

**SAFETY COMMUNICATIONS:
EXAMINING THE ROLE OF LEADERSHIP IN SAFETY
COMMUNICATIONS**

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Abstract

Safety is a critical component of highly operational organizations as companies strive to ensure the health and wellness of their employees. Many organizations use metrics to measure safety, such as number of incidents, or severity of incidents. Traditionally, organizations have created safety programs and have communicated using tools such as newsletters or posters to advise employees of safe workplace practices and trends. This research examined how and to what degree leadership may impact the success of a safety culture in a highly complex operational environment. Consideration was also given to the behaviours of leadership, and the effectiveness of the leadership role in the dissemination of communications. This research will examine how and to what degree effective safety communications disseminated by leadership may impact the perception of safety among employees in the workplace and ultimately affect the safety culture.

Keywords: communications, safety, leadership, operational environments, safety metrics, leadership, public relations

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Introduction

Effective safety communications play a pivotal role in creating a positive safety culture for organizations, particularly organizations that are highly operational. This paper will explore the role that leadership plays in their use of safety communications to achieve an effective safety culture in highly complex operational environments. Poor safety measures in the workplace can mean “more accidents, injuries and illness” and communications are “so crucial to creating a safe and healthy place to work” (Doyle, 2019). This case study will consider the ways in which organizational leadership may have an impact on potential safety, confidence and culture. Specifically, it will discuss the impact of leadership when trying to improve the perception of safety performance through effective communications. According to the Government of Canada (2021), in their report “Advancing Safety in the Oil and Gas Industry: Statement on Safety Culture” strong safety cultures are defined as:

- *Leaders demonstrate that the prevention of harm is their overriding value and priority;*
- *Everyone is aware of known hazards while remaining vigilant to new threats;*
- *Everyone feels empowered and recognized for making safe decisions to prevent harm;*
- *Everyone feels encouraged to report all hazards, including instances where they have committed an error and introduced a threat themselves;*
- *Everyone, including the most junior employee, would not hesitate to take action in response to a concern without fear of disciplinary action or reprisal;*
- *Everyone works safely and takes actions to protect the environment (Government of Canada, 2021).*

Consideration is also given to the ways in which leaders communicate, and the effectiveness of their communication model. How and to what degree effective safety communications disseminated by leadership might drive a strong safety culture within an operational organization?

Every employee has a role to play in the safety of a company and the people who work there. But what makes for effective safety communications? In highly complex unionized environments, particularly those that are operational in nature, employees are often in the field. This is true of industries such as aviation, rail, bussing, utilities, hospitals, and other complex operating environments. This study examined the effectiveness of current safety communication practices within highly complex employee spaces such as the energy, transportation and/or industrial sectors.

For example, Grunig's four models of public relations (Laskin, 2009), found traditionally organizations tend to approach safety communications using a Public Information Model within the organization. A Public Information Model is one whereby information flows one-way, to a large group (Laskin, 2009). An example of this would be safety messaging that may be placed into various employee communications channels such as posters on bulletin boards or employee newsletters. This type of model operates as a one-way communication which does not allow employees to dialogue with leadership about safety. However, as Greeff (2017) suggests, organizations that use a Two-Way Symmetrical Model, whereby employees have accessible communications that are not only informative but also responsive, find that "these factors of

communication give way to a shared understanding in the organization, which shapes and fosters a safety climate conducive to realizing the safety goals of the organization through the management of communication therein” (p.119). In this type of model, employees can have a conversation with leadership about safety and provide their input and information which could be incorporated into safety practice. This not only provides employees with a sense of agency but also the ability to shape the safety culture themselves as they are in a unique position to observe safety hazards on the frontline. Could they also see their input reflected in safety communications and may take pride in ownership knowing that they have been heard?

Many researchers have shown that those who directly manage employees can either positively or negatively impact the safety message (Burke et al., 2011). For example, Haas (2020) explored the role of supervisory support on workers’ health and safety performance showing that “any type of informational support can have a positive, reciprocal impact on worker compliance, proactivity, and participation” in safety programs (p.371). Haas argues that ongoing dialogue with employees can effectively engage them in safety culture. Specifically, Haas found that employees reacted well to leadership that engaged with them in finding solutions. For example, supervisors who referenced ways to challenge and motivate workers were well received, her advice was to tell “them that you are trying to learn what they are doing. Ask them to help you identify potential hazards” (Haas, 2020, p.371). According to Haas (2020), workers appreciated these types of management strategies. There may be assumptions made by

leadership on the cause of safety concerns, and the Two-way Asymmetrical model allows leadership to test those assumptions and gain unique insights into safety challenges.

So, it would stand to reason that not only is leadership communications a critical part of safety culture. The communications model chosen for safety communications and the ability for employees to see related outcomes would also impact the effectiveness of the message and thereby the impact on the organization's safety culture.

Research Problem

This research considered the ways in which the involvement of leadership in safety communications may have an impact on perceived safety and safety culture. Specifically, it explored the frontline employee perceptions of safety communications and leadership's behaviour and involvement. In addition, it looked at the criticality of the communications model leadership used, noting its effectiveness, and its impact on the employee's perception of safety.

To determine the role that a strong leadership safety communications culture must play the questions below were asked.

