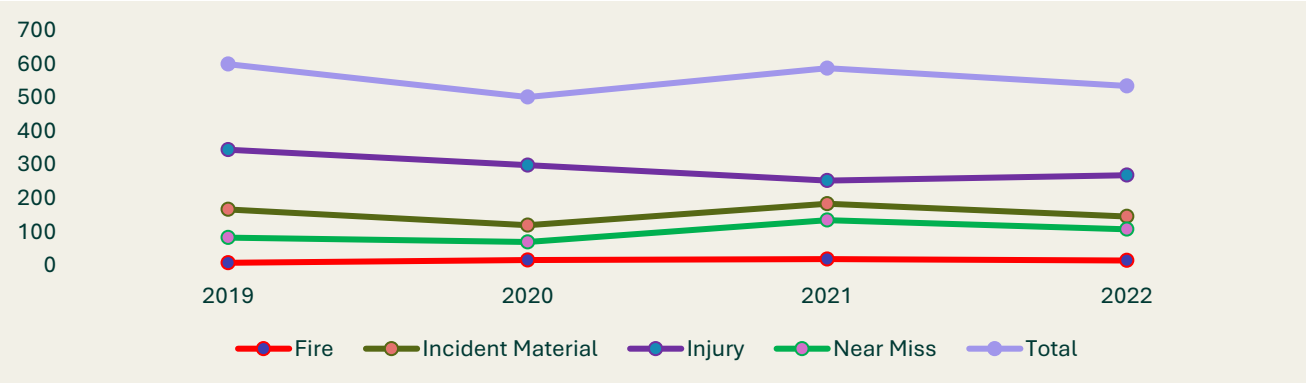


Figure 7: Organization annual incidents by type (January-September)



Incident Comparison – Organization versus Process Plant

Figure 6 and Figure 7 illustrate the incident trends across the organization. Most recently, it can be noted that the organization overall saw a 9% reduction in incidents between 2021 and 2022, while the process plant was successful in reducing incidents 27% YoY. This can be attributed in part to the effectiveness of the microlearning program.

Similarly, the process plant saw a 39% increase in near miss reporting, which is good news. An increase in near miss reporting means that the process plant was able to pro-actively resolve hazards before a costly incident occurs. The organization incurred a 20% decrease in near misses reported.

The process plant was also successful in reducing incident materials by 60%. Table 4 below gives a YoY comparison summary of incidents incurred across the organization versus the process plant, where microlearning took place.

Table 4: Incident summary YoY % (January-September) change

	Meliadine (w/o PP)					Process Plant				
	2019	2020	2021	2022	YoY %	2019	2020	2021	2022	YoY%
Fire	7	15	18	14	-22%	3	1	1	0	-100%
Incident Material	166	119	183	145	-21%	12	12	20	8	-60%
Injury	344	298	252	268	6%	71	51	42	26	-38%
Near Miss	82	69	134	107	-20%			18	25	39%
Total Incidents	599	501	587	534	-9%	98	71	81	59	-27%

Injuries

Figure 8 and Figure 9 show the trends across the process plant and the organization.

Figure 8: Process plant annual injuries by type (January-September)

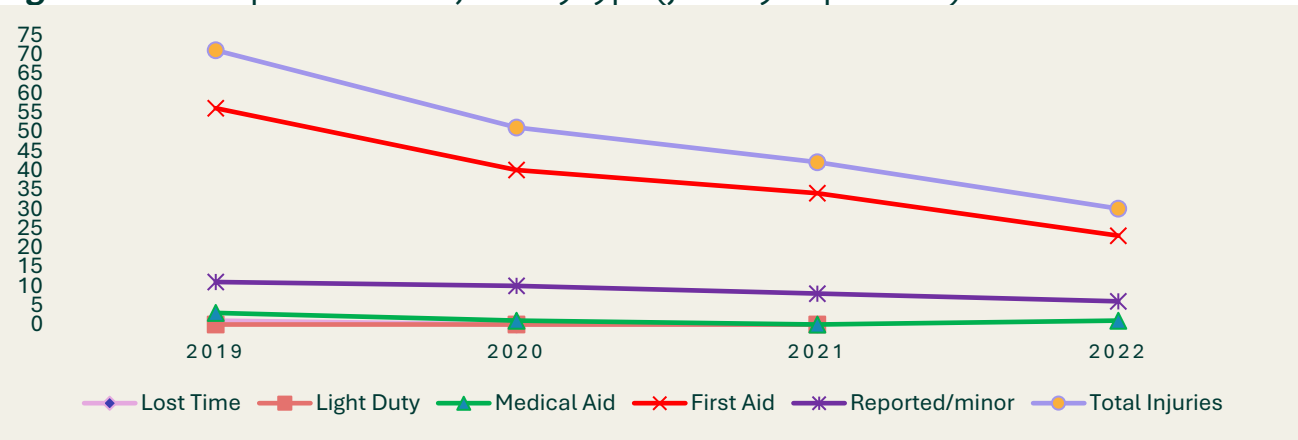
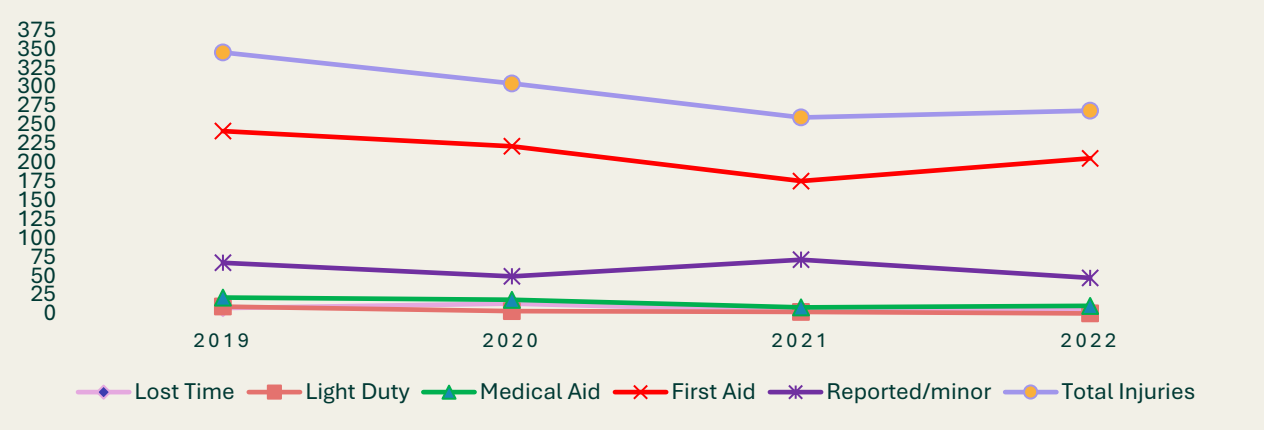


Figure 9: Organization annual injuries by type (January-September)



Injury Comparison – Organization versus Process Plant

During the time of Microlearning delivery the process plant saw 29% decrease in total injuries while the number of injuries increased by 3% at Meliadine operations overall indicating the microlearning is having a positive impact on the behaviours of the participants. Table 5 provides a YoY comparison summary on injury rates.

Table 5: Injury summary YoY % change

	Meliadine (w/o PP)					Process Plant				
Lost Time	7	13	3	6	50%	1	0	0	0	-
Light Duty	9	3	2	0	N/A	0	0	0	0	-
Medical Aid	21	18	8	10	25%	3	1	0	1	N/A
First Aid	241	221	175	205	17%	56	40	34	23	-32%
Reported/minor	67	49	71	47	-34%	11	10	8	6	-25%
Total Injuries	344	298	259	268	3%	71	51	42	30	-29%

While impact of microlearning has been observed, it is too early to effectively measure and evaluate the microlearning model on the basis of incidents and injuries in the organization. Based on the data, behavioural change has occurred and through the next evaluation we will determine if these behaviours continue to progress.

5.2.4 Improved employee moral

Microlearning was successful in providing employees and coaches with the opportunity for engagement and collaboration, both during training sessions and throughout the workday. The training videos were helpful in generating and guiding discussion between employees and coaches.

In addition to providing the organization with a safety-based training program, employees and coaches acknowledged that microlearning was beneficial for the culture of the organization. Employees appreciate the efforts being put towards workplace

health and safety in the organization, and it has given them the confidence to speak up if something is not right for the benefit of themselves and others.

"It made me more aware of things I wouldn't watch for, so I am satisfied."
- Employee

"It taught me to be more diligent on my safety and safety of others in a daily basis, be more assertive when it is a question of safety."
- Employee

"I learned a lot to help others, and how I can speak up to others."
- Employee

Coaches and leaders echoed that employees have demonstrated more of an eye for workplace health and safety and are working with each other to foster a safe working environment for everyone.

"I have noticed that employees are more vigilant and talking to each other about health and safety in a preventive way."
- Coach

5.3 RETURN ON INVESTMENT

Background

In order to conduct a return-on-investment analysis for microlearning at Agnico, the framework used is outlined.

To understand the impact and returns from the new training program being implemented, the trends and changes in workplace safety and accidents are examined. Using estimates on the costs of various incident types from the literature in order to assign economic value to any reduction in accident and increased safety that may have resulted since microlearning took place. Contrasting any savings against the salaries paid to employees for their time in the microlearning trainings each day, the value of the program can be understood.

Safety and Accidents

Data provided from Agnico outlines various types of injuries, as well as fire occurrences at the site. Data was analyzed January through September, for the years beginning 2019 until 2022.

Employer Cost of Injuries and Accidents

Several types of injuries and accidents were reported in the data, with varying severity over the time period covered. See Table 4 for summary.

Table 6: Meliadine PP Injuries and Accidents Reported January-September

Type	Y2019	Y2020	Y2021	Y2022
Lost Time	1	0	0	0
Light Duty	0	0	0	0
Medical Aid	3	1	0	1
First Aid	56	40	34	23
Reported	11	10	8	6
Total	71	51	42	30

In the table we see various types of injuries listed. In order to assign costing, the following have been defined:

- Reported: minor injuries that did not require first aid or medical aid (scratches, paper cuts, etc.)
- First Aid: incidents which required attention but was dealt with onsite and the individual could return to work shortly
- Medical Aid: incidents which required medical attention outside of the job site, losing the remainder of the day's work
- Lost Time Accident: incidents which require an individual to miss time at work beyond the day of the incident due to their injury
- Light duty: incidents which require an individual to modify their job tasks, as they cannot perform their usual duties due to an incident

Estimating the Costs of Occupational Injuries: A Feasibility Study in the Mining Industry is a 2013 study designed to develop economic indicators for occupational health and safety. It focuses on the mining industry making it particularly relevant in estimating the costs for the above injury types. Please note: the dollar values in the study are reported in 2006 CAD dollars, therefore after summarizing the findings, dollar values are adjusted for inflation to 2020 dollars.

For near misses we look to administrative costs of incident reporting, which **Lambeau et al (2013) (the above report)** report an average cost of $513.16 in 2006 dollars. It was found that onsite first aid costs are $11.85. Therefore, it is assumed that an employee misses one hour of productive work. With the reported average salary from Agnico of $138,000 and a schedule of 26 weeks/year, 7 days/week, 12 hours/day we have hourly earnings of $63.19.

Transportation costs are reportedly $177.03 in 2006 dollars on average to take an employee to a medical facility. For missing the remainder of the day's work, with no data on when in the shift an employee would be hurt, it is assumed on average that the employee misses half-day. Given the hourly rate of $63.19, missing half of their shift due to injury equates to $379.12 in lost pay to the employer. Lambeau et al (2013) also estimate that injuries on average put the employer on the hook for $2710.80 in 2006 dollars for covering medical costs.

Lost time accidents produce significantly greater costs. Losing an employee for extended time can mean having to adjust other employee schedules, having other employees work overtime to make up productivity, legal costs, more extensive benefits and medical costs, and other associated costs. Using the costs to employers reported in Lambeau et al (2013), we find the average cost to employers of a lost time occupational injury to be $30,868.52 in 2006 dollars. This cost can vary significantly depending on the nature of any given injury.

After converting all the costs into consistent 2020 dollars and totalling, the following employer costs for each type of injury are reporting (Table 5).

Table 7: Employer Cost Estimates

Type	Cost ($)
Reported	$643.33
First Aid	$692.53
Medical Aid	$4,484.60
Lost Time Accident	$38,698.72

Fires

Fire are relatively rare events but can prove very costly. While the cost of damage can vary significantly based on the severity of any given fire, Fires in Industrial and Manufacturing Properties provides valuable estimates of average damages caused by fires in various settings.

Looking particularly at fires in structures, in manufacturing or processing settings, Campbell (2018) estimates the average fire produces $106,299 in direct damages.

Safety Cost Savings

In order to build some robustness into our data around the rate of incidents, we average incidents that occurred between January and September 2019-2021 as pre-microlearning years. Data for January to September 2022 is considered post-microlearning period.

Figure 10: Injury and Accident Rates Pre (2019-2021) and Post (2022) Microlearning

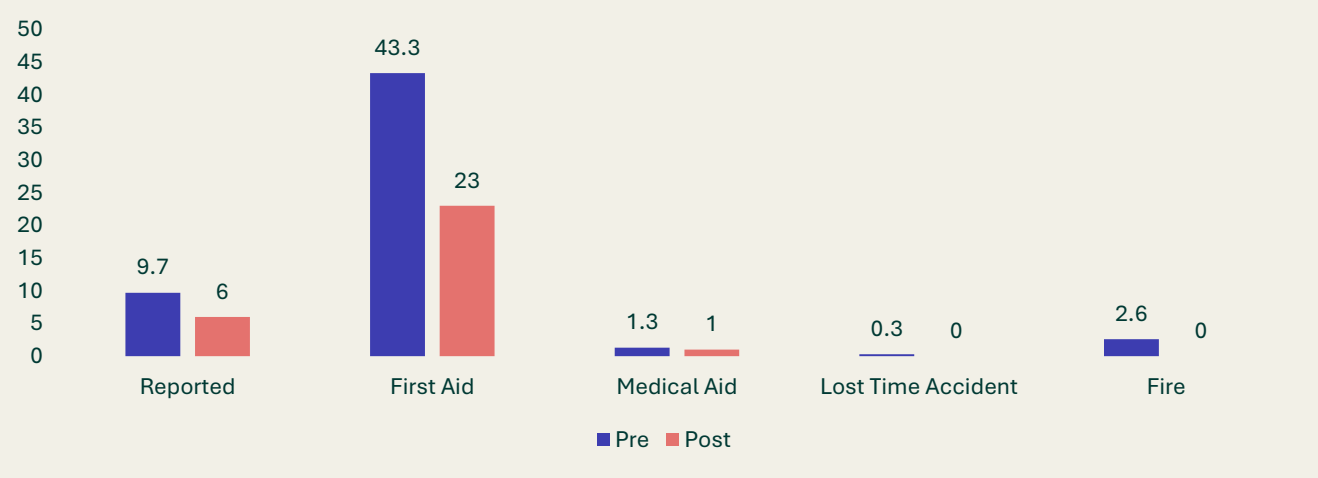
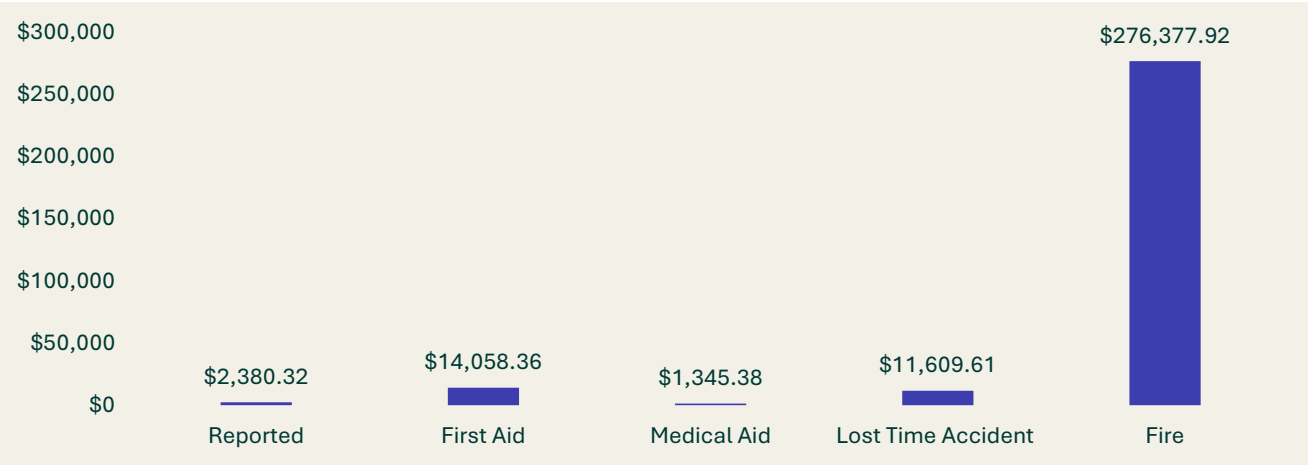


Table 8: Savings by Incident Type

	Pre	Post	Cost per incident	Change	Total Savings (dollars)
Reported	9.7	6	$643.33	3.7	$2,380.32
First Aid	43.3	23	$692.53	20.3	$14,058.36
Medical Aid	1.3	1	$4,484.60	0.3	$1,345.38
Lost Time Accident	0.3	0	$38,698.72	0.3	$11,609.61
Fire	2.6	0	$106299.21	2.6	$276,377.92
Total					$305,771.59

Figure 9: Savings by Incident Type



Employee Time Costs

The microlearning program required employees to complete approximately 13.5 minutes of training daily. The program was six months long, and conducted at Agnico

over January 1st, 2022, to June 30th, 2022. The period of microlearning includes 90 working days, where eight to ten employees attend daily. It is assumed on average that nine employees attend and once again the average reported salary of $138,000, or $63.19/hour is used.

This leads to an approximation that the program produced consumed -, and the salary cost to Agnico of $11,519.54 over the lifetime of the training program.

Conclusions

After accounting for the lost salary time, it was found that the reduction in fires and injuries after the microlearning program resulted in employer savings of approximately $294,252.41.

6.0 RECOMMENDATIONS

As Training Works looks to implement microlearning across other departments within Agnico and externally, it is important to leverage the feedback from this pilot phase to enhance the relevance and effectiveness of the program. Looking forward, it is recommended to consider the following:

Implement microlearning specific training sessions

The delivery model of microlearning was found to be limiting to both employees and coaches. Daily trainings were deemed as too frequent, and there was limited time to show and discuss the videos in daily toolbox talks.

"We are bound by time and operation. Daily is too much. It's also a lot of messages at once for employees."
- Coach

While consistent health and safety trainings are important, there is opportunity to make for a better experience for employees and coaches. It is recommended to alter the frequency of trainings and increase the amount of time set allotted for microlearning trainings to allow for discussion. For example, one five minute video at the beginning of the week followed up by guided discussions and other forms of microlearning on the same topic throughout the week to allow for continued learning and communication around the safety topic. . The safety behaviour of focus for the rotation would continue to be discussed in toolbox talks along with usual daily operational topics.

"I know phase 2 is in discussion. But everyday makes it too much to cover in our meeting. It needs to be implemented at a different pace."
- Coach

Communicate the intent of microlearning to levelset employee expectations

Microlearning is best suited and leveraged as daily reminders to commute knowledge into behaviour as opposed to teaching brand new skills. Ensuring that employees understand the intent and outcomes of the microlearning model will help with learner engagement moving forwards. The microlearning delivery model was found to be effective, it didn't capture the interest of more experienced employees. While the model keeps safety top-of-mind, it didn't deliver on experienced employee's expectations of learning about new safety topics or behaviours they can apply.

"Because I'm at the end of my career and I have seen a lot in my life and went through lots of training similar to this one."
- Employee

Coaches also highlighted that microlearning was less relevant to employees with experience in the industry.

"I feel like it's more geared to industry newcomers, and not the broad workforce we have here."
- Coach

"I was pumped at the beginning; I like the idea of the videos. The content itself was childish, and obvious skills like communication. Some people have 30-40 years of experience. As a coach I still had to present it and we did it until the end."
- Coach

Therefore, it is recommended to target employees new to the industry or with limited experience (e.g., summer students, new hires, etc.) using a behaviour-based workplace health and safety training model. For more experienced employees, it is recommended to investigate engagement and learning needs, and set expectations for microlearning serving as a safety reminder/refresher.

"A regular toolbox meeting is good enough. With this microlearning we end up skipping the Meliadine minute which is more relevant than the microlearning. Microlearning should only be done to people who are new."
- Employee

Find new ways to engage more experienced workers

While microlearning provided more experienced employees with limited new learnings, it did serve as a reminder to the importance of behavioural skills in creating a safe workplace.

"Microlearning is good for summer students who don't have experience. For us it was boring and repetitive. It was more of a reminder than anything for me."
- Employee

Therefore, it is important to investigate ways to engage more experienced workers, as a behaviour-based training remains highly important and relevant to the industry. With many incidents and injuries occurring as a result of an experienced worker becoming complacent, alternative delivery models may pique their interest and heighten engagement with this audience.

Use human actors/actresses to elevate professionalism
While it didn't take away from the learnings of microlearning, the use of cartoons impeded on the appeal and relevance. Mentors and coaches noted that some employees were less attentive to the videos because of the "childish" animation.

"The animation is too basic and childlike. The training videos need to have a "real life" feel to them."
- Leader

"The cartoons led some of the more experienced guys to not take the videos seriously."
- Coach

Consequently, it is recommended to utilize human actors/actresses in the microlearning training videos to elevate professionalism and broaden the appeal for industrial works of all ages and skill levels.

Include job-specific examples to enhance relevance
As not all microlearning training videos are relevant to all positions, and some employees lacked the ability to make the connection between the competencies covered in the training and their day-to-day job in mining.

"Most incidents are behaviour related; therefore behaviour-based training makes sense. Just need to ensure it applies to our organization."
- Coach

"To have an impact, we need to have something more adaptable. At the end, we combined the videos with the reality we have on site and the feedback was better. Involve more actual workers on-site in the videos will be more relevant and impactful."
- Coach

To further the impact of microlearning, it is recommended to include more job-specific examples in the training videos and follow-up discussions. This would help to demonstrate how the behaviours covered in microlearning can be applied in the workplace as safety prevention tactics.

"I need to see real life scenarios that are plant related. Not the common communication skills like closed loop conversation topic, but real deal events."
- Employee

While the above recommendations would further the effectiveness of microlearning, it was acknowledged to be impactful in its pilot phase with the organization and is seen as a scalable program within and beyond the mining industry.

"The microlearning structure is really good, I see good potential for this."
- Leader

7.0 CONCLUSION

Microlearning was designed ensure that mining employees receive the right training to do their job on a continuous basis. These employees are limited in the amount of time they can spend away to receive training, the development of this microlearning program and delivery model was to combat this constraint while ensuring knowledge transfer and behavioural change.

Overall, the pilot phase of microlearning completed at Agnico was found to be successful in achieving the outputs and immediate outcomes outlined in the Theory of Change. By taking the recommendations provided into consideration, there is opportunity to optimize and enhance the effectiveness of microlearning to scale it across other organizations.

APPENDIX A: KEY INFORMANT INTERVIEW DISCUSSION GUIDE

Hello,

My name is [NAME], and I work for [COMPANY]. Thank you for taking the time to speak to me today.

The discussion we will have today is for research and evaluation purposes only; there are no right or wrong answers. So, I want you to speak freely, share whatever is on your mind and share your personal perspective!

To help me document the research, I will be recording our conversation; however, I want to assure you that everything you say during this conversation is strictly anonymous. Your name and any identifying information about you will not be shared outside of the research team.

Our discussion today will last approximately [TIME] minutes.

Do you have any questions before we begin? I will now turn on the recording

Participants

1. To start off, tell me a little **about yourself** – your job title, description, length of time with the company, years of experience, and some of your experience before joining.

Note: Fill in below

Name:
Job title:
Job description:
Demographic information:
-Age
-Gender
-Location/Company
-Years of experience in current position
-Years of experience in previous positions within industry

Relevance & Design and Delivery

2. What were you hoping to **learn in this program**?
    a. Did you achieve these goals?

   b. If not, what would have helped you?

3. How did the program **relate to your role** within the organization?
   a. How will you apply the skills learned to stay safe at work?
   b. Thinking of the topics covered, what was the most relevant for you? Least relevant?
   c. Are there other topic areas related to safety practices or soft skills that you would have liked to learn about?

4. Please share with me your **level of satisfaction** with the **model** of the program (5 minutes of training per day while on shift and receive feedback and support from coaches)– very satisfied, somewhat satisfied, not satisfied.
   a. Tell me why.
   b. Is there anything you would change in the delivery of the program?

Outcomes

5. How has the microlearning program **helped** you in your role at the organization?
   a. Has it changed the way you do your job? Or how you approach workplace safety?
   b. How do you think the program has helped your organization overall? *Probe on incidents, near misses, rules/educational resources.*

6. What was the most impactful thing you learned in this program?
   a. How will it help you in your job?

7. Moving forward, are there any **changes** you would like to see made to the microlearning program?

Thank you for your time today. That is all of my questions. Do you have any other thoughts, comments or suggestions before we wrap up today?

Thanks again and have a great day!

Coaches

1. To start off, tell me a little about yourself – your job title, description, length of time with the company, and some of your experience.

Note: Fill in below

Name:
Job title:
Job description:

Relevance & Design and Delivery

2. What was your organization hoping to **get out of this program**?
    a. Did the organization achieve these goals?
    b. If not, what would have helped to meet these goals?

3. Was the program **relevant** to your organization's needs?
    a. Thinking of the topics covered, what was the most relevant to your organization? Least relevant?
    b. Are there other topic areas related to safety practices or soft skills that would have been useful?

4. Please share with me your **level of satisfaction** with the **model** of the program (5 minutes of training per day while on shift and receive feedback and support from coaches)– very satisfied, somewhat satisfied, not satisfied.
    a. Tell me why.
    b. Is there anything you would change in the delivery of the program?

Outcomes

5. How has the microlearning program **helped** your organization?
    a. Has it changed the approach to workplace safety?
    b. How do you think the program has had an impact on the organization? *Probe on incidents, near misses, rules/educational resources.*
    c. Have you noticed any changes in the culture of the organization? Probe on observed impacts (e.g., more coach/participant interactions occurring).

6. What is your **biggest takeaway** from the program?
    a. How will the organization implement these safety skills and practices moving forward?

7. Are there any **changes** you would like to see made to the microlearning program?

Thank you for your time today. That is all of my questions. Do you have any other thoughts, comments or suggestions before we wrap up today?

Thanks again and have a great day!

Leaders

1. To start off, tell me a little about yourself – your job title, description, length of time with the company, and some of your experience.

Note: Fill in below

Name:
Job title:
Job description:

Relevance & Design and Delivery

2. What was your organization hoping to **get out of this program**?
    a. Did the organization achieve these goals?
    b. If not, what would have helped to meet these goals?

3. Was the program **relevant** to your organization's needs?
    a. Thinking of the topics covered, what was the most relevant to your organization? Least relevant?
    b. Are there other topic areas related to safety practices or soft skills that would have been useful?

4. Please share with me your **level of satisfaction** with the **model** of the program (5 minutes of training per day while on shift and receive feedback and support from coaches)– very satisfied, somewhat satisfied, not satisfied.
    a. Tell me why.
    b. Is there anything you would change in the delivery of the program?

5. As a Leader is there anything that could have been done to support you better in implementing this program within your organization? (more training, continuous support etc.)

6. Have you noticed a difference in how your organization views safety?

7. What have been the biggest challenges in implementing this program?

8. How would you address these challenges moving forward?

9. Would you invest in a program like this in the future?
10. If not, why?

Outcomes

11. How has the microlearning program **helped** your organization?
    a. Has it changed the approach to workplace safety and how you think about it.
    b. How do you think the program has had an impact on the organization? Probe on incidents, near misses, rules/educational resources. Safety culture and coaching culture

12. What is your **biggest takeaway** from the program?

   a. How will the organization implement these safety skills and practices moving forward?

13. Are there any **changes** you would like to see made to the microlearning program?

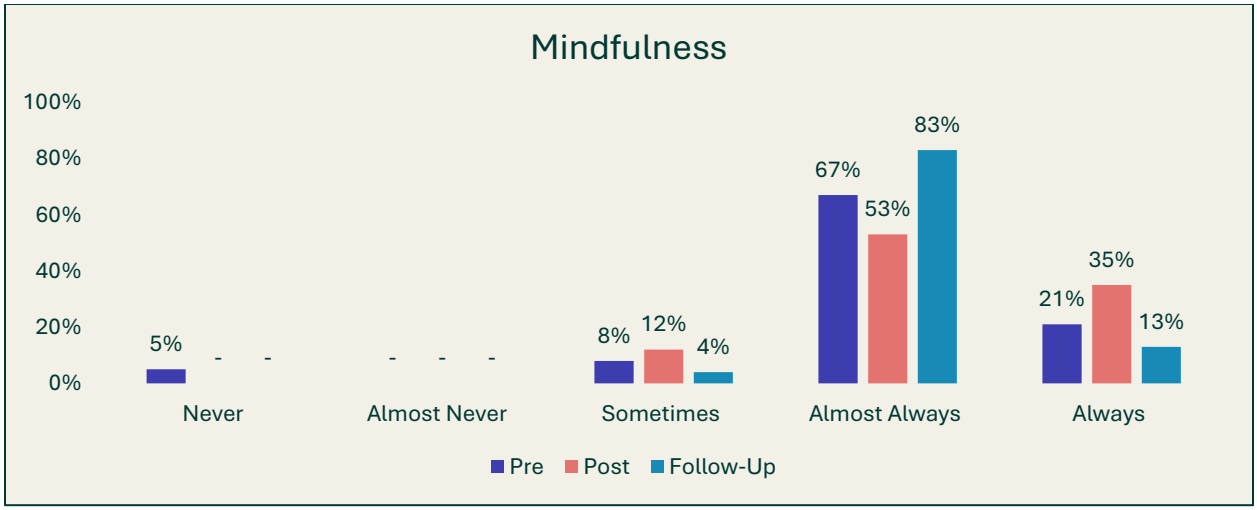
Thank you for your time today. That is all of my questions. Do you have any other thoughts, comments or suggestions before we wrap up today?

Thanks again and have a great day!

APPENDIX B: BEHAVIOURAL ASSESSMENT (PRE AND POST SURVEY)

Question: Below is a list of behavioural topics that have been covered during the program. Please read each one carefully and then rate where you think your current behaviours are on a scale from 1-5. (1 - you never do this behaviour to 5 - you always take part in this behaviour)

Mindfulness	Mindfulness is being present in the moment. You think about the outcomes of your actions before you finish the task. You think about the impact of your words before you say them.
Vigilance	Vigilance means to keep your focus and stay alert while doing tasks at work. To be safe at work you must always keep an eye on the people, the machines, and your work site.
Active Listening	You listen to understand the speaker's message.
Effective Inquiry	You ask questions with purpose.
Closed Loop Communication	You use a 3-step process when you speak. You state the message, you wait for the listener to tell you their version of the message and you confirm when they are correct.
Assertiveness	You make sure your message is heard and addressed.
Strategic Decision Making	You use a 5-step process to decide. 1. Identify the problem 2. Gather information 3. Consider your options 4. Decide on a path forward 5. Evaluate your decision
Team Building	You are a part of a team working towards a goal. To reach the goal your team works well together and continue to improve and learn.
Workload Management	You understand how to manage your tasks with the team and goal in mind. If you are a manager or supervisor you are able to assign tasks to individuals based on their role in the company and skill level.
Coaching	Coaching is already a big part of day-to-day tasks at your company. By coaching others, you are sharing your know-how and skills. You help members of your team to become safe in the workplace.


Mindfulness
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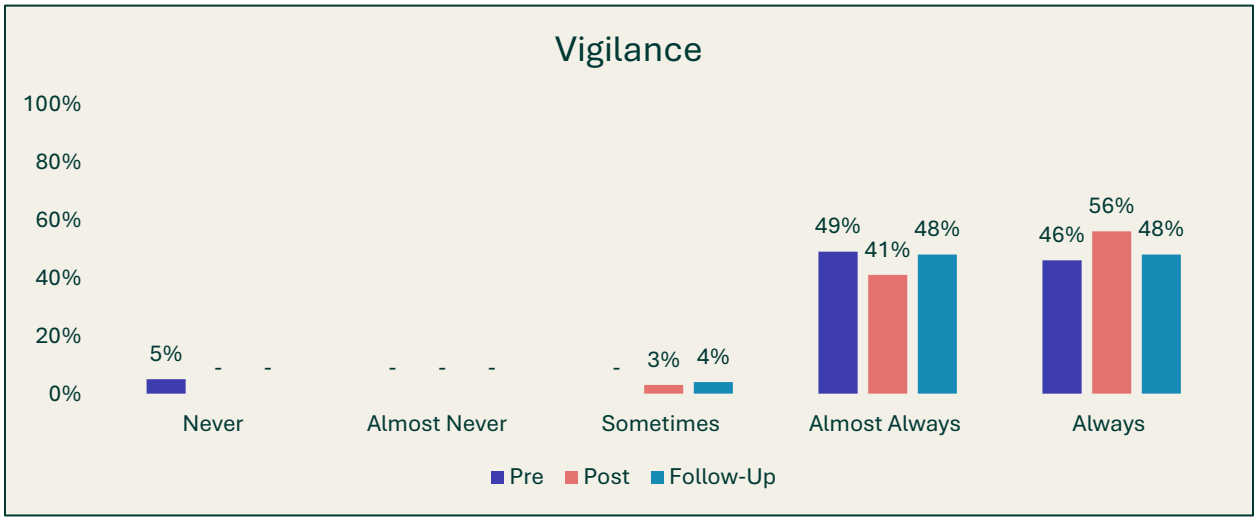
Pre
Post
Follow-Up


Vigilance
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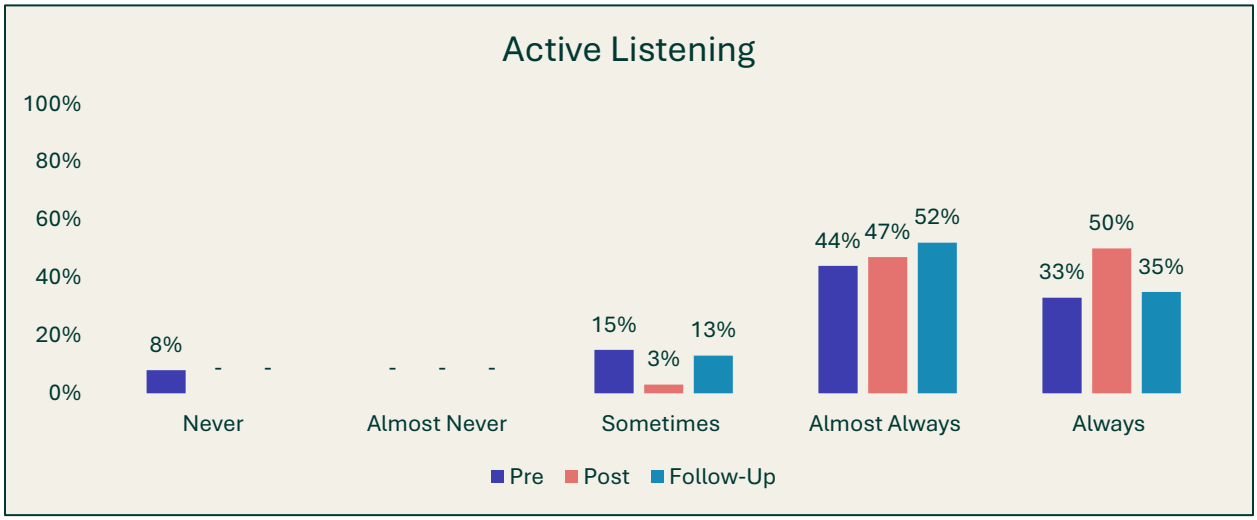
Pre
Post
Follow-Up


Active Listening
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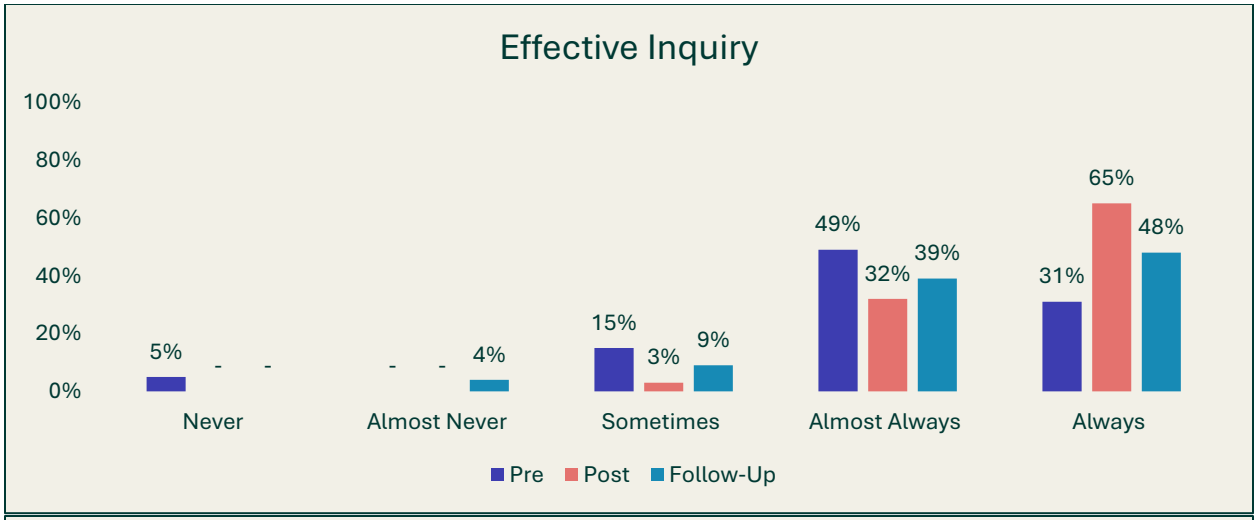
Follow-Up


Effective Inquiry
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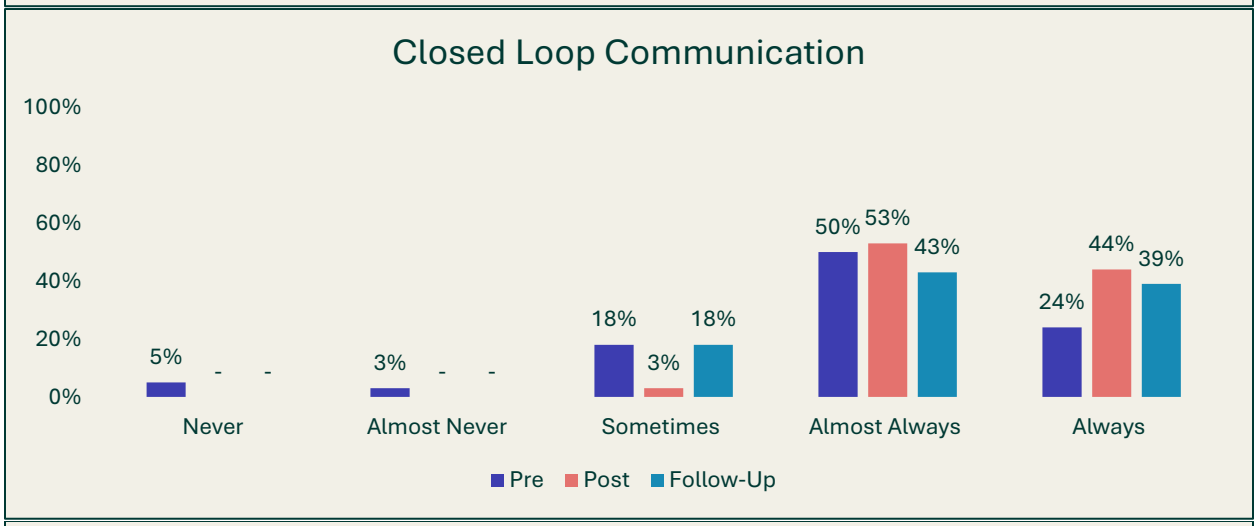
Follow-Up


Closed Loop Communication
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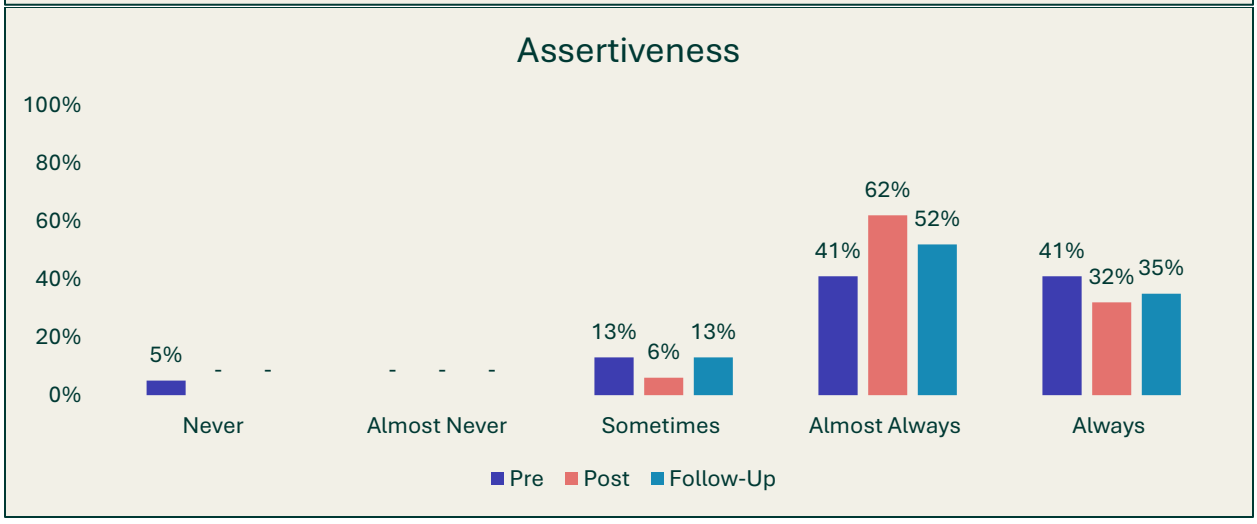
Follow-Up


Assertiveness
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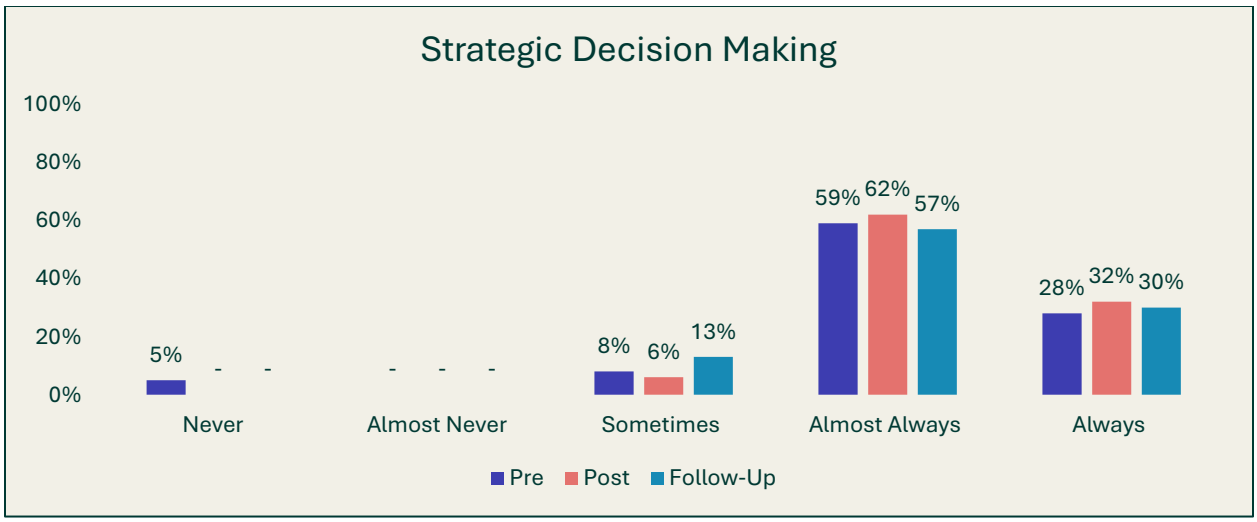
Follow-Up


Strategic Decision Making
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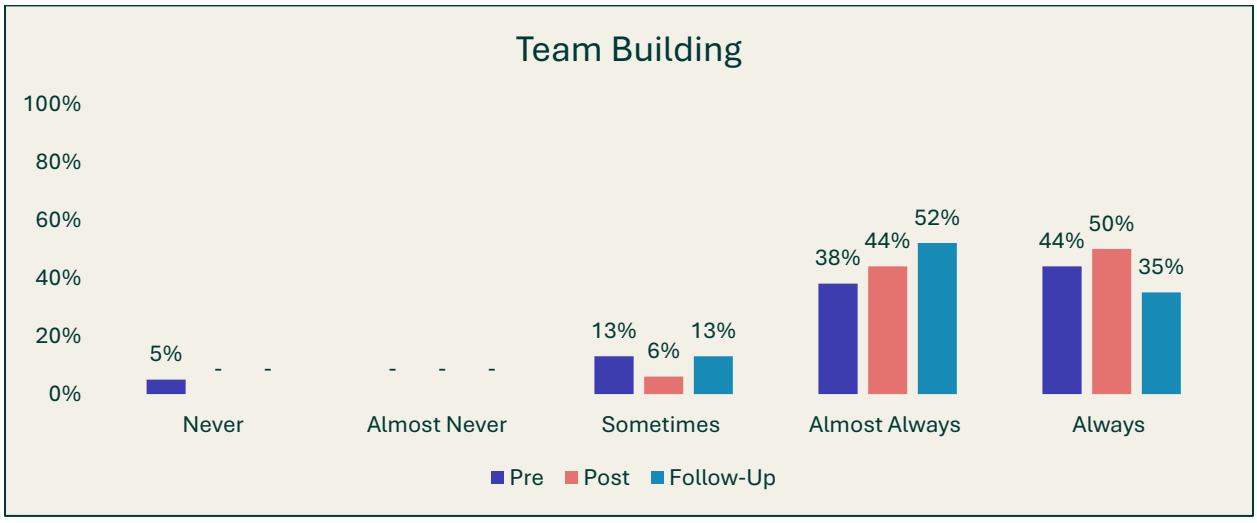
Follow-Up


Team Building
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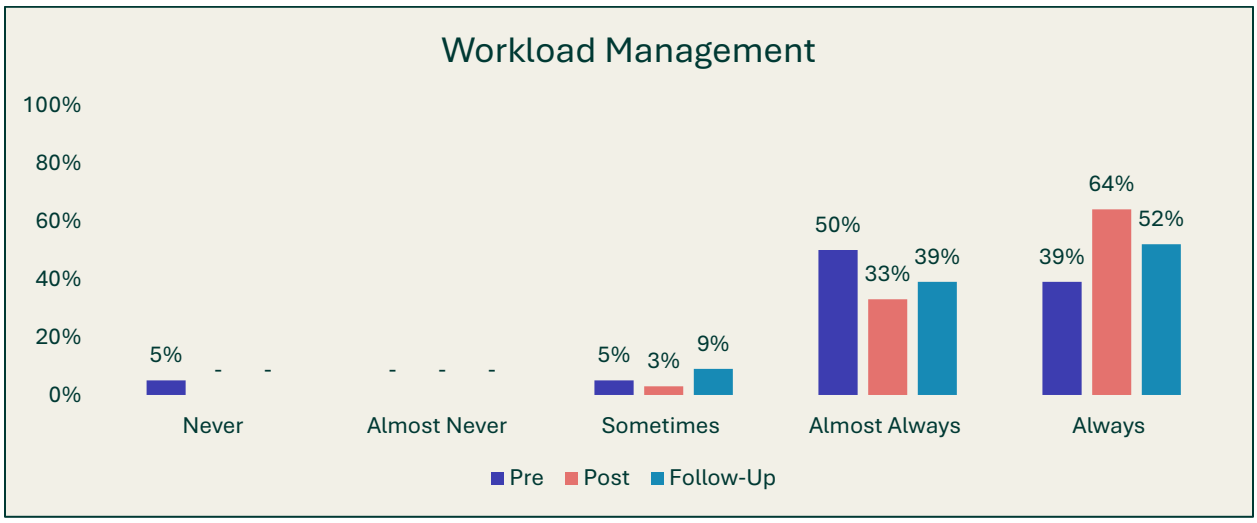
Workload Management
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Almost Always
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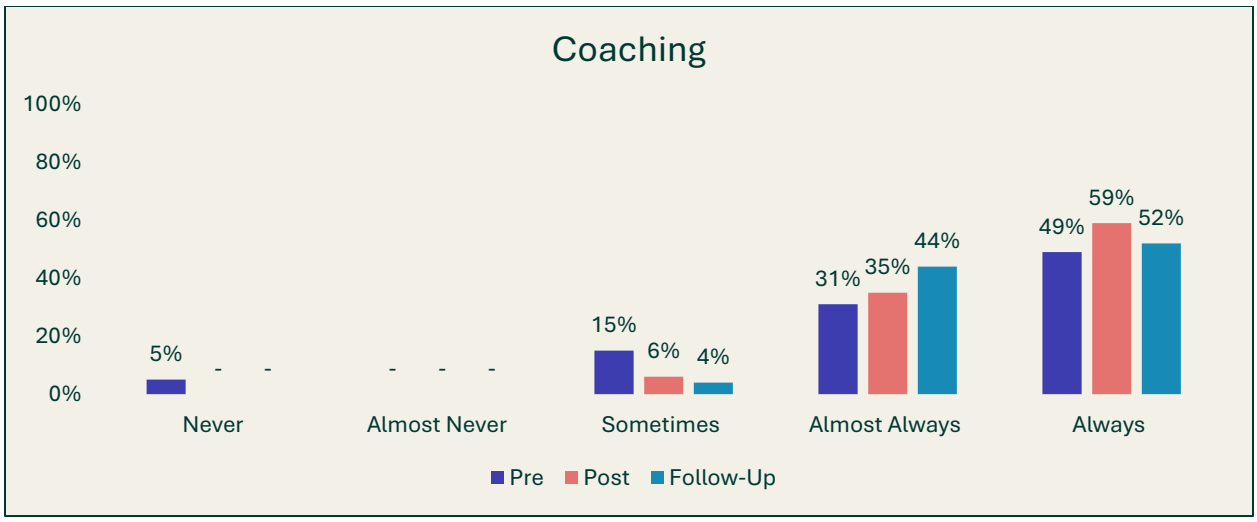
Pre
Post
Follow-Up


Coaching
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15%
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35%
44%
49%
59%
52%
Never
Almost Never
Sometimes
Almost Always
Always
Pre
Post
Follow-Up

APPENDIX C: SURVEY RESULTS

Pre-Survey (N=37)

1. Were you given enough details about the microlearning program that you feel comfortable to begin?

	Yes	No
Agnico (N=37)	70%(26)	30%(11)

2. What are you hoping to learn from this microlearning program?

- Safety
- Communication
- Increase efficiency on the job
- Get others thinking more about their safety behaviour
- Not sure

3. On a scale from 1-5, from what you know about this microlearning program, do you feel this program will relate to your role within the organization?

- SCALE 1 (not at all) - 5 (very)

	Average
Agnico (N=37)	2.3

- Why did you give this rating?

Agnico
I know very little about the content of the program.
Too new, has not started yet.
I always pay attention to safety, also supervise in my role, so will be helpful to have everyone to focus on safety. The more information the better.

4. How do you think the skills you learn through this program will help you stay safe at work?

Agnico
Daily reminders of safety tips that we might not think of
By opening our eyes on some safety issues
Make me put things in perspective

5. For this program you will complete about 5 minutes of training per day while on shift and receive feedback and support from coaches. How would you rate your satisfaction with this training model?

	Not Satisfied	Somewhat Satisfied	Very Satisfied
Agnico (N=38)	16%(6)	61%(23)	23%(9)

- Why did you give this rating? Would you prefer to see a different model? If so, what would you prefer?

Agnico
I mean, again we will need to see how it affect our day-to-day work flow.
Never tried it I will know after the training.
I'm open minded, haven't even seen the program yet so can't give an opinion.
Hard to comment on training that I have no knowledge or info.

6. Below is a list of behavioural topics that will be covered during the program. Please read each one carefully and then rate where you think your current behaviours are on a scale from 1 (you never do this behaviour) to 5 (you always take part in this behaviour).

Agnico	Never	Almost Never	Sometimes	Almost Always	Always
Mindfulness: Mindfulness is being present in the moment. You think about the outcomes of your actions before you finish the task. You think about the impact of your words before you say them.	5%(2)	-	8%(3)	67%(26)	21%(8)
Vigilance: Vigilance means to keep your focus and stay alert while doing tasks at work. To be safe at work you must always keep an eye on the people, the machines, and your work site.	5%(2)	-	-	49%(19)	46%(18)
Active Listening: You listen to understand the speaker's message.	8%(3)	-	15%(6)	44%(17)	33%(13)
Effective Inquiry: You ask questions with purpose.	5%(2)	-	15%(6)	49%(19)	31%(12)

Agnico	Never	Almost Never	Sometimes	Almost Always	Always
Closed Loop Communication: You use a 3-step process when you speak. You state the message, you wait for the listener to tell you their version of the message and you confirm when they are correct.	5%(2)	3%(1)	18%(7)	50% (19)	24%(9)
Assertiveness: You make sure your message is heard and addressed.	5%(2)	-	13%(5)	41%(16)	41% (16)
Strategic Decision Making: You use a 5-step process to decide. 1. Identify the problem 2. Gather information 3. Consider your options 4. Decide on a path forward 5. Evaluate your decision	5%(2)	-	8%(3)	59%(23)	28% (11)
Team Building: You are a part of a team working towards a goal. To reach the goal your team works well together and continue to improve and learn.	5%(2)	-	13%(5)	38%(15)	44%(17)
Workload Management: You understand how to manage your tasks with the team and goal in mind. If you are a manager or supervisor you are able to assign tasks to individuals based on their role in the company and skill level.	5%(2)	-	5%(2)	50%(19)	39%(15)

Agnico	Never	Almost Never	Sometimes	Almost Always	Always
Coaching: Coaching is already a big part of day-to-day tasks at your company. By coaching others, you are sharing your know-how and skills. You help members of your team to become safe in the workplace.	5%(2)	-	15%(6)	31% (12)	49% (19)

7. Thinking of the topics you just reviewed and your job position, what are you looking forward to the most over the course of your program?

Agnico
Mindfulness is definitely something I want to work on.
Good communication is very important.
Having more skills related to safety.

8. What are you looking forward to the least?

Agnico
Nothing. Always open to new things. I see this being very beneficial if properly organized.
The user experience on the app is a bit rough so far. Fighting with the forms is definitely something I am not to thrilled by.
The amount of time this might take.

9. Are there other topic areas related to safety practices or soft skills that you would like to learn about during this program? If so, please list them below.

Agnico
I need to start and understand more of that program.
So far, it looks as though all the major topics are covered. I'm satisfied to date.

10. Gender

Agnico	% (N)
Female	3%(1)
Male	97%(38)
Prefer not to answer	-
I prefer to identify as ____	-

11. How old are you?

Agnico	% (N)
Prefer not to answer	-
Younger than 15	-
Between 15 and 29 years old	23% (9)
Between 30 and 44 years old	33% (13)
Between 45 and 65 years old	41% (16)

Agnico	% (N)
Older than 65	3% (1)

12. Which of the following best describes your current relationship status? (N=99)

Agnico	% (N)
Single	15% (6)
In a relationship	41% (16)
Married	28% (11)
Divorced	8% (3)
Widowed	-
Prefer not to answer	8% (3)

13. How many members of your household, including yourself, are in each of these age groups?

Agnico	(N)
Adult 18+ (including yourself)	70
Child age (0-17)	24

14. What is the highest level of education you have completed? (N=98)

Agnico	% (N)
Some high school or less	10% (4)
Graduated high school	38% (15)
Some college or university	15% (6)
College or university graduate	18% (7)
Some postgraduate work	-
Completed post-graduate education	8% (3)
Prefer not to answer	10% (4)

15. Which of the following best describes your current employment status?

Agnico	% (N)
Employed full-time	79% (31)
Employed part-time	3% (1)
Contractual	18% (7)
Other (please specify):	

16. Do you identify as someone with a disability?

Agnico	% (N)
Yes	10% (4)
No	82% (32)
Prefer not to say	8% (3)

Post-Survey (N= 34)

1. What did you learn in the microlearning program?

Agnico
A refresher on safety and communication delivery methods.
Communication is key to safety.. if unsure ask supervisor or someone who knows. Do NOT be shy to bring up safety concerns.
It was more a reminder program than a learning one.

2. Has the microlearning program helped to remind you of the things you should be watching for and doing to be safe when you begin work for the day?

Agnico
Before working it's help for thinking more about the task.
Remind focus on safety, all small things that can help.
Pay more attention to my surroundings.

3. How do you think the skills you have learned through this program so far, have helped you stay safe at work?

Agnico
Make us more vigilant with our surroundings and coworkers.
It has helped with reminding me to ask for help when I'm lost or confused with the job.
This program is good for new employees coming into the industry.

4. For this program you will complete about 5 minutes of training per day while on shift and receive feedback and support from coaches. How would you rate your satisfaction with this training model?

	Very Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Very Satisfied
Agnico (N=34)	12%(4)	12%(4)	38%(13)	32%(11)	6%(2)

- Why did you give this rating? Would you prefer to see a different model? If so, what would you prefer?

Agnico
I think we will need training reminder more specific to our job.
My only concern was that we did most of these training at the beginning of the day, but if you were on night shift, it was hard to stay focus on the subject.
Id like to see something more relavant with the process plant itself. Eliminate the cartoons completely.

5. Below is a list of behavioural topics that will be covered during the program. Please read each one carefully and then rate where you think your current behaviours are on a scale from 1 (you never do this behaviour) to 5 (you always take part in this behaviour).

Agnico	Never	Almost Never	Sometimes	Almost Always	Always
Mindfulness: Mindfulness is being	-	-	12%(4)	53%(18)	35%(12)

Agnico	Never	Almost Never	Sometimes	Almost Always	Always
present in the moment. You think about the outcomes of your actions before you finish the task. You think about the impact of your words before you say them.					
Vigilance: Vigilance means to keep your focus and stay alert while doing tasks at work. To be safe at work you must always keep an eye on the people, the machines, and your work site.	-	-	3%(1)	41%(14)	56%(19)
Active Listening: You listen to understand the speaker's message.	-	-	3%(1)	47%(16)	50%(17)
Effective Inquiry: You ask questions with purpose.	-	-	3%(1)	32%(11)	65%(22)
Closed Loop Communication: You use a 3-step process when you speak. You state the message, you wait for the listener to tell you their version of the message and you confirm when they are correct.	-	3%(1)	12%(4)	59%(20)	26%(9)
Assertiveness: You make sure your message is heard and addressed.	-	-	3%(1)	53%(18)	44%(15)
Strategic Decision Making: You use a 5-step process to decide. 1. Identify the problem 2. Gather information 3. Consider your options	-	-	6%(2)	62%(21)	32%(11)

Agnico	Never	Almost Never	Sometimes	Almost Always	Always
4. Decide on a path forward 5. Evaluate your decision					
Team Building: You are a part of a team working towards a goal. To reach the goal your team works well together and continue to improve and learn.	-	-	6%(2)	44%(15)	50%(17)
Workload Management: You understand how to manage your tasks with the team and goal in mind. If you are a manager or supervisor you are able to assign tasks to individuals based on their role in the company and skill level.	-	-	3%(1)	33%(11)	64%(21)
Coaching: Coaching is already a big part of day-to-day tasks at your company. By coaching others, you are sharing your know-how and skills. You help members of your team to become safe in the workplace.	-	-	6%(2)	35%(12)	59% (20)

6. Overall, how satisfied are you with the microlearning program?

	Very Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Very Satisfied
Agnico (N=34)	9%(3)	18%(6)	32%(11)	41%(14)	-

7. Based on your experience in the program, how likely are you to recommend someone else to the program?

	Very Unlikely	Unlikely	Neutral	Likely	Very Likely
Agnico (N=34)	18%(6)	15%(5)	37%(13)	24%(8)	6%(2)

8. Are there other topic areas related to safety practices or soft skills that you would like to learn about during this program? If so, please list them below.

Agnico
Yes, real life scenarios... Process plant related. Not the common communication, closed loop conversation topic but real deal events.
Topics directly related to the task at hand.
Useful skills and lessons in the workplace relevant to our jobs.

9. Gender

Agnico	% (N)
Female	-
Male	94% (32)
Prefer not to answer	6% (2)
I prefer to identify as ____	-

10. How old are you?

Agnico	% (N)
Prefer not to answer	6% (2)
Younger than 15	-
Between 15 and 29 years old	38% (13)
Between 30 and 44 years old	35% (12)
Between 45 and 65 years old	21% (7)
Older than 65	-

11. Which of the following best describes your current relationship status?

Agnico	% (N)
Single	24% (8)
In a relationship	38% (13)
Married	32% (11)
Divorced	-
Widowed	-
Prefer not to answer	6% (2)

12. How many members of your household, including yourself, are in each of these age groups?

Agnico	(N)
Adult 18+ (including yourself)	Average 2.5/HH
Child age (0-17)	9 HH – Average 1.5/HH

13. What is the highest level of education you have completed?

Agnico	% (N)
Some high school or less	12% (4)
Graduated high school	14% (5)
Some college or university	18% (6)
College or university graduate	35% (12)
Some postgraduate work	3% (1)
Completed post-graduate education	6% (2)
Prefer not to answer	12% (4)

14. Which of the following best describes your current employment status?

Agnico	% (N)
Employed full-time	85% (29)
Employed part-time	-
Contractual	9% (3)
Other (please specify):	-
Prefer not to answer	6% (2)

15. Since enrolling in the program, have you?

Agnico (N=32)	% (N)
Secured a new job	22% (7)
Received a raise	6% (2)
Received a promotion	-
Ended or lost employment	-
Other (please specify):	28% (9)
Prefer not to answer	44% (14)

16. Do you identify as someone with a disability?

Agnico	% (N)
Yes	-
No	94% (32)
Prefer not to say	6% (2)

17. Do you identify as an Indigenous person (e.g., First Nations, Metis, Inuit)?

Agnico	% (N)
Yes	20% (7)
No	74% (25)
Prefer not to say	6% (2)

18. Which of the following (if any) apply to you?

Agnico	% (N)
I first learned French at home and still speak it	47% (16)
I can speak French well enough to conduct a conversation	6% (2)
I speak French most often at home	18% (6)
None of the above	29% (10)

6-Month Follow-Up Survey (N=23)

1. What did you learn in the microlearning program?

Agnico
Refresher on safety in the workplace.
To stay focus and work safely.

2. Has the microlearning program helped to remind you of the things you should be watching for and doing to be safe when you begin work for the day?

Agnico
Yes.
Reminder to go step by step.

3. How do you think the skills you have learned through this program so far, have helped you stay safe at work?

Agnico
It helped me identify safety hazards.
A reminder of the importance of communication.

4. For this program you will complete about 5 minutes of training per day while on shift and receive feedback and support from coaches. How would you rate your satisfaction with this training model?

	Very Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Very Satisfied
Agnico (N=23)	9%(2)	22%(5)	52%(12)	13%(3)	4%(1)

- Why did you give this rating? Would you prefer to see a different model? If so, what would you prefer?

Agnico
More training specific to our job.
More advanced.
More on field examples.

5. Below is a list of behavioural topics that will be covered during the program. Please read each one carefully and then rate where you think your current behaviours are on a scale from 1 (you never do this behaviour) to 5 (you always take part in this behaviour).

Agnico	Never	Almost Never	Sometimes	Almost Always	Always
Mindfulness: Mindfulness is being present in the moment. You think about the outcomes of your actions before you finish the task. You think about the impact	-	-	4%(1)	83%(19)	13%(3)

Agnico	Never	Almost Never	Sometimes	Almost Always	Always
of your words before you say them.					
Vigilance: Vigilance means to keep your focus and stay alert while doing tasks at work. To be safe at work you must always keep an eye on the people, the machines, and your work site.	-	-	4%(1)	48%(11)	48%(11)
Active Listening: You listen to understand the speaker's message.	-	-	13%(3)	52%(12)	35%(8)
Effective Inquiry: You ask questions with purpose.	-	4%(1)	9%(2)	39%(9)	48%(11)
Closed Loop Communication: You use a 3-step process when you speak. You state the message, you wait for the listener to tell you their version of the message and you confirm when they are correct.	-	-	18%(4)	43%(10)	39%(9)
Assertiveness: You make sure your message is heard and addressed.	-	-	13%(3)	52%(12)	35%(8)
Strategic Decision Making: You use a 5-step process to decide. 1. Identify the problem 2. Gather information 3. Consider your options 4. Decide on a path forward 5. Evaluate your decision	-	-	13%(3)	57%(13)	30%(7)
Team Building: You are a part of a team	-	-	13%(3)	52%(12)	35%(8)

Agnico	Never	Almost Never	Sometimes	Almost Always	Always
working towards a goal. To reach the goal your team works well together and continue to improve and learn.					
Workload Management: You understand how to manage your tasks with the team and goal in mind. If you are a manager or supervisor you are able to assign tasks to individuals based on their role in the company and skill level.	-	-	9%(2)	39%(9)	52%(12)
Coaching: Coaching is already a big part of day-to-day tasks at your company. By coaching others, you are sharing your know-how and skills. You help members of your team to become safe in the workplace.	-	-	4%(1)	44%(10)	52% (12)

6. Overall, how satisfied are you with the microlearning program?

	Very Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Very Satisfied
Agnico (N=23)	13%(3)	30%(7)	39%(9)	18%(4)	-

7. Based on your experience in the program, how likely are you to recommend someone else to the program?

	Very Unlikely	Unlikely	Neutral	Likely	Very Likely
Agnico (N=23)	13%(3)	31%(7)	30%(7)	13%(3)	13%(3)

8. Please rate how microlearning helped you in the following areas of development?

	None	A Little	Somewhat	A Lot
Knowledge of Safety-Based Practices	22%(5)	30%(7)	35%(8)	13%(3)
Adopting Safety-Based Behaviours on Site	13%(3)	35%(8)	17%(4)	35%(8)

9. How has completing the microlearning program impacted your job satisfaction in your current position?

Agnico	% (N)
I am more satisfied	13% (3)
Remined the same	83% (19)
I am less satisfied	4% (1)

10. Have you enrolled in any further training or education programs?

Agnico	% (N)
Yes	13% (3)
No	87% (20)

11. Gender

Agnico	% (N)
Female	4% (1)
Male	83% (19)
Prefer not to answer	13% (3)
I prefer to identify as ____	-

12. How old are you?

Agnico	% (N)
Prefer not to answer	5% (1)
Younger than 15	-
Between 15 and 29 years old	22% (5)
Between 30 and 44 years old	43% (10)
Between 45 and 65 years old	30% (7)
Older than 65	-

13. Which of the following best describes your current relationship status?

Agnico	% (N)
Single	22% (5)
In a relationship	35% (8)

Agnico	% (N)
Married	26% (6)
Divorced	4% (1)
Widowed	-
Prefer not to answer	13% (3)

14. How many members of your household, including yourself, are in each of these age groups?

Agnico	(N)
Adult 18+ (including yourself)	Average 1.7/HH
Child age (0-17)	4 HH – Average 1.75/HH

15. What is the highest level of education you have completed?

Agnico	% (N)
Some high school or less	4% (1)
Graduated high school	13% (3)
Some college or university	35% (8)
College or university graduate	35% (8)
Some postgraduate work	-
Completed post-graduate education	4% (1)
Prefer not to answer	9% (2)

16. Which of the following best describes your current employment status?

Agnico	% (N)
Employed full-time	83% (19)
Employed part-time	-
Contractual	4% (1)
Other (please specify):	-
Prefer not to answer	13% (3)

17. Since enrolling in the program, have you?

Agnico	% (N)
Secured a new job	9% (2)
Received a raise	13% (3)
Received a promotion	9% (2)
Ended or lost employment	-
Other (please specify):	30% (7)
Prefer not to answer	39% (9)

18. Do you identify as someone with a disability?

Agnico	% (N)
Yes	-
No	91% (21)

Agnico	% (N)
Prefer not to say	9% (2)

19. Do you identify as an Indigenous person (e.g., First Nations, Metis, Inuit)?

Agnico	% (N)
Yes	17% (4)
No	70% (16)
Prefer not to say	13% (3)

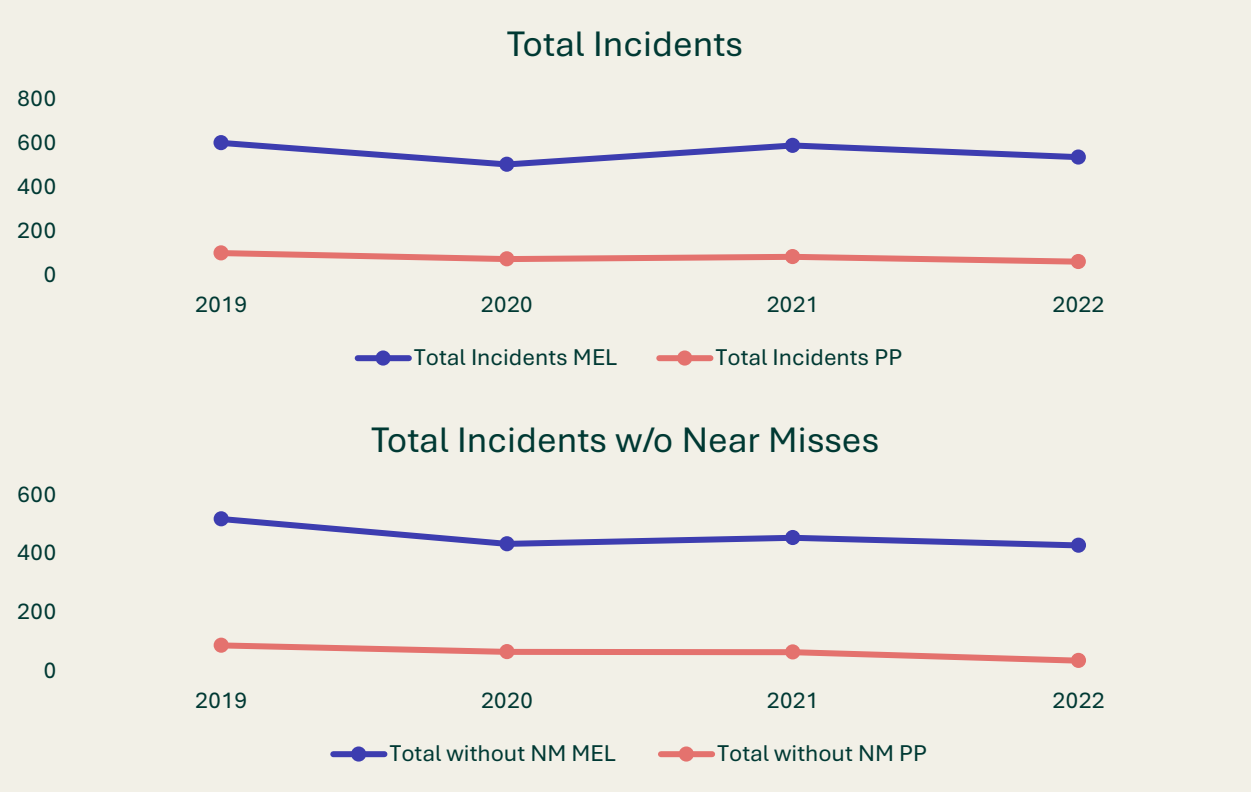
20. Which of the following (if any) apply to you?

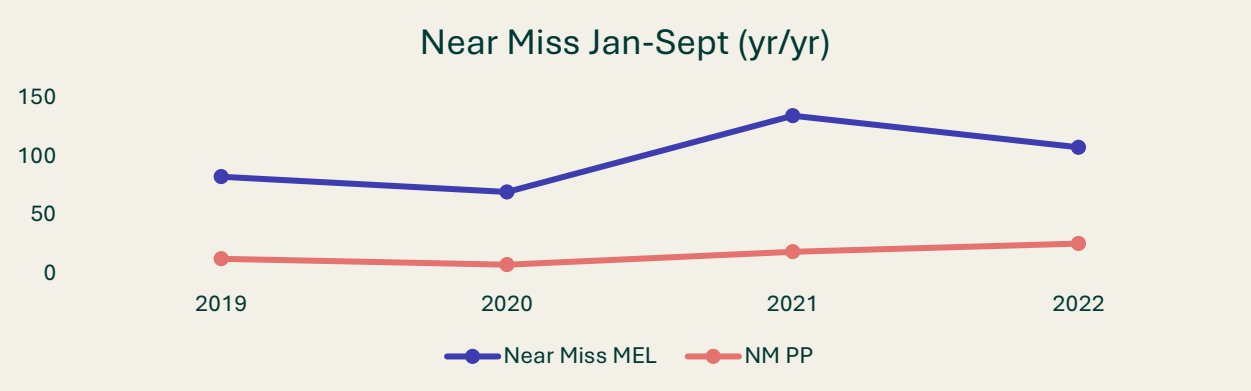
Agnico	% (N)
I first learned French at home and still speak it	48% (11)
I can speak French well enough to conduct a conversation	9% (2)
I speak French most often at home	9% (2)
None of the above	34% (8)

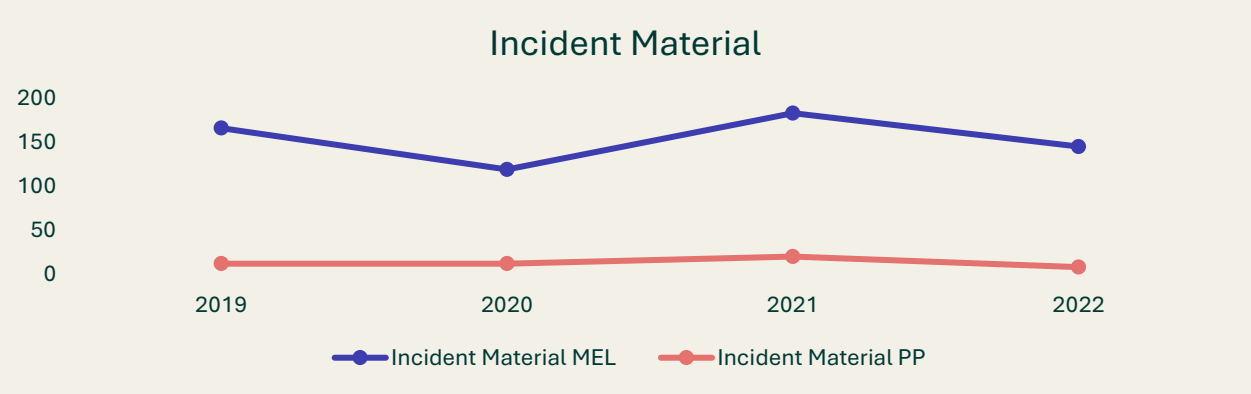
21. What is the name of the organization that employs you?

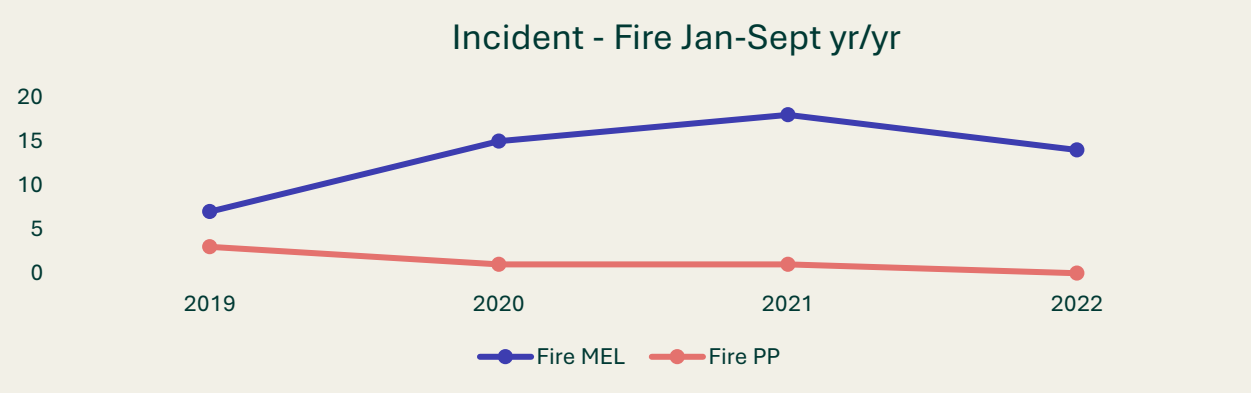
	% (N)
Agnico Eagle	100% (23)

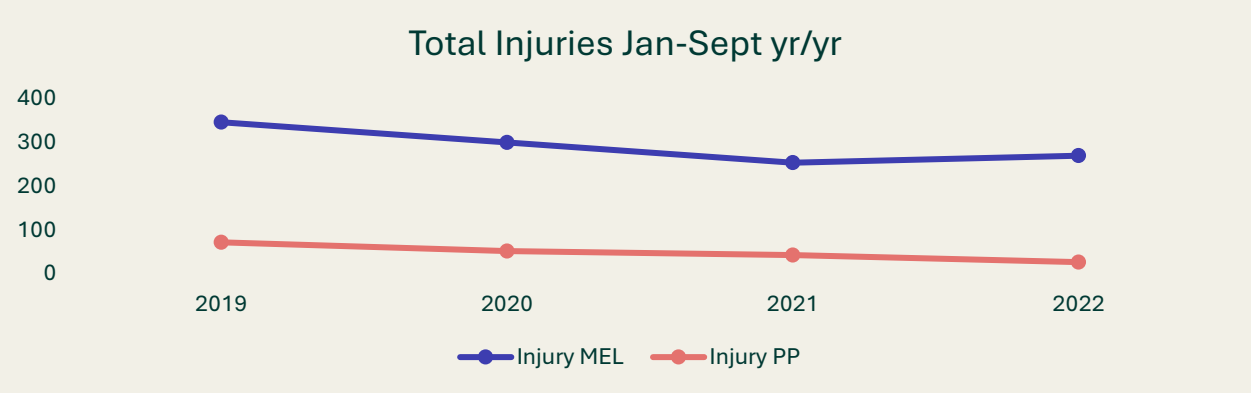
APPENDIX D: SUMMARY SAFETY STATS

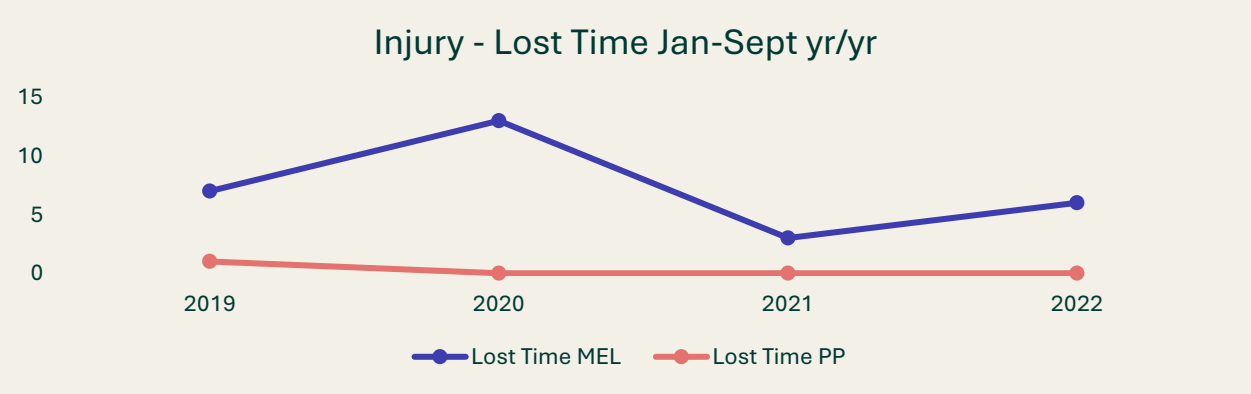


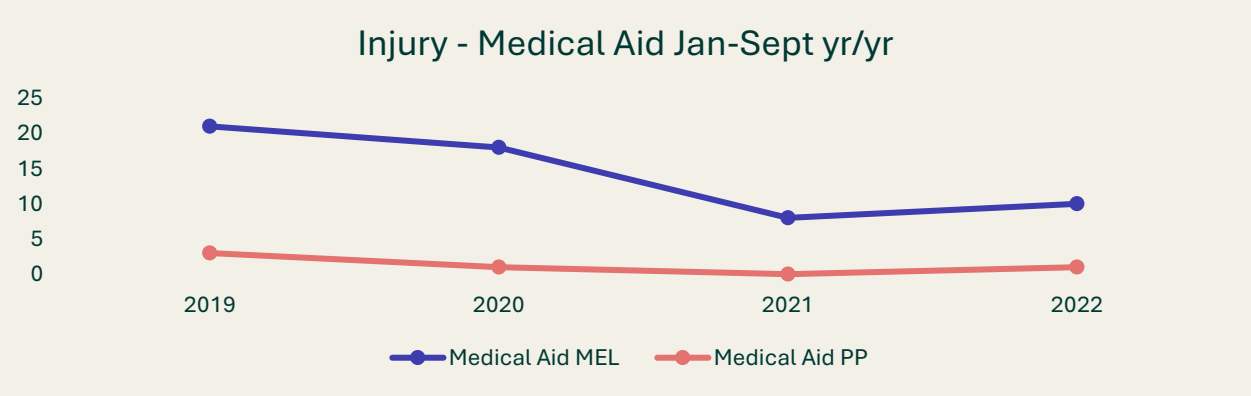


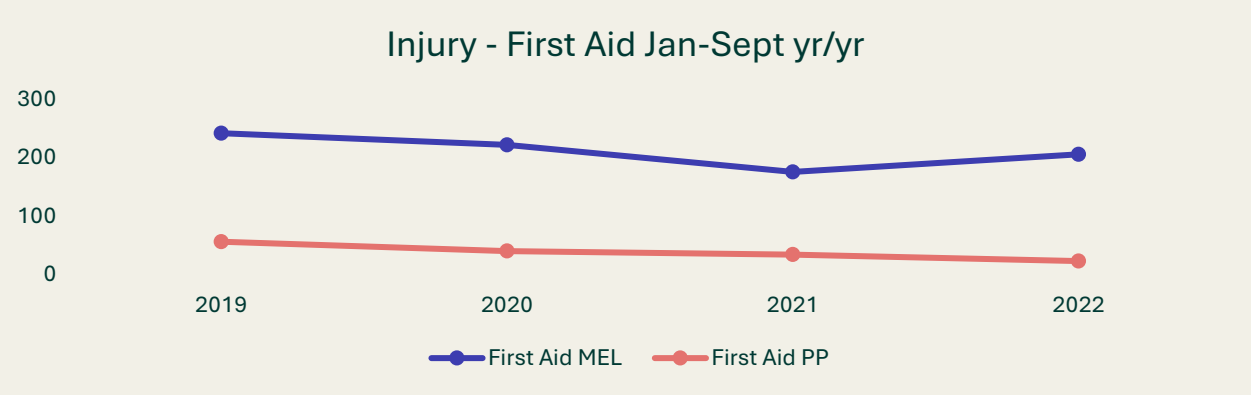

Incident Material
200
150
100
50
0
2019
2020
2021
2022
Incident Material MEL
Incident Material PP

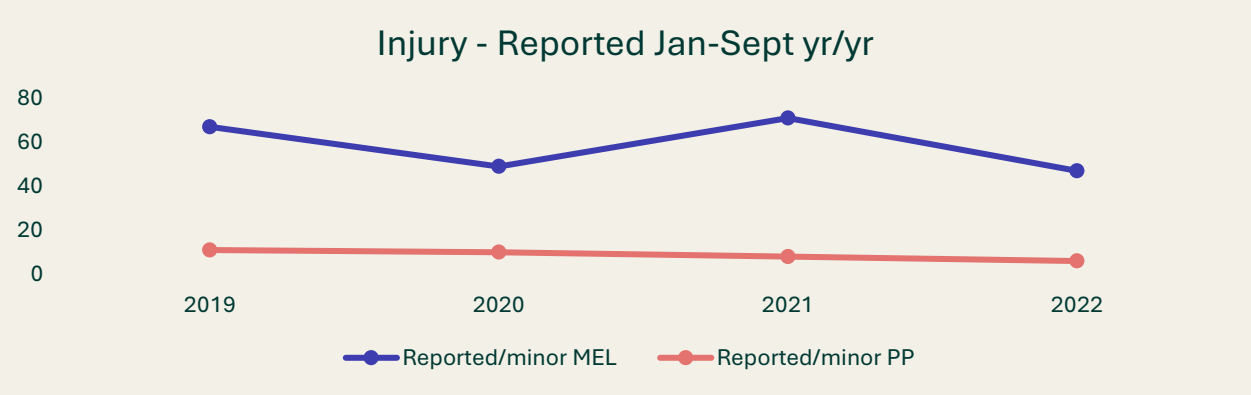

Incident - Fire Jan-Sept yr/yr
20
15
10
5
0
2019
2020
2021
2022
Fire MEL
Fire PP


Total Injuries Jan-Sept yr/yr
400
300
200
100
0
2019
2020
2021
2022
Injury MEL
Injury PP


Injury - Lost Time Jan-Sept yr/yr
15
10
5
0
2019
2020
2021
2022
Lost Time MEL
Lost Time PP


Injury - Medical Aid Jan-Sept yr/yr
25
20
15
10
5
0
2019
2020
2021
2022
Medical Aid MEL
Medical Aid PP


Injury - First Aid Jan-Sept yr/yr
300
200
100
0
2019
2020
2021
2022
First Aid MEL
First Aid PP


Injury - Reported Jan-Sept yr/yr
80
60
40
20
0
2019
2020
2021
2022
Reported/minor MEL
Reported/minor PP

SIGNAL GOLD –
EXECUTIVE SUMMARY

Background

Today's workplace is experiencing a shift in its learning environment. The operational reality of many industries limit the amount of time an employee can leave to train. Additionally, today's employees need to be "adaptable learners" and they must be able to react very quickly to disruption and change, therefore learning must occur in a continuous, effective manner that focuses on behaviour change. The concept of short learning (microlearning), in line of work, either on a mobile phone or tablet was hypothesized to be an answer to these modern organizational learning challenges.

To this end, Signal Gold (formerly Anaconda Mining), Agnico Eagle Mines, Training Works, and the Mining Industry Human Resources Council (MiHR) partnered to create a comprehensive workplace based microlearning delivery model that was piloted and evaluated on over 200 employees within two mining operations (Agnico Eagle Mines - Nunavut, Signal Gold- Newfoundland and Labrador). The key deliverables of this project included:

- Creation of an industry driven micro-learning delivery model.
- Creation of a microlearning program that was be built around the delivery model directed at topics of behaviour-based safety and communication.
- Delivery of a micro-learning program within Signal Gold and Agnico Eagle Mines.
- Creation of a nationally recognized mining micro-credential.
- Creation and implementation of a comprehensive ROI evaluation on the bottom-line impacts of micro-learning.

Research on micro-learning model deployment within the mining industry is relevant to all industry stakeholders, and the research undertaken in this project, and its subsequent results, will serve as a starting point for the application of workplace based microlearning models. Effective deployment of this workplace model will not only help organizations and their people realize their intended objectives but also increase demand driven access to knowledge and skills and optimize application of these skills in the workplace. The speed and effectiveness with which skills development can be deployed in the future will be critical to the safe and productive operation of all organizations. The research contained within this document will provide a blueprint for a workplace based microlearning model that will enhance the ability of industries, employers, and policymakers, to make the right choices and apply the right technological options to ensure safe, effective skills deployment.

Evaluation Context

Throughout the implementation of the microlearning process, evidence of its effectiveness and outcomes achieved were monitored throughout. A pre-survey was administered to all participants at the onset to achieve a base level on key metrics (early 2021). Once microlearning was launched, participant engagement and success of learning was tracked using individual assessments that were completed as a part of the

training (ongoing for 6-month period). Similar to the pre survey, this was given to both the control and experimental groups to identify changes in learning at this stage. Finally, a post-survey was administered to the two groups after the 6-month training to capture learnings (May 2022).

In order to determine the impact of the program on the organization and to triangulate findings, interviews with coaches/mentors and organizational leaders were upon completion (May 2022).

Additionally, evidence for the effectiveness of the training was captured through administrative data in order to track changes in key performance indicators (e.g., number of incidences, profit; completed throughout the process).

Key Findings

Relevance

This Microlearning model was found to be relevant to the needs of the organization. The training model allowed for flexible program delivery and did not require removing workers from the front-line to attend training. In addition, because it was delivered in the line of work application of behaviour change was highly optimized. The microlearning training program itself also provided a behaviour-based approach to health and safety, which helped increase employee engagement, knowledge and behaviour change on this important matter.

This model, as evidenced by the quantitative data found later in this report, was highly effective in targeting skills gaps and behaviour change in the participants While seen as highly relevant to the organization, employees requested that the microlearnig be targeted with more real life scenarios specific to their position/team It was indicated that this would help them to better comprehend how the behavioural skills covered in microlearning can be applied in their day-to-day job and continue to increase behaviour change.

Design and Delivery

It was found that the design of microlearning model fit with the operational reality of the industry. Those participants with less experience in the mining industry were able to gather more takeaways and expressed greater attention and engagement with microlearning.

The delivery model of microlearning allowed it to be integrated into the existing pre-shift meetings, which made it a routine and daily occurrence for employees and coaches. Additionally, the concept of short training videos was appealing for capturing the attention and interest of employees. Although, it was noted that the limited time in pre-shift meetings, made it difficult to have an effective and engaging discussion following the training videos, which is something that coaches would like to have more of.

Microlearning was designed to ensure that mining employees receive the right training to do their job on a continuous basis, which the program successfully achieved. Although, optimizing the design and delivery to ensure it can be delivered, while meeting the needs of the organization is critical to enhancing effectiveness.

Outcomes

Employees completed ten modules in the microlearning program: active listening, mindfulness, workload management, decision making, vigilance, effective inquiry, closed loop communication, assertiveness, team building, and coaching.

It was found that microlearning was successful in increasing behaviours across all ten competencies covered in the program at Signal Gold. Behavioural change has led to heightened awareness for safety-based practices and behaviours, helping the organization to develop a prevention focused approach to workplace health and safety.

In addition to behavioural change, microlearning provided the opportunity for increased engagement between employees and coaches, generating more conversation on the importance of health and safety across the organization. Furthermore, employees gained the confidence and communication skills to speak up about health and safety matters to other employees and their supervisors.

Due to organizational change at Signal Gold, the outcomes of microlearning are not evident through the organization's health and safety statistics at this time. Rather, the model was proven to be effective for producing behavioural and cultural change towards workplace safety. It is evident that the program has brought a proactive approach and brought health and safety top of mind across the organization.

Recommendations

As Training Works looks to implement microlearning at other organizations, it is important to leverage the feedback from this pilot phase to enhance the relevance and effectiveness of the program. Looking forward, it is recommended to consider the following:

Getting buy-in at the management level to ensure successful delivery

The pilot phase of microlearning at Signal Gold organization reinforces the need for buy in and support of the program at all levels of the organization. Leaders and mentors were less receptive to the microlearning program because of the upcoming closure of Signal Gold. They weren't able to envision the long-term effects on the organization which prevented them from getting onboard.

Implement microlearning specific training sessions

Employees and Coaches found the microlearning model engaging during their toolbox talks however felt that there wasn't enough time to fully discuss the topics. They also felt

introducing new topics via video daily was too frequent. While consistent health and safety trainings are important, there is opportunity to make for a better experience for employees and coaches. It is recommended to alter the frequency of video based trainings and supplement them with additional forms of microlearning (job aids, checklists, guided discussions etc.). In addition an increase in the amount of time allotted for microlearning trainings to allow for discussion is recommended.

Target those new/less experienced to the workforce/industry

Microlearning is best suited and leveraged as daily reminders to commute knowledge into behaviour as opposed to teaching brand new skills. Ensuring that employees understand the intent and outcomes of the microlearning model will help with learner engagement moving forwards. The behaviour-based approach of microlearning was found to be effective. Those experienced in the industry have received behavioura-based skills trainings in the past and considered the content of microlearning to be repetitive. While microlearning provided them with limited new learnings, it did serve as a reminder to the importance of behavioura-based skills in creating a safe workplace. Greater attention should be paid to onboarding employees to the purpose of microlearning to ensure their expectations align with the model delivery.

Find new ways to engage more experienced workers

It is important to investigate ways to engage more experienced workers, as a behaviour-based training remains highly important and relevant to the industry. With many incidents and injuries occurring as a result of an experienced worker becoming complacent, alternative delivery models may pique their interest and heighten engagement with this audience.

Use human actors/actresses to elevate professionalism

While it didn't take away from the learnings of microlearning, the use of animation impeded on the appeal and relevance. Mentors and coaches noted that some employees were less attentive to the videos because of the type of animation utilized. Consequently, it is recommended to utilize human actors/actresses in the microlearning training videos to elevate professionalism and broaden the appeal for industrial works of all ages and skill levels.

Include industry examples to enhance relevance

As not all microlearning training videos are relevant to all positions, and some employees lacked the ability to make the connection between the competencies covered in the training and their day-to-day job in mining. To further the impact of microlearning, it is recommended to include more job-specific examples in the training videos and follow-up discussions. This would help to demonstrate how the behaviours covered in microlearning can be applied in the workplace as safety prevention tactics.

While the above recommendations would further the effectiveness of microlearning, it was acknowledged to be impactful in its pilot phase with the organization and is seen as a scalable program within and beyond the mining industry.

Conclusion

Overall, the pilot phase of microlearning completed at Signal Gold was found to be successful in achieving the outputs and immediate outcomes outlined in the Theory of Change. By taking the recommendations provided into consideration, there is opportunity to optimize and enhance the effectiveness of microlearning to scale it across other organizations.

1.0 PROJECT CONTEXT

1.1 Project Overview

Signal Gold, in partnership with Training Works, Agnico Eagle, and the Mining Industry Human Resource Council conducted a two-year microlearning project in the mining industry. Training Works is an EdTech company with vast experience working in skills development. Working with clients to create training that is relevant and applicable on the job, Training Works understands that each organization and its employees require a unique approach to skills development. This training put learning in the hands of almost 200 participants who work at Signal Gold and Agnico Eagle Mining. The program was a total of two years which included the development and design of a microlearning and coaching program with 6 months of daily microlearning for employees. Employees completed up to 7 minutes of daily microlearning that could be done anywhere, anytime on their computers, mobile devices, and smart televisions. Coupled with onsite coaching and mentoring, this comprehensive blended learning program fits easily into an operator's daily schedule. Agnico Eagle employees engaged in training daily during their toolbox talks which lasted from 12-35 minutes. On average, employees engaged in microlearning for 13.5 minutes a day across 90 working days, equating to 16.4 hours of training per participant and over 1000 hours of training for the organization. A total of 69 MiHR Communication Micro credentials were awarded to the participants at Agnico Eagle.

The mining industry is experiencing shifts in technology, constraints on time and budget for offsite training and employees working in the process plants are deskless. Training Works mining clients seek solutions for onsite training that is relevant and timely. Using their experience and previous collaboration, Training Works proposed daily microlearning as a delivery model for this training. Employees in this industry had demonstrated knowledge gains by using videos, checklists, infographics. They prefer to stay on the job and learn rather than take the time away from their jobs for in-class training that often lasts for days. Employees felt that by incorporating safety training into their daily workday it would help them retain knowledge and be able to apply it. The Future Skills Centre (FSC) is a pan-Canadian organization passionate about creating a future in which everyone has life-long access to high-quality career advice and learning opportunities. The FSC's focus is on strengthening Canada's skills development ecosystem so that Canadians can look to a future of meaningful and relevant lifelong learning opportunities. FSC is funded by the Government of Canada Future Skills Program[3]. In 2019 FSC sought proposals for innovative projects that test and evaluate new or emerging approaches, or that expand, scale and/or replicate promising approaches, to progress the following three objectives:

[3]https://fsc-ccf.ca/wp-content/uploads/2020/07/Strategic-Plan-2020.pdf

4. Support Canadian workers facing labour market disruption to transition to new jobs or industries;
5. Engage employers in more effectively developing and delivering demand-driven solutions to skills gap challenges; and,
6. Optimize skills development systems by building the capacity of service providers to better collaborate with each other and other organizations that could expand or improve their services.

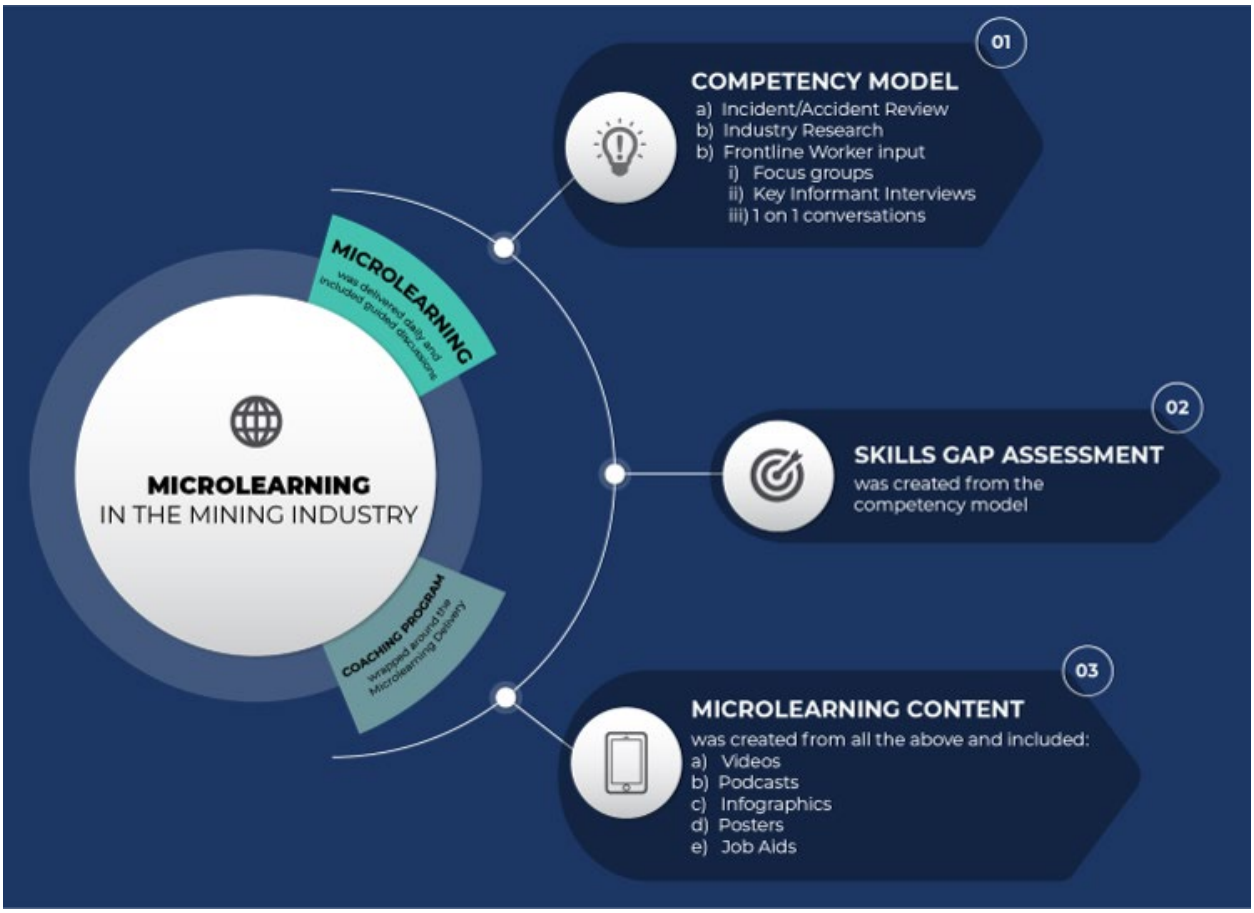
Signal Gold submitted the Microlearning in the Mining Industry project under objective two to engage employers in more effectively developing and delivering demand-driven solutions to skills gap challenges. FSC has invested $930,000 in this innovative project that tests the outcomes of bite-size learning based on each employee's need in their role at the time and focusing on behaviour-based safety and communications. All the training in this program had a diversity lens applied to ensure appropriateness for the target audiences, which include remote, rural, and Northern communities. The additional on-the-job support from coaches and mentors was designed to improve behaviour-based awareness through the hybrid of digital learning and a mentor/mentee on-the-job feedback loop.

The purpose of this microlearning project was to ensure that mining employees receive the right training to do their job on a continuous basis. These employees are limited in the amount of time they can spend away to receive training, the development of this microlearning program and delivery model was to combat this constraint while ensuring knowledge transfer and behaviour change. The goal of this project was to test the effectiveness of a microlearning model on increasing the skills of employees and changing behaviours on the job. The project team also hypothesized that this increase in knowledge and behaviour change would impact the organization by reducing incidents and accidents and increasing productivity. These metrics also affect the overall bottom line growth of the organization and overall ROI.

1.2 What is the microlearning model?

The definition of microlearning varies throughout the training industry, for this project the definition is short learning moments less than 6 minutes in the form of video, podcasts, infographics, job aids and guided discussions relevant to the work environment and tasks. Microlearning is meant to refresh your knowledge and help a worker apply this knowledge in the flow of work. By using familiar scenarios and work environments microlearning demonstrates how specific skills can be used on the job.

The microlearning model (see below) illustrates the delivery model that was piloted at Signal Gold. This pilot phase was used to develop greater understanding for whether the microlearning model is scalable within and beyond the mining industry.



The microlearning model began with engaging employees at both Signal Gold and Agnico Eagle to understand the training needs from a management perspective as well as the frontline worker. The project team interviewed key stakeholders within the management and health and safety teams to gain insight into the organization, the current training model, and requirements. The project execution team, Training Works engaged with frontline workers through interviews focus groups and one on one discussions to learn about the skills required to do their jobs safely and their learning preferences as well as the operational reality and challenges to learning on the job. Using this engagement, a review incidents and accidents within the organizations and leveraging industry research the Training Works team in consultation with Signal Gold and Agnico Eagle created a behaviour-based safety competency model including communication.

From the competency model a skills gap assessment was created to assess the employees' understanding of each of the 10 competencies. Training Works utilized their flagship technology Skilltinuous for employee skills assessments and microlearning delivery. Employees answered scenario-based questions as well as self-assessments for each competency.

The microlearning content was developed from the engagement at both organizations, through analysis of the incidents and accidents and the skills gap assessment. During project execution, the training was adapted to also include guided discussions and activities post-microlearning to enhance knowledge transfer.

Microlearning was delivered during the toolbox talks and followed by guided discussions. During these talks the Coach would discuss the topic of the microlearning, deliver it in the form of a video, podcast, poster, infographic, job aid or activity to the team and then follow up with provided questions to increase engagement and interaction of the more experienced team members with the less experienced. By creating this space to talk safety, the teams had the opportunity to use their communication skills, develop their safety skills further, and the potential to increase their safety culture.

The Coaching program was developed to help deliver the microlearning program and help participants with transferring knowledge into behaviour on the job. Each coach attended training sessions with the Training Works project team and given a presentation to understand the project and the competency model they would be using. Further to that coaches received a coaching handbook with each competency explained with behaviours to look for on the job. Early in the microlearning delivery, coaches expressed they needed guidance to deliver the microlearning. The program was adapted to include a Coaching overview, for every microlearning delivered the coach received

directions on how to present the video, activity, or formats, provided notes on what to focus on in the training and discussion questions for a team conversation.

1.3 Why was the model selected?

In alignment with funders, Future Skills Centers "focus on strengthening Canada's skills development ecosystem so that Canadians can look to a future of meaningful and relevant lifelong learning opportunities[4]" microlearning was developed to provide deskless workers with accessible and continuous training opportunities to learn the skills required to stay safe on the job.

Workplace learning is experiencing a drastic shift to support modern requirements. Time and money constraints within an organization limit the amount of time an employee can leave the job to attend training. In addition, today's modern learner must be adaptable and able to react quickly to disruptions within the workplace.

According to Deloitte, today's learner has only 1% of their typical work week to focus on learning and development. Considering time and money constraints within organizations, it is key that learning be quick, contextualized, and continuous to be effective. Additionally, today's learners find themselves untethered to a single computer-based location, especially in a mining environment, making access on mobile devices increasingly important for learner uptake. The same modern learners prefer to be collaborative and learn from and with their peers instead of alone. Including a coaching and mentoring program alongside the microlearning program will address this need.

Nearly half of Canadian jobs are at high risk of being affected by automation over the coming ten to twenty years. Technological disruption is predicted to most impact workers in disadvantaged groups. Workers in low-skill jobs are also most likely to be affected by automation. Rural and remote communities are at a high risk of being affected by job displacement due to training availability and proximity to city centers. It is important to ensure creation and retention of a skilled labour market in order to sustain the community and region. Thus, increasing the need for a scalable development program to avoid worker displacement and provide deskless workers with continuing education.

Additionally, development programs must be continuous in nature to support ongoing skills development within an organization. It is no longer enough to offer single training events within the workplace and to assume knowledge transfer will occur. Most of the knowledge learned in single training events is forgotten shortly thereafter. To best increase skills transfer to the job, learning and development must occur on a continuous basis and be agile enough to apply changes when in demand skills shift.

[4] https://fsc-ccf.ca/who-we-are/#mission

1.4 Microlearning at Signal Gold

Signal Gold, formerly Anaconda Mining, is the owner and operator of the Point Rousse Project in Newfoundland and Labrador. The Company has been producing gold continuously from the project since September 1st, 2010. The Signal Gold operation at the Point Rousse Site on the Baie Verte Peninsula NL employed 88 people in the processing plant as well as the geological team working in the mine area. The mine has been in operation since 2010 and has produced more than 118,028 ounces of gold. In 2022, the company announced it was closing the mine and operations have since ended. Leadership at Signal Gold were seeking new ways to engage with their employees for skills development. The Microlearning in the Mining Industry project began at Signal Gold in 2020, through meetings and stakeholder interviews Training Works began developing this project alongside of Signal Gold employees. The development continued throughout 2021 through interviews, surveys, focus groups and one on one discussions to identify the skills required to stay safe on the job and to gain insight into how employees preferred to learn. COVID 19 did prevent the project team to travel to site, but the team pivoted to online meetings and telephone conversations and interviews. At times operations at Signal Gold were limited to skeleton crews which also impacted delivery of learning and employee morale.

2.0 EVALUATION CONTEXT

The evaluation of the microlearning project expanded over the two-year period lasting from June 2020-August 2022. With the evaluation planning and baseline data collection occurring in 2020-2021, program monitoring and evaluation data collection in 2021-2022, and evaluation reporting in June 2023 to Future Skills.

Preliminary information was gathered and documented at the beginning of the project through interviews, questionnaires, and document review. This initial research took approximately six months and concluded by December 2020. This information was used to develop the evaluation framework created by a credentialed evaluator is continuous and will ensure the success of the project.

Upon the development of the digital competency tool and the microlearning program beginning, a more in-depth review of internal safety training, procedures, competencies and gaps took place.

Throughout the implementation of the microlearning process, evidence of its effectiveness and outcomes achieved were monitored throughout. A pre-survey was administered to all participants at the onset to achieve a base level on key metrics (early 2021). Once microlearning was launched, participant engagement and success of learning was tracked using individual assessments that were completed as a part of the training (ongoing for 6-month period). Similar to the pre survey, this was given to both the control and experimental groups to identify changes in learning at this stage. Finally,

a post-survey was administered to the two groups after the 6-month training to capture learnings (August 2022).

In order to determine the impact of the program on the organization and to triangulate findings, interviews with coaches/mentors and organizational leaders were conducted at upon completion (May 2022).

Additionally, evidence for the effectiveness of the training was captured through administrative data in order to track changes in key performance indicators (e.g., number of incidences, profit; completed throughout the process).

The evaluation covers all aspects noted by the Future Skills Center:

- Evidence
    - The evidence journey began with a rigorous assessment of an intervention's logic model and theory of change. As interventions demonstrate preliminary evidence of success, they are ready for more rigorous evaluation with the ultimate aim of preparing for impact evaluation and cost-benefit analysis to generate the quality of evidence necessary to inform scaling decisions.
- Implementation
    - As interventions mature, we have set quality benchmarks and use techniques, such as rapid-cycle evaluation, to support projects through an ongoing cycle of continuous learning and program improvement.
- Relevance
    - As evaluation findings emerge, we update our assessment of each intervention's relevance to our mandate and its potential to have an impact at a pan-Canadian scale. This assessment process is conducted in collaboration with provinces and territories and other key stakeholders in Canada's skills development ecosystems. The results of this assessment are critical input to decision-making for reinvestment.

2.1 Theory of Change

A TOC is a map indicating the logically related aspects of an initiative. It shows, at a broad conceptual level, the links among an initiative's inputs, activities, outputs and outcomes.

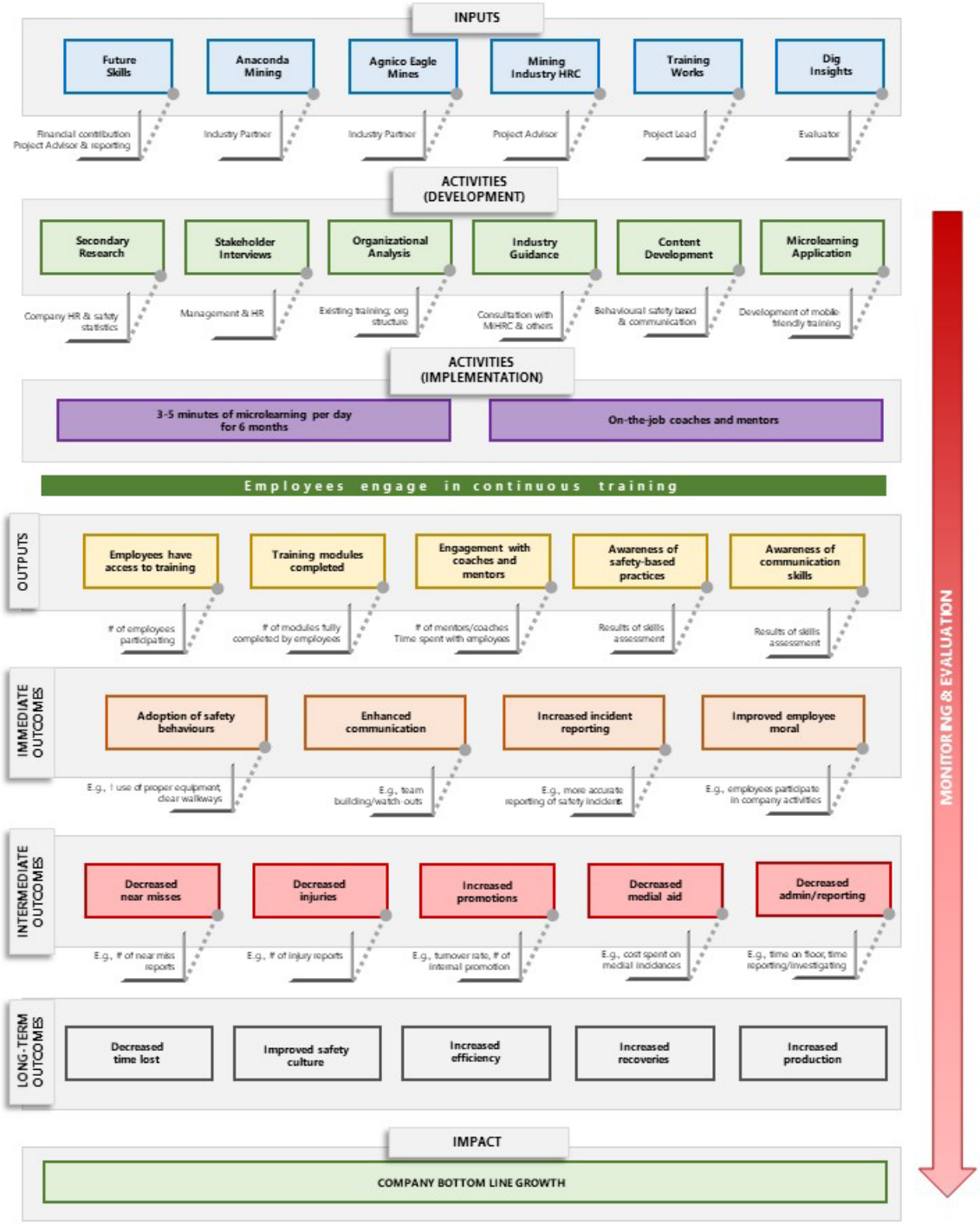
The definitions for each component of the TOC include:

- **Inputs:** Financial and human resources used to deliver activities, produce outputs and accomplish outcomes.
- **Activities:** The "how" – actions, initiatives, or specific programs implemented to produce outputs.
- **Outputs:** The "what" – direct products or services produced from the activities. Outputs are usually tangible or quantified.

- **Outcomes**: The "why" – changes that occur as a result of the outputs of the program, project or initiative. Outcomes can be short-term (immediate) or medium-term (intermediate).
- **Impacts:** The bigger picture or long-term outcomes. Impacts are usually influenced by other confounding factors and cannot be solely contributable to the program, project or initiative.

Figure 1 illustrates the progression of the project from development to implementation and evaluation. The development of the microlearning program and delivery model combines prescriptive and contextualized continuous training and an on the job mentoring program to ensure transfer of knowledge and behavior change. The intended outcome is to increase communication and safety incident reporting, to decrease safety incidents by improving the overall safety culture of the organization and thus in-turn improve the organizations efficiency and productivity.

Figure 1: TOC of the Microlearning in the Mining Industry Project



2.2 Evaluation Framework

An evaluation framework is an important preparatory tool in the evaluation process because it allows for advanced consideration of the evaluation approach, to identify data

requirements for project stakeholders, and to determine how these requirements will be met.

Below is an evaluation and performance measurement framework for the evaluation of the Microlearning Mining Industry project and includes:

- Core evaluation issues (relevance, design and delivery, outcomes);
- Evaluation questions covering the core evaluation issues; and
- Methods for data collection.

The evaluation questions and the corresponding indicators listed below are based on the document reviewed, an in-person workshop and conversations held with program staff to reflect the present iteration of the programs.

Note: Asterisk * indicates Future Skills Common Outcomes Framework Indicators

Table 1: Evaluation Framework

Indicator	Methodologies				
	Doc Review	Admin Data	Learning Assess.	Participant Surveys	KI Interviews
Participant Information (baseline/post survey)					
*Gender				X	
*Age				X	
*Location				X	
*Marital Status				X	
*Children				X	
*Education				X	
*Indigenous Identity				X	
*Francophone				X	
*Newcomer Status				X	
*Racialized status				X	
*Disability				X	
*Industry and Occupation	X				
*Employment Status	X				
*Source of income	X				
Relevance					
Alignment between the project and Future Skills	X				X
Alignment between the project and the mining industry	X				X
Perception of the effectiveness and flexibility of the project's design to be responsive to evolving needs and objectives	X				X

Indicator	Methodologies				
	Doc Review	Admin Data	Learning Assess.	Participant Surveys	KI Interviews
Ability/sufficiency to adjust the program to larger sector needs	X				X
Perception of the relevance of the microlearning topics to participants and the sectors	X			X	X
Design and Delivery					
Number of courses/topics created	X				X
Number of courses/topics completed		X			
Number of participants engaged		X			
Number of mentors actively involved in the project		X			
Perceptions on the effectiveness of the training				X	X
Perceptions on the mode of delivery (6 months/ microlearning/app usage & functionality)				X	X
% of learning assessments completed			X	X	
Outcomes					
% of participants who show an increase in knowledge in safety-based practices			X	X	
% of participants who show increased communication skills			X	X	
% of participants who show an increase in adoption of safety-based behaviours on the worksite			X	X	
% of mentors who report an increase in participant knowledge in safety-based practices				X	X
% of mentors who report an increase in participant communication				X	X

Indicator	Methodologies				
	Doc Review	Admin Data	Learning Assess.	Participant Surveys	KI Interviews
Perceived change in safety behaviours in the workplace				X	X
*% of participants with increased employment opportunities (including change in employment)				X	
*% of participants with increased employment earnings (sources)				X	
*% of participants who were overall satisfied with the program				X	
*% of participants with increased job satisfaction				X	
*% of participants with increased opportunity to enroll in further training or education programs (if yes, types or program enrolled)				X	
Perception of ability for career advancement				X	
# of safety courses completed (in addition to microlearning)					
Turn over rates (employee engagement)		X			
#/% of internal staff promotions					
Level of safety compliance		X			
Level of environmental compliance		X			
# of incidence reports by • Area (e.g., processing, mining, maintenance) • Incident type (e.g., lost time, near miss, property damage) • Cause (e.g., failure to be attentive, failure to be secure, improper lifting)		X			
# of injury reports by • Area (e.g., processing, mining, maintenance) • Incident type (e.g., lost time, near miss, property damage)		X			

Indicator	Methodologies				
	Doc Review	Admin Data	Learning Assess.	Participant Surveys	KI Interviews
• Cause (e.g., failure to be attentive, failure to be secure, improper lifting)					
Perception of emergency preparedness				X	X
Hours of HR training required		X			
Hours of safety training required		X			
Enablers to programs success				X	X
Barriers to programs success				X	X
Perception of unintended outcomes				X	X
Economic performance					
Cost saving around staffing time vs. in-classroom training		X			
Operating statistics • Number of operating days • Product mined • Tonnes per operating day • Operating costs		X			
Costs/efforts towards safety • OHS directives issues • Inspections • Safety meetings • Violations • Site orientations		X			
Cost of program per participant vs. economic performance change (bottom line growth)		X			

Based on the framework, a mixed/multi-method approach was implemented which included a document review, administrative data analysis, key informant interviews, surveys, and learning assessments.

Document Review

Dig conducted a document review to gain an understanding of the microlearning project including its relevance, intended outcomes, implementation and outcomes achieved to date. Below is a list of documents that were reviewed:

- Number of injury reports
- Number of incidence reports
- HR/Safety trainings
- Operating statistics
- Costs/efforts towards safety

Administrative Data

Training Works provided Dig with administrative data from the organizations to analyze the scope of training completed and the achievement of outcomes. This included data on:

- Training hours
- Safety courses completed
- Employee turnover
- Level of safety compliance
- Level of environmental compliance

Key Informant Interviews

Key informant interviews were conducted to gather a deeper understanding and to explore any questions that emerged as a result of the findings from other evaluation methods. In total nine key informant interviews were conducted with key stakeholders including:

- Safety Training Coordinator (Leader)
- Site GM (Leader)
- Health & Safety Manager (Leader)
- Maintenance Supervisor (Mentor)
- Operations Supervisor (Mentor)

The detailed interview guides can be found in Appendix A.

Participant Surveys

Surveys were completed pre, and post program to gauge participants experience and learnings. Full survey results can be found in Appendix C.

Survey	Number of Completes
Pre	47
Post	12

Skills Assessments

Analyzing industry information, incidents, and accident reports, and learning firsthand information from frontline workers the competency model for this project was delivered. From here a digital competency tool was utilized to identify the skills gap to be addressed in the microlearning program. Key behaviors within each of the 4 communication competencies were aligned with behaviours required in MiHR's National Occupational Standards for Minerals Processing Operator. Both scenario-based questions and self-assessment questions were curated with consultation from the health and safety team. Training Works Skilltinuous platform was populated with the competency model and the assessment questions. Participants were introduced to the Skilltinuous technology and given a guided tour through the process as well as a technology guide to consult if they struggled with the process. The digital competency tool was used to understand the skill level of the workforce before the microlearning and identify the skills gap in the 10 competencies. Once the microlearning was complete Skilltinuous was used to identify the knowledge gained in each of the 10 competencies.

Survey	Number of Completes
Initial Skills Assessment	71
Final Skills Assessment	37
Participants Completed Initial & Final	30

3.0 LIMITATIONS

Annual data included in the report covers the period of December-May annually. This period is inclusive of the time in which microlearning took place at Signal Gold

Furthermore, the final evaluation is being completed immediately following the conclusion of the microlearning project. This evaluation was conducted immediately after the completion of the program and is difficult to assess the long-term impact at this point however there has been a noted change in behaviour, knowledge and culture as seen throughout this document.

4.0 FINDINGS

This section presents the findings and supporting evidence from the final evaluation of the microlearning program.

4.1 Relevance

Finding: Microlearning model was found to be relevant to the needs of the organization and the mining industry. The training program provided a behaviour-based approach to health and safety, which helped increase employee engagement on this important matter.

While seen as highly relevant to the organization, employees anticipated microlearning to pertain more to their organization or industry. As the project progressed, training content and follow up discussions were directed towards employees specific position/team, to help them better comprehend how the behavioural skills covered in microlearning can be applied in their day-to-day job.

4.1.1 Relevance to the Mining Industry

Workplace health and safety is of high importance, and at the Signal Gold organization has always been held to a high standard. Although, finding the time to gather and train employees without impeding operational efficiency can be challenging in the mining industry. The Microlearning model of delivery was introduced at Signal Gold to provide

employees with ongoing behaviour-based health and safety training in a time effective manner, while bringing a proactive approach to workplace health and safety.

The Microlearning model also helped to bring new delivery methods to the organization and the mining industry and provide better structure to health and safety trainings. This helped to increase engagement and discussion between employees and coaches.

Overall, microlearning delivery model was found to be relevant to the needs of the organization and the mining industry. Providing a different approach to health and safety training for employees is something that mentors and leaders hope to see expand within the organization and the industry.

4.1.2 Relevance to Employees

Employees recognized the importance of health and safety in the workplace setting, and especially the mining industry. Therefore, participating in daily training was seen as valuable to the 69 Signal Gold employees that received the microlearning credential from MiHR. Furthermore, it was found that microlearning was effective in getting employees thinking more about their behaviors and actions while on the job.

Overall, microlearning helped bring awareness to the importance of behavioural-based safety skills in the workplace. The inclusion of mining industry examples and applications in the program would help some employees better understand how these skills can be applied in their position at Signal Gold.

4.2 Design & Delivery

Finding: It was found that the design of microlearning model was effective in providing safety refreshers to employees. The behaviour-based approach of microlearning delivery model was seen as a reiteration and reminder of what experienced employees had learned over the course of their career. For new employees, it provided them with new learnings and consistent reminders of safety practices.

The delivery model of microlearning allowed it to be integrated into the existing pre-shift meetings, which made it a routine and daily occurrence for employees and coaches. Additionally, the concept of short training videos was appealing for capturing the attention and interest of employees. Although, it was noted that the limited time in pre-shift meetings, made it difficult to have an effective and engaging discussion following the training videos, which is something that coaches would like to have more of.

The Microlearning delivery model was designed to ensure that mining employees receive the right training to do their job on a continuous basis, which the program successfully achieved. Although, optimizing the design and delivery to ensure it can be

delivered, while meeting the needs of the organization is critical to enhancing effectiveness.

4.2.1 Microlearning Design

Microlearning was designed as a behaviour-based training program using the competency model outlined in Table 2. The competency model was created through analysis of incidents and accidents, to understand what behaviours or lack thereof were contributing to these incidents and accidents. From there key informant interviews were held with employees in the organization to understand the skills needed to perform their jobs safely and any skills gaps they identified themselves. From there it was understood that Situational Awareness and Communication were the top skills identified by the workers and industry research as well. To verify this, several focus groups with the organization were conducted to discuss in detail both communication and situational awareness.

The competency model had ten competencies overall, four concentrating on communication and six to develop the skills needed to increase situational awareness. The communication competencies were aligned with MiHR National Occupational Standards to ensure participants could receive a micro credential from MiHR in Communication for the Minerals Processing Operator NOS. The other six competencies were presented to and reviewed by a Human Factors Expert and then reviewed and approved by the organizations Health and Safety Manager/Superintendent.

Table 2: Microlearning Competencies Model

Mindfulness	Mindfulness is being present in the moment. You think about the outcomes of your actions before you finish the task. You think about the impact of your words before you say them.
Vigilance	Vigilance means to keep your focus and stay alert while doing tasks at work. To be safe at work you must always keep an eye on the people, the machines, and your work site.
Active Listening	You listen to understand the speaker's message.
Effective Inquiry	You ask questions with purpose.
Closed Loop Communication	You use a 3-step process when you speak. You state the message, you wait for the listener to tell you their version of the message and you confirm when they are correct.
Assertiveness	You make sure your message is heard and addressed.
Strategic Decision Making	You use a 5-step process to decide. 1. Identify the problem 2. Gather information 3. Consider your options 4. Decide on a path forward 5. Evaluate your decision

Team Building	You are a part of a team working towards a goal. To reach the goal your team works well together and continue to improve and learn.
Workload Management	You understand how to manage your tasks with the team and goal in mind. If you are a manager or supervisor, you are able to assign tasks to individuals based on their role in the company and skill level.
Coaching	Coaching is already a big part of day-to-day tasks at your company. By coaching others, you are sharing your know-how and skills. You help members of your team to become safe in the workplace.

Once the competency model was approved, a skills assessment was completed by the employees to assess their levels for each competency, also completed upon the completion of microlearning. Behavioural change was also assessed in the pre, and post surveys employed completed. These results will be detailed in the following section.

Overall, the behaviour-based model of microlearning was found to be effective for newer/less experienced employees in the industry or workplace setting. It brought attention to skillsets that will help them to remain safe while performing their job and ensuring others are acting in a safe manner.

For long-standing employees in the mining industry, microlearning served as a valuable reminder of the impact their behaviours have on workplace health and safety. Microlearning provided a reminder of the skills employees should be applying on a daily basis to stay safe on the job.

4.2.2 Microlearning Delivery

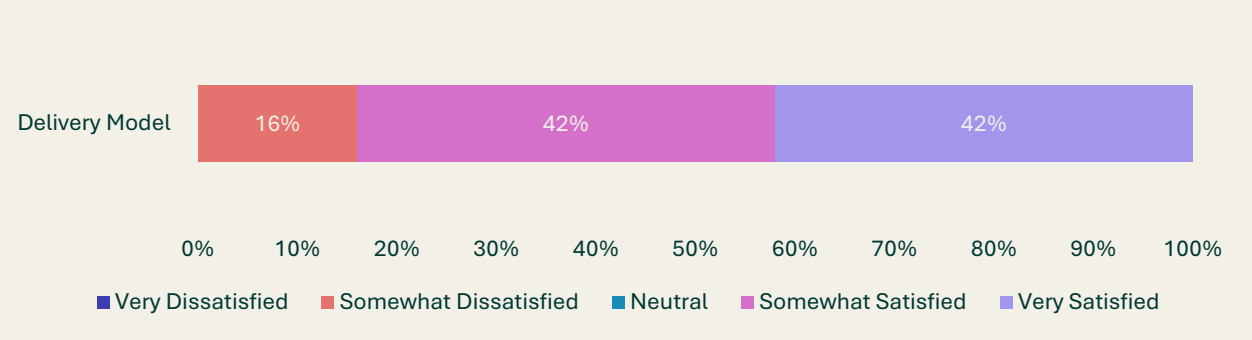
With employees being constrained to a limited amount of training time in their workday, the microlearning delivery model was designed to be a quick and effective training tool to ensure that employees receive consistent training. To combat time limitations, mining employees completed approximately four minutes of training per day, followed by a collaborative discussion with other employees and coaches. The purpose of the discussion was to generate conversation to enhance learning on the safety topic covered, with the hope that employees would continue the conversation while on the job site.

> *"It's efficient because it reduces time, the message is clear, and everybody is getting the same message."*
> *- Leader*

The design of the microlearning program was found to be effective, with coaches being able to incorporate the training videos and discussion into daily toolbox talks (pre-shift meeting). It can be problematic for the organization to arrange company-wide trainings, therefore being able to integrate into a pre-existing meeting helped to make it a routine.

It was found that 84% of employees were satisfied with the microlearning delivery model (Figure 2), given that it could be incorporated into the preexisting toolbox talks – a time when all employees can gather pre-shift.

Figure 2: For this program you will complete about 5 minutes of training per day while on shift and receive feedback and support from coaches. How would you rate your satisfaction with this training model? (N=12)



5.0 OUTCOMES

Finding: Employees completed ten modules in the microlearning program: active listening, mindfulness, workload management, decision making, vigilance, effective inquiry, closed loop communication, assertiveness, team building, and coaching.

It was found that microlearning was successful in increasing behaviours across all ten competencies covered in the program at Signal Gold. Behavioural change has led to heightened awareness for safety-based practices and behaviours, helping the organization to develop a prevention focused approach to workplace health and safety.

In addition to behavioural change, microlearning provided the opportunity for increased engagement between employees and coaches, generating more conversation on the importance of health and safety across the organization. Furthermore, employees gained the confidence and communication skills to speak up about health and safety matters to other employees and their supervisors.

Due to organizational change at Signal Gold, the outcomes of microlearning are not evident through the organization's health and safety statistics at this time. Rather, the model was proven to be effective for producing behavioural and cultural change towards workplace safety. It is evident that the program has brought a proactive approach and brought health and safety top of mind across the organization.

5.1 Outputs

5.1.1 Employees have access to training

Providing accessible training for employees is challenging in the mining industry and more and more employees are wanting to engage with training in the flow of work. Microlearning was welcomed in the Signal Gold organization, and the delivery model was successful in meeting their needs.

While safety has always been top-of-mind for the organization, coaches recognized that microlearning is an effective tool to increase awareness and discussion of workplace health and safety for Signal Gold employees.

5.1.2 Training modules completed

Over the course of the microlearning program, employees completed ten modules, which algin with the competencies outlined in Table 2 and include the following:

- Active Listening
- Mindfulness
- Workload Management
- Decision Making
- Vigilance
- Effective Inquiry
- Closed Loop Communication
- Assertiveness
- Team Building
- Coaching

With most workplace accidents being behaviour-related, the idea of a behaviour-based health and safety program was appealing to Signal Gold. Although, upon completing the program coaches expressed the need for the modules to be better tied to the organization and the mining industry.

Overall, the behaviour-based approach of microlearning was found to be effective and should be carried forward, but there is an opportunity to better relate the modules with the organization and industry.

5.1.3 Engagement with coaches and mentors

The microlearning delivery model helped to increase engagement between employees and coaches and mentors. Most notably, the training provided coaches with content to present to employees, which aided in generating discussion. This also helped to ensure consistent knowledge sharing across all departments and shifts.

From the coach's experience of being a supervisor, it can be difficult to formulate a collaborative discussion with the team. The training played a valuable role as a "thought starter" to get the conversation flowing between employees and coaches.

Most notably, the microlearning delivery model helped employees to overcome barriers of identifying and calling out health and safety risks to their colleagues and supervisors. Therefore, microlearning has also helped to increase engagement between employees.

5.1.4 Awareness of safety-based practices

The Microlearning delivery model was successful in making safety practices top-of-mind for employees. Completing ongoing safety trainings helped employees to become more aware how their behaviours contribute to a safe workplace. Previous organization safety training had limited focus on behavioural skills, therefore this model served as a valuable learning opportunity and reminder to both new and experienced employees.

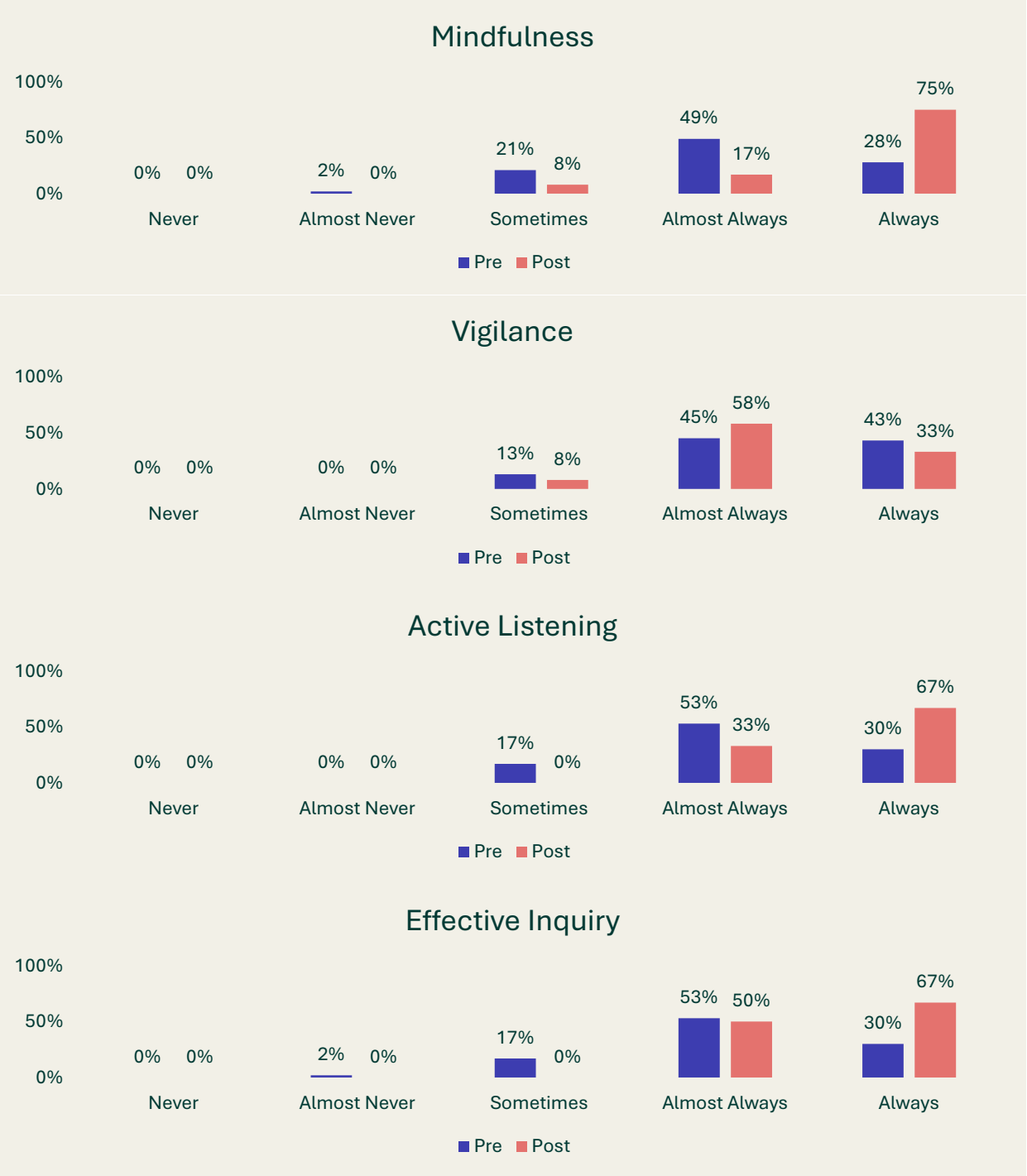
Furthermore, Table 3 outlines the results of the employee skills assessment completed by employees pre and post microlearning. The microlearning delivery model was successful in increasing behavioural skills across the ten competencies covered in the program. The competencies which incurred significant change in the Signal Gold organization include mindfulness, workload management, and closed loop communication.

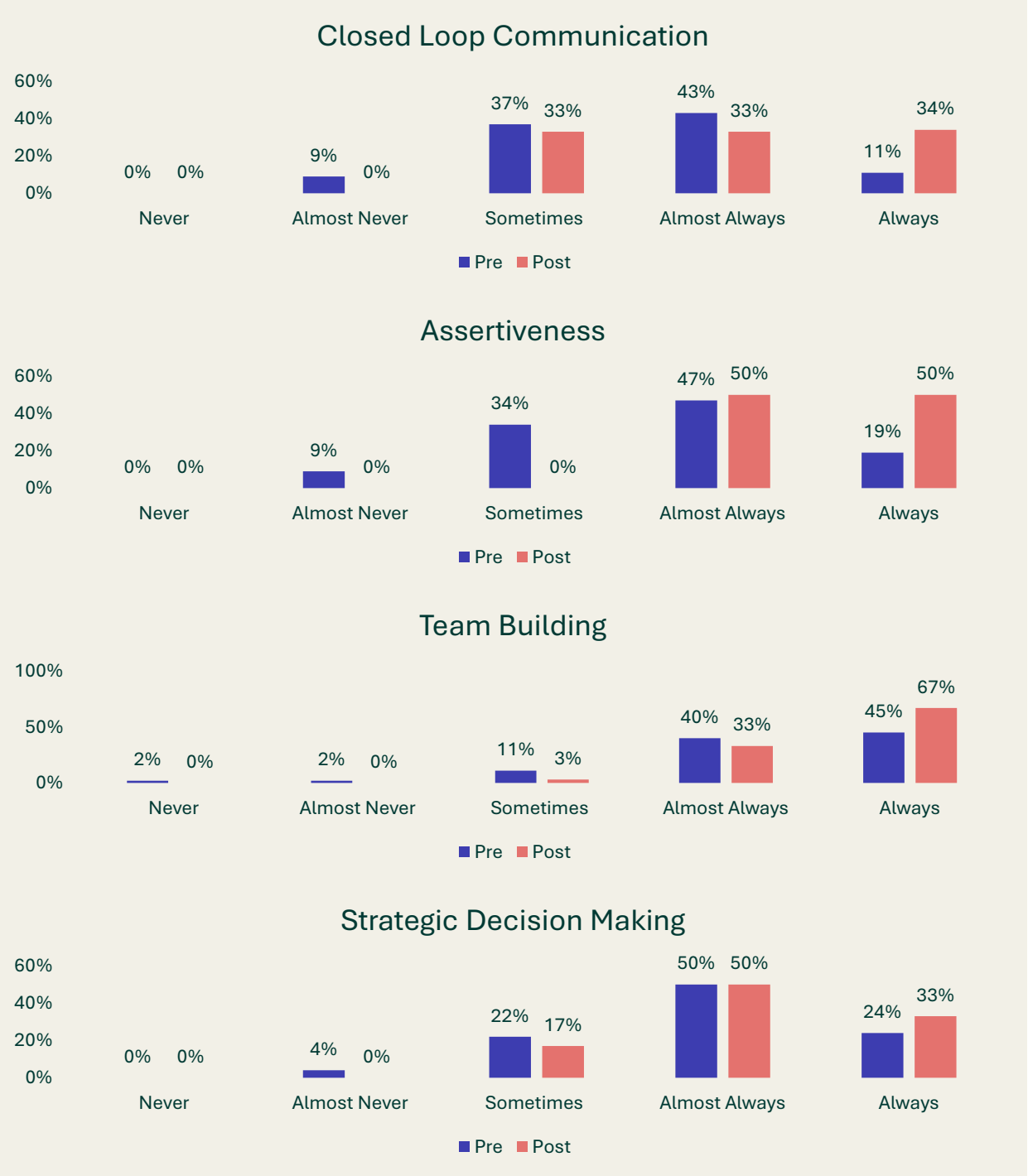
Table 3: Skills Assessment Results

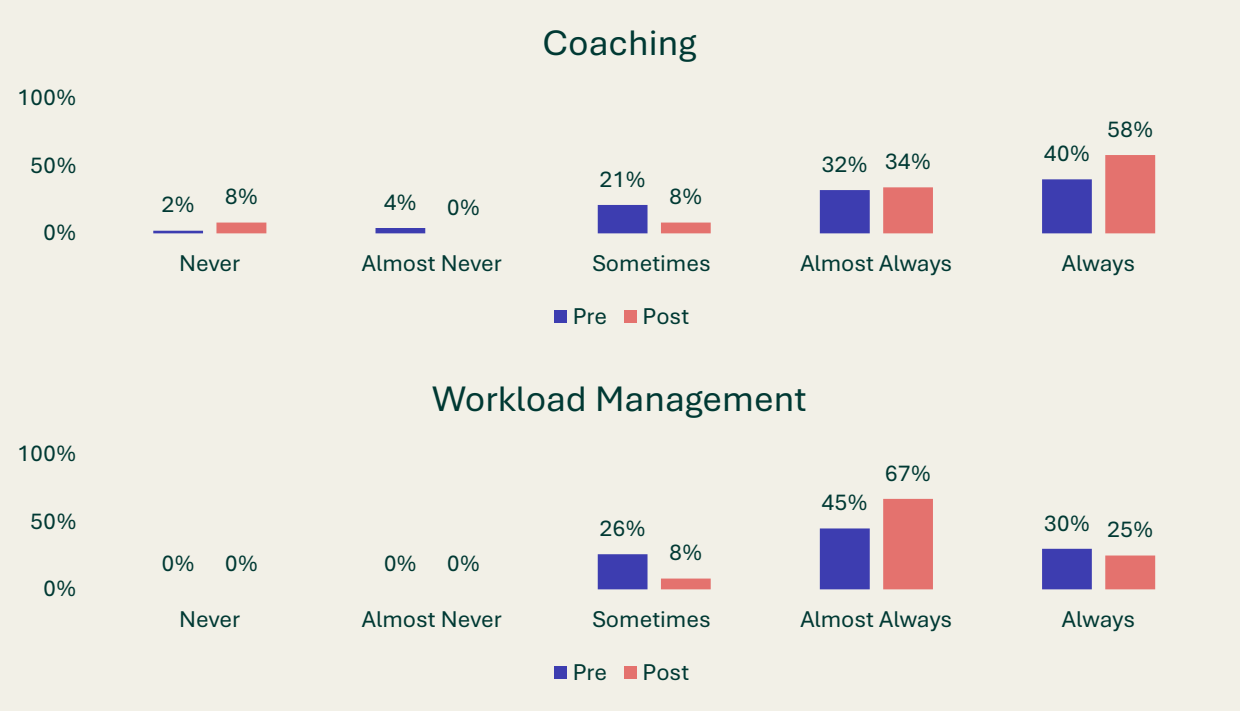
Active Listening	86.66	84.01	-2.65
Mindfulness	79.29	80.35	1.06
Workload Management	79.26	82.12	2.86
Decision Making	83.26	82.60	-0.66
Vigilance	85.17	83.68	-1.49
Effective Inquiry	86.33	86.84	0.51
Closed Loop Communication	87.20	89.26	2.06
Assertiveness	86.06	87.01	0.95
Team Building	86.70	86.02	-0.68
Coaching	83.00	83.77	0.77
Total			~1%

Additionally, the behavioral assessment that employees completed as a part of the pre and post survey, microlearning was effective in increasing skills across all ten competencies.

Figure 3: Below is a list of behavioural topics that have been covered during the program. Please read each one carefully and then rate where you think your current behaviours are on a scale from 1-5. (1 - you never do this behaviour to 5 - you always take part in this behaviour)




Closed Loop Communication
60%
40%
20%
0%
0% 0%
9% 0%
37% 33%
43% 33%
11% 34%
Never
Almost Never
Sometimes
Almost Always
Always
Pre Post
Assertiveness
60%
40%
20%
0%
0% 0%
9% 0%
34% 0%
47% 50%
19% 50%
Never
Almost Never
Sometimes
Almost Always
Always
Pre Post
Team Building
100%
50%
0%
2% 0%
2% 0%
11% 3%
40% 33%
45% 67%
Never
Almost Never
Sometimes
Almost Always
Always
Pre Post
Strategic Decision Making
60%
40%
20%
0%
0% 0%
4% 0%
22% 17%
50% 50%
24% 33%
Never
Almost Never
Sometimes
Almost Always
Always
Pre Post



5.1.5 Awareness of communication skills

Communication was encompassed across four of the ten competencies covered in the microlearning program. For the organization, this was a behavioural skill seen as highly valuable. As seen in Table 3 above, microlearning was effective in increasing closed loop communication skills specifically, but communication was a skill that integrated across multiple modules of the microlearning program (e.g., team building, coaching, active listening).

5.2 Immediate Outcomes

5.2.1 Adoption of safety behaviours

As discussed in section 5.4 and 5.5, microlearning was successful in producing behavioural change amongst employees. The trainings were effective in putting safety behaviours at the forefront for employees in their day-to-day job which has led to more thought and discussion around safety behaviours in the organization. It is also important to recognize a target for the health and safety team is to increase the safety behaviours of their workforce. The goal is to move employees up the scale from never or sometimes using a safety behaviour to the target of always using that behaviour. Once these behaviours increase there will be a reflection seen in incidents and accidents onsite.

"Microlearning has made safety a core value of the organization, rather than solely focus on production output."
- Leader

It has also been acknowledged that the organization has not been able to see and measure the long-term extent to which microlearning has made an impact at the time of this evaluation due to the closure of Signal Gold. Although, coaches expressed that microlearning has been an effective tool for informing and reminding employees of safety behaviours on-the-job.

5.2.2 Enhanced communication

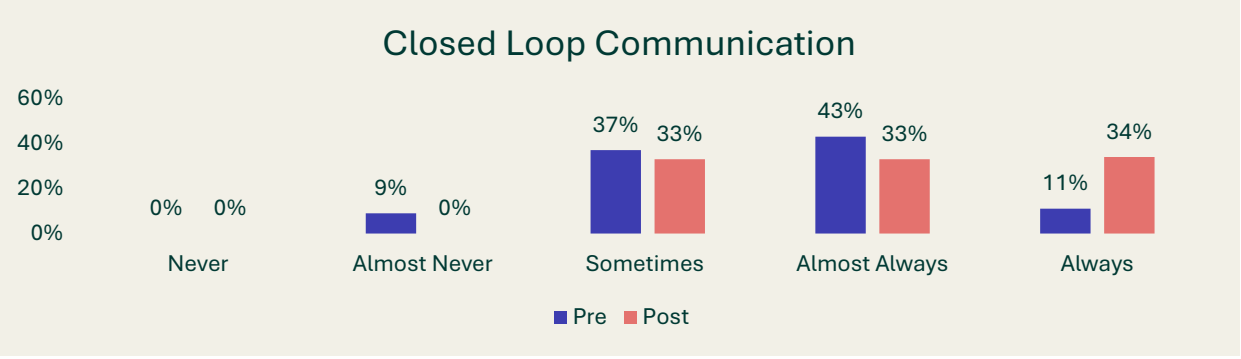
Microlearning was successful in developing communication skills across the organization. The trainings helped both employees and coaches develop skills to better communicate with one another. The communication microlearning was aligned with the national occupational standards for Minerals Processing Operator where MiHR awarded 69 communication micro credentials to the participants.

> *"Overall, you can tell the culture around health and safety has turned around. There is higher willingness to ask questions and better communication on the floor."*
> *- Leader*

Through engagement with other employees and coaches, microlearning has helped employees to feel more comfortable communicating in the workplace, leading to less hesitation about bringing up safety concerns to other employees or supervisors.

While communication was a skill that was integrated across microlearning modules, Figure 4 exemplifies that upon completion of microlearning 67% of employees use closed-loop communication, known as a three-step process – state the message, listener tells their version, confirms when it is correct.

Figure 4: Please read each one carefully and then rate where you think your current behaviours are on a scale from 1-5. (1 - you never do this behaviour to 5 - you always take part in this behaviour)



Similarly, coaches and employees have recognized that microlearning has helped to generate conversation, made employees more comfortable to speak up, and emphasized a preventative approach to workplace health and safety in the organization.

5.2.3 Increased incident reporting

Signal Gold continues to diligently report on incidents that occur across the organization. Refer to Table 4 and 5 below for the annual breakout of incident type. Stats are presented year over year from January to May to allow comparison over the period which microlearning took place at Signal Gold.

The outcomes of microlearning are not as visible through the organization health and safety statistics. Rather, the impact of microlearning was evident through the organizational culture and approach to health and safety in the workplace, where participants were able to increase their individual behavioural competencies.

Table 4 and 5 outline the Signal Gold incident and injury statistics. As previously mentioned, organizational change and a lack of buy into microlearning at the management level affected the outcomes of the program on the Signal Gold organization.

Table 4: Incident summary YoY % (January-May) change

Fire	1	0	3	0	-
Motor Vehicle	2	6	0	0	-
Injury	7	4	3	5	66%
Near Miss	6	8	28	11	-60%
Property Damage	10	4	10	6	-40%
Motor Vehicle	2	6	0	0	-
Total Incidents	28	28	44	22	-50%

Table 5: Injury summary YoY % change

Medical Aid	3	3	0	1	100%
First Aid	4	1	3	4	33%
Total Injuries	7	4	3	5	40%

Rather, the impact of microlearning was noted through a swift in the organization's culture and approach to health and safety in the workplace.

5.2.4 Improved employee moral

Microlearning was successful in providing employees and coaches with the opportunity for engagement and collaboration, both during training sessions and throughout the workday. The training videos were helpful in generating and guiding discussion between employees and coaches.

In addition to providing the organization with a safety-based training program, employees and coaches acknowledged that microlearning was beneficial for the culture of the organization. Employees appreciate the efforts being put towards workplace

health and safety in the organization, and it has given them the confidence to speak up if something is not right for the benefit of themselves and others.

"Microlearning definitely helped to improve the culture around health and safety. Employees are now more aware of incidents that could happen and are taking a proactive approach in their jobs."
- Leader

Coaches and leaders echoed that employees have demonstrated more of an eye for workplace health and safety and are working with each other to foster a safe working environment for everyone.

6.0 RECOMMENDATIONS

As Training Works looks to implement microlearning across other organizations, it is important to leverage the feedback from this pilot phase to enhance the relevance and effectiveness of the program. Looking forward, it is recommended to consider the following:

Getting buy-in at the management level to ensure successful delivery

The pilot phase of microlearning at Signal Gold organization reinforces the need for buy in and support of the program at all levels of the organization. Leaders and mentors were less receptive to the microlearning program because of the upcoming closure of Signal Gold. They weren't able to envision the long-term effects on the organization which prevented them from getting onboard.

"I felt like I was out there on my own in how to deliver the microlearning program."
Mentor

Implement microlearning specific training sessions

The delivery model of microlearning was found to be limiting to both employees and coaches. Daily trainings were deemed as too frequent, and there was limited time to show and discuss the videos in daily toolbox talks.

While consistent health and safety trainings are important, there is opportunity to make for a better experience for employees and coaches. It is recommended to alter the frequency of trainings and increase the amount of time set allotted for microlearning trainings to allow for discussion. For example, one five minute video at the beginning of the week followed up by guided discussions and other forms of microlearning on the same topic throughout the week to allow for continued learning and communication around the safety topic. The safety behaviour of focus for the rotation would continue to be discussed in toolbox talks along with usual daily operational topics.

Communicate the intent of microlearning to level set employee expectations

Microlearning is best suited and leveraged as daily reminders to commute knowledge into behaviour as opposed to teaching brand new skills. Ensuring that employees understand the intent and outcomes of the microlearning model will help with learner engagement moving forwards. The microlearning delivery model was found to be effective, it didn't capture the interest of more experienced employees. While the model keeps safety top-of-mind, it didn't deliver on experienced employee's expectations of learning about new safety topics or behaviours they can apply.

Coaches also highlighted that microlearning was less relevant to employees with experience in the industry.

Therefore, it is recommended to target employees new to the industry or with limited experience (e.g., summer students, new hires, etc.) using a behaviour-based workplace health and safety training model. For more experienced employees, it is recommended to investigate engagement and learning needs, and set expectations for microlearning serving as a safety reminder/refresher.

Find new ways to engage more experienced workers

While microlearning provided more experienced employees with limited new learnings, it did serve as a reminder to the importance of behavioural skills in creating a safe workplace.

Therefore, it is important to investigate ways to engage more experienced workers, as a behaviour-based training remains highly important and relevant to the industry. With many incidents and injuries occurring as a result of an experienced worker becoming complacent, alternative delivery models may pique their interest and heighten engagement with this audience.

Use human actors/actresses to elevate professionalism

While it didn't take away from the learnings of microlearning, the use of cartoons impeded on appeal and relevance. Mentors and coaches noted that some employees were less attentive to the videos because of the "childish" animation.

Consequently, it is recommended to utilize human actors/actresses in the microlearning training videos to elevate professionalism and broaden the appeal for industrial works of all ages and skill levels.

Include job-specific examples to enhance relevance

As not all microlearning training videos are relevant to all positions, and some employees lacked the ability to make the connection between the competencies covered in the training and their day-to-day job in mining.

To further the impact of microlearning, it is recommended to include more job-specific examples in the training videos and follow-up discussions. This would help to demonstrate how the behaviours covered in microlearning can be applied in the workplace as safety prevention tactics.

While the above recommendations would further the effectiveness of microlearning, it was acknowledged to be impactful in its pilot phase with the organization and is seen as a scalable program within and beyond the mining industry.

7.0 CONCLUSION

Microlearning was designed ensure that mining employees receive the right training to do their job on a continuous basis. These employees are limited in the amount of time they can spend away to receive training, the development of this microlearning program and delivery model was to combat this constraint while ensuring knowledge transfer and behavioural change.

Overall, the pilot phase of microlearning completed at Signal Gold was found to be successful in achieving the outputs and immediate outcomes outlined in the Theory of Change. By taking the recommendations provided into consideration, there is opportunity to optimize and enhance the effectiveness of microlearning to scale it across other organizations.

APPENDIX A: KEY INFORMANT INTERVIEW DISCUSSION GUIDE

Hello,

My name is [NAME], and I work for [COMPANY]. Thank you for taking the time to speak to me today.

The discussion we will have today is for research and evaluation purposes only; there are no right or wrong answers. So, I want you to speak freely, share whatever is on your mind and share your personal perspective!

To help me document the research, I will be recording our conversation; however, I want to assure you that everything you say during this conversation is strictly anonymous. Your name and any identifying information about you will not be shared outside of the research team.

Our discussion today will last approximately [TIME] minutes.

Do you have any questions before we begin? I will now turn on the recording

Participants

1. To start off, tell me a little **about yourself** – your job title, description, length of time with the company, years of experience, and some of your experience before joining.

Note: Fill in below

Name:
Job title:
Job description:
Demographic information:
-Age
-Gender
-Location/Company
-Years of experience in current position
-Years of experience in previous positions within industry

Relevance & Design and Delivery

2. What were you hoping to **learn in this program**?
    a. Did you achieve these goals?
    b. If not, what would have helped you?

3. How did the program **relate to your role** within the organization?
    a. How will you apply the skills learned to stay safe at work?
    b. Thinking of the topics covered, what was the most relevant for you? Least relevant?
    c. Are there other topic areas related to safety practices or soft skills that you would have liked to learn about?

4. Please share with me your **level of satisfaction** with the **model** of the program (5 minutes of training per day while on shift and receive feedback and support from coaches)– very satisfied, somewhat satisfied, not satisfied.
    a. Tell me why.
    b. Is there anything you would change in the delivery of the program?

Outcomes

5. How has the microlearning program **helped** you in your role at the organization?
    a. Has it changed the way you do your job? Or how you approach workplace safety?
    b. How do you think the program has helped your organization overall? *Probe on incidents, near misses, rules/educational resources.*

6. What was the most impactful thing you learned in this program?
    a. How will it help you in your job?

7. Moving forward, are there any **changes** you would like to see made to the microlearning program?

Thank you for your time today. That is all of my questions. Do you have any other thoughts, comments or suggestions before we wrap up today?

Thanks again and have a great day!

Coaches

8. To start off, tell me a little about yourself – your job title, description, length of time with the company, and some of your experience.

Note: Fill in below

Name:
Job title:
Job description:

Relevance & Design and Delivery

9. What was your organization hoping to **get out of this program**?
    a. Did the organization achieve these goals?
    b. If not, what would have helped to meet these goals?

10. Was the program **relevant** to your organization's needs?
    a. Thinking of the topics covered, what was the most relevant to your organization? Least relevant?
    b. Are there other topic areas related to safety practices or soft skills that would have been useful?

11. Please share with me your **level of satisfaction** with the **model** of the program (5 minutes of training per day while on shift and receive feedback and support from coaches)– very satisfied, somewhat satisfied, not satisfied.
    a. Tell me why.
    b. Is there anything you would change in the delivery of the program?

Outcomes

12. How has the microlearning program **helped** your organization?
    a. Has it changed the approach to workplace safety?
    b. How do you think the program has had an impact on the organization? *Probe on incidents, near misses, rules/educational resources.*
    c. Have you noticed any changes in the culture of the organization? Probe on observed impacts (e.g., more coach/participant interactions occurring).

13. What is your **biggest takeaway** from the program?
    a. How will the organization implement these safety skills and practices moving forward?

14. Are there any **changes** you would like to see made to the microlearning program?

Thank you for your time today. That is all of my questions. Do you have any other thoughts, comments or suggestions before we wrap up today?

Thanks again and have a great day!

Leaders

14. To start off, tell me a little about yourself – your job title, description, length of time with the company, and some of your experience.

Note: Fill in below

Name:
Job title:
Job description:

Relevance & Design and Delivery

15. What was your organization hoping to **get out of this program**?
    a. Did the organization achieve these goals?
    b. If not, what would have helped to meet these goals?

16. Was the program **relevant** to your organization's needs?
    a. Thinking of the topics covered, what was the most relevant to your organization? Least relevant?
    b. Are there other topic areas related to safety practices or soft skills that would have been useful?

17. Please share with me your **level of satisfaction** with the **model** of the program (5 minutes of training per day while on shift and receive feedback and support from coaches)– very satisfied, somewhat satisfied, not satisfied.
    a. Tell me why.
    b. Is there anything you would change in the delivery of the program?

18. As a Leader is there anything that could have been done to support you better in implementing this program within your organization? (more training, continuous support etc.)

19. Have you noticed a difference in how your organization views safety?

20. What have been the biggest challenges in implementing this program?

21. How would you address these challenges moving forward?

22. Would you invest in a program like this in the future?
23. If not, why?

Outcomes

24. How has the microlearning program **helped** your organization?
    a. Has it changed the approach to workplace safety and how you think about it.

   b. How do you think the program has had an impact on the organization? Probe on incidents, near misses, rules/educational resources. Safety culture and coaching culture

25. What is your **biggest takeaway** from the program?
   a. How will the organization implement these safety skills and practices moving forward?

26. Are there any **changes** you would like to see made to the microlearning program?

Thank you for your time today. That is all of my questions. Do you have any other thoughts, comments or suggestions before we wrap up today?

Thanks again and have a great day!

APPENDIX B: SURVEY RESULTS

Pre-Survey (N=47)

1. Were you given enough details about the microlearning program that you feel comfortable to begin?

	Yes	No
Anaconda (N=47)	79%(37)	21%(10)

2. What are you hoping to learn from this microlearning program?

- Safety
- Communication
- Increase efficiency on the job
- Get others thinking more about their safety behaviour
- Not sure

3. On a scale from 1-5, from what you know about this microlearning program, do you feel this program will relate to your role within the organization?

- SCALE 1 (not at all) - 5 (very)

	Average
Anaconda (N=47)	3

- Why did you give this rating?

Anaconda
Not sure what exactly it will be used for but feel the potential could be there.
Safety is a primary concern for my job.
Safety is always number 1. Learning anything that will improve my position to improve safety is a priority.

4. How do you think the skills you learn through this program will help you stay safe at work?

Anaconda
Hopefully the program will help me consider safety more often in daily activities.
By illustrating how knowing these skills can protect me before, during and after my shifts.
By giving practical insight into working safe for my job

5. For this program you will complete about 5 minutes of training per day while on shift and receive feedback and support from coaches. How would you rate your satisfaction with this training model?

	Not Satisfied	Somewhat Satisfied	Very Satisfied
Anaconda (N=44)	-	45% (20)	55%(24)

- Why did you give this rating? Would you prefer to see a different model? If so, what would you prefer?

Anaconda
I think 5 min learning spots will help with everyday reminders to keep us safe while working.
I'm unsure how the model will work. I can't give feedback until I see the impacts of the model.
Safety is very important, and daily reflections aid in showing how safety training benefits everyone.
I would prefer to do more training in one day vs a bit every day however, I understand that this is not possible for everyone.

6. Below is a list of behavioural topics that will be covered during the program. Please read each one carefully and then rate where you think your current behaviours are on a scale from 1 (you never do this behaviour) to 5 (you always take part in this behaviour).

Anaconda	Never	Almost Never	Sometimes	Almost Always	Always
Mindfulness: Mindfulness is being present in the moment. You think about the outcomes of your actions before you finish the task. You think about the impact of your words before you say them.	-	2%(1)	21%(10)	49%(23)	28%(13)
Vigilance: Vigilance means to keep your focus and stay alert while doing tasks at work. To be safe at work you must always keep an eye on the people, the machines, and your work site.	-	-	13%(6)	45%(21)	43%(20)
Active Listening: You listen to understand the speaker's message.	-	-	17% (8)	53%(25)	30%(14)

Anaconda	Never	Almost Never	Sometimes	Almost Always	Always
Effective Inquiry: You ask questions with purpose.	-	2%(1)	17%(8)	51%(24)	30%(14)
Closed Loop Communication: You use a 3-step process when you speak. You state the message, you wait for the listener to tell you their version of the message and you confirm when they are correct.	-	9%(4)	37%(17)	43%(20)	11%(5)
Assertiveness: You make sure your message is heard and addressed.	-	-	34%(16)	47% (22)	19%(9)
Strategic Decision Making: You use a 5-step process to decide. 1. Identify the problem 2. Gather information 3. Consider your options 4. Decide on a path forward 5. Evaluate your decision	-	4%(2)	22%(10)	50% (23)	24% (11)
Team Building: You are a part of a team working towards a goal. To reach the goal your team works well together and continue to improve and learn.	2%(1)	2%(1)	11%(5)	40% (19)	45% (21)
Workload Management: You understand how to manage your tasks with the team and goal in mind. If you are a manager or supervisor you are able to assign tasks to individuals	-	-	26%(12)	45%(21)	30% (14)

Anaconda	Never	Almost Never	Sometimes	Almost Always	Always
based on their role in the company and skill level.					
Coaching: Coaching is already a big part of day-to-day tasks at your company. By coaching others, you are sharing your know-how and skills. You help members of your team to become safe in the workplace.	2%(1)	4%(2)	21%(10)	32% (15)	40%(19)

7. Thinking of the topics you just reviewed and your job position, what are you looking forward to the most over the course of your program?

Anaconda
I look forward to mitigating risks encountered in day to day activities.
Seeing the safety culture, team building and problem solving, accountability, hazard identification improve as the program grows.
How to communicate better with extended members of the team (not people I speak to daily).

8. What are you looking forward to the least?.

Anaconda
Trying to squeeze in sessions on busy days.
Possibly having to deal with employees that may resist some change.
Addressing any individuals who may not want to get on board with this program.

9. Are there other topic areas related to safety practices or soft skills that you would like to learn about during this program? If so, please list them below.

Anaconda
Incident investigation and root cause analysis.
How to communicate better with all types of people.
How to work safe when overwhelmed by workload

10. Gender

Anaconda N=46	% (N)
Female	22% (10)
Male	70% (32)
Prefer not to answer	9% (4)
I prefer to identify as ____	-

11. How old are you?

Anaconda	% (N)
Prefer not to answer	2% (11)
Younger than 15	0

Anaconda	% (N)
Between 15 and 29 years old	41% (19)
Between 30 and 44 years old	30% (14)
Between 45 and 65 years old	24% (11)
Older than 65	(1)

12. Which of the following best describes your current relationship status? (N=99)

Anaconda	% (N)
Single	19% (9)
In a relationship	32% (15)
Married	34% (16)
Divorced	-
Widowed	2% (1)
Prefer not to answer	13% (6)

13. How many members of your household, including yourself, are in each of these age groups?

Anaconda	(N)
Adult 18+ (including yourself)	77
Child age (0-17)	23

14. What is the highest level of education you have completed? (N=98)

Anaconda	% (N)
Some high school or less	2% (1)
Graduated high school	15% (7)
Some college or university	23% (11)
College or university graduate	38% (18)
Some postgraduate work	-
Completed post-graduate education	13% (6)
Prefer not to answer	9% (4)

15. Which of the following best describes your current employment status?

Anaconda	% (N)
Employed full-time	87% (41)
Employed part-time	-
Contractual	13% (6)
Other (please specify):	-

16. Do you identify as someone with a disability?

Anaconda	% (N)
Yes	-
No	87% (40)
Prefer not to say	13% (6)

Post-Survey (N=12)

1. What have you learned so far in the microlearning program?

Anaconda
Most concepts I was already familiar with but some good reminders on how to deal with some situations.
How to work and talk to my coworkers about safety.
Key safety items and how to recognize hazards in my own work and others work.

2. Has the microlearning program helped to remind you of the things you should be watching for and doing to be safe when you begin work for the day?

Anaconda
It reminded me more about my surroundings
Somewhat however it is sometimes not on the mark
Yes (9)

3. How do you think the skills you have learned through this program so far, have helped you stay safe at work?

Anaconda
Better recognizing hazards in my own job as well as the hazards of other individuals I interact with on a daily basis during work.
They remind me the best approaches to handling situations and best practices.
It keeps safety in the forefront.

4. For this program you will complete about 5 minutes of training per day while on shift and receive feedback and support from coaches. How would you rate your satisfaction with this training model?

	Very Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Very Satisfied
Anaconda (N=12)	-	16%(2)	-	42%(5)	42%(5)

- Why did you give this rating? Would you prefer to see a different model? If so, what would you prefer?

Anaconda
Looking to have a more personal approach, with some more relatable site-specific examples.
I would like to see a designated time, site wide for this. The responsibility seems to fall to one or two people when it comes to my department and is difficult due to the workload and having people be available without stopping production.
This way is great cause you can discuss it with your co-workers.

5. Below is a list of behavioural topics that will be covered during the program. Please read each one carefully and then rate where you think your current behaviours are on a scale from 1 (you never do this behaviour) to 5 (you always take part in this behaviour).

Anaconda	Never	Almost Never	Sometimes	Almost Always	Always
Mindfulness: Mindfulness is being present in the moment. You think about the outcomes of your actions before you finish the task. You think about the impact of your words before you say them.	-	-	8%(1)	17%(2)	75%(9)
Vigilance: Vigilance means to keep your focus and stay alert while doing tasks at work. To be safe at work you must always keep an eye on the people, the machines, and your work site.	-	-	8%(1)	58%(7)	33%(4)
Active Listening: You listen to understand the speaker's message.	-	-	-	33%(4)	67%(8)
Effective Inquiry: You ask questions with purpose.	-	-	-	50%(6)	50%(6)
Closed Loop Communication: You use a 3-step process when you speak. You state the message, you wait for the listener to tell you their version of the message and you confirm when they are correct.	-	-	33%(4)	33%(4)	34%(4)
Assertiveness: You make sure your message is heard and addressed.	-	-	-	50%(6)	50%(6)
Strategic Decision Making: You use a 5-step process to decide. 1. Identify the problem 2. Gather information	-	-	17%(2)	50%(6)	33%(4)

Anaconda	Never	Almost Never	Sometimes	Almost Always	Always
3. Consider your options 4. Decide on a path forward 5. Evaluate your decision					
Team Building: You are a part of a team working towards a goal. To reach the goal your team works well together and continue to improve and learn.	-	-	-	33%(4)	67%(8)
Workload Management: You understand how to manage your tasks with the team and goal in mind. If you are a manager or supervisor you are able to assign tasks to individuals based on their role in the company and skill level.	-	-	8%(1)	67%(8)	25%(3)
Coaching: Coaching is already a big part of day-to-day tasks at your company. By coaching others, you are sharing your know-how and skills. You help members of your team to become safe in the workplace.	8%(1)	-	-	34%(4)	58%(7)

6. Thinking of the topics you just reviewed and your job position, what are you looking forward to the most in the remainder of your program?

Anaconda
People putting these ideas into practice more often.
Continuing to build a safe and educated workforce.
More fluid and applicable videos.

7. What are you looking forward to the least?

Anaconda

Addressing the very few individuals who do not see the benefit of this program.
Topics that don't apply to me.
Cartoons and annoying narrators.

8. Are there other topic areas related to safety practices or soft skills that you would like to learn about during this program? If so, please list them below.

Anaconda
Electrical safety for non-trade people. Cleanliness & housekeeping in the workplace.
I wonder if having less generic safety moments/toolbox talks done by the specific roles would be more effective.
Response to first aid situations and such would be a good topic. Refresher to basic steps like how to treat a burn or broken bone.

9. Gender

Anaconda	% (N)
Female	8% (1)
Male	84% (10)
Prefer not to answer	-
I prefer to identify as ____	8% (1)

- Non-binary

10. How old are you?

Anaconda	% (N)
Prefer not to answer	-
Younger than 15	-
Between 15 and 29 years old	25% (3)
Between 30 and 44 years old	42% (5)
Between 45 and 65 years old	33% (4)
Older than 65	-

11. Which of the following best describes your current relationship status?

Anaconda	% (N)
Single	16% (2)
In a relationship	25% (3)
Married	42% (5)
Divorced	-
Widowed	-
Prefer not to answer	17% (2)

12. How many members of your household, including yourself, are in each of these age groups?

Anaconda	(N)
Adult 18+ (including yourself)	Average 1.8/HH

Anaconda	(N)
Child age (0-17)	1 HH – 2/HH

13. What is the highest level of education you have completed?

Anaconda	% (N)
Some high school or less	17% (2)
Graduated high school	17% (2)
Some college or university	-
College or university graduate	33% (4)
Some postgraduate work	-
Completed post-graduate education	8% (1)
Prefer not to answer	25% (3)

14. Which of the following best describes your current employment status?

Anaconda	% (N)
Employed full-time	92% (11)
Employed part-time	-
Contractual	-
Other (please specify):	-
Prefer not to answer	8% (1)

15. Do you identify as someone with a disability?

Anaconda	% (N)
Yes	-
No	92% (11)
Prefer not to say	8% (1)