Research Questions

RQ1: How and in what ways does the communications model that an organization uses to communicate safety messaging impact overall employee perception of safety?

This question examined whether there is a difference in the way that the communications model impacts the overall perception of employee safety. Do organizations that use traditional top-down declarative statements and messaging such as “Be Safe”, or “Watch Your Step”, see a strong safety culture driven by employees that believe safety communications are effective? Does two-way asymmetrical communication further drive the perception of safety and cultivate a strong safety culture? How does frequency of communications impact perception of safety?

RQ2: How and to what extent is the communications role of leadership important to the perception of an effective safety culture?

This question examined how and to what extent leadership is perceived to impact the effectiveness of safety communications. What role does leadership play in safety communications and does this have a perceived positive impact on safety culture? How effective do employees believe safety communications are when leadership does not play an active role?

Although not a formal research question, the impact of the COVID-19 pandemic will also be discussed in terms of its effect on safety communications, and the impact that leadership may have.

Literature Review

Health and Safety Culture

It is clear from the research of Greeff (2017) that while safety communications play a critical role, there are other factors that play into a strong safety culture, “communication should not be seen as an independent, atomistic

factor of safety climate, but as a meta-factor influencing all others identified. When viewed in this way, communication becomes a driving force” (p.119). The safety culture of an organization, while not the only driving factor, is critical to the success of safety within an organization. “It is generally accepted wisdom that an organization that develops and maintains a strong safety culture becomes more effective at preventing individual and larger scale accidents” (Baram & Schoebel, 2017, p.632).

When considering the other factors that drive safety effectiveness, one cannot ignore the critical role of supervisor and leadership communications, particularly in highly operational environments such as factories, construction sites, hospitals, transportation, or energy sector fields. “Strong safety leadership is gradually regarded as the key to safety performance improvement of construction projects, especially for countries where the construction industry is facing significant safety challenges and requires transformational development” (Construction Users Roundtable, 2012). In their day-to-day roles, it is what Wu et al. (2008) calls “Safety Leadership” that impacts the effectiveness of safety. Safety Leadership was defined by Wu et al. in (2008) as the “process of interaction between leaders and followers, through which leaders can exert their influence on followers to achieve organizational safety goals under the circumstances of organizational and individual factors” (p.1495).

Importance of Unified Communications to an Effective Safety Culture

When looking at the role of communications and its impact on the safety culture of an organization, current research indicates that internal safety communication is of critical importance and considered to be a driving force

behind effective safety culture (Burke et al., 2011; Dinsdag et al., 2008; Edum-Fotwe and McCaffer, 2000; Hardison, D.2013; Hofmann and Morgeson, 1999; Langford et al., 2000; Leather, 2007; Odiorne, 1991; Torner and Pousette, 2009). Moreover, Hardison (2013) suggests that “employee’s safety performance should increase when the supervisors explain all operating procedures and consequences of unsafe behaviours and when there is organizational commitment to continually improve work processes and to mitigate risks to reasonable levels” (p.46).

Arguably, what can negatively impact the success of communications is the effectiveness of the communicator and the unity of voice. To that end, Kines (2010) felt that leaders and supervisors need regular coaching on how to effectively communicate to have an impact on organizational safety. Employees interact daily with their supervisor or manager, and if this is their sole source of safety messaging, the supervisor or manager becomes “particularly influential in shaping local (workgroup level) safety climates because they filter and interpret organizational messages. Put simply, supervisors interact directly with workers and communicate what management really wants” (Leather, 1988, p.162). This is where the role of a corporate communications team can be critical to disseminating information across the company. Downs and Hazen (1977) argue that at the most fundamental level, organizations need to monitor how well employees communicate because the organization’s very survival often depends on the workers’ abilities to exchange and coordinate information (p.68). This is particularly true in operational environments where operating environments often shift and change.

The Role of Leadership in Developing Perception of Safety Culture

Research shows us that the way in which supervisors and leaders communicate and show employees safety outcomes can directly impact the effectiveness of the company's safety culture. How do supervisors gain that influence to have an impact? One study by Sriramesh and White (1992), explored interpersonal trust and its impact on culture and found that, "trust is a key ingredient that gives credibility to a source in any communication" (p.56). Moreover, strong leadership is critical to the organizations "ability to develop a level of trust and demonstrate authenticity in order to influence or motivate an organization's stakeholders toward a specific behaviour or belief initially set by the organization" (Jamal et al., 2015, p.373).

When looking specifically at the impact of leadership on workplace safety, Wu et al. (2016) found that consistent and frequent onsite visits combined with action by project leadership positively influenced the safety culture. Moreover, Wu's research identified that employees translated the onsite presence into leadership being "concerned with our health and safety... and therefore frontline personnel would behave safely by themselves" (Wu et al., 2016, p.1504). This perceived "care" or humanistic concern that Wu et al. (2016) identified was meaningful for employees and translated back into "determination for safety improvement and adherence to leaders' safety beliefs" (p.1504). Because of these findings, Wu et al (2016) concluded that "constant visibility onsite for safety inspection, instruction [communication] and humanistic concern for workers has proven to be very effective leadership behaviour" (p.1504).

In terms of the impact of employee exposure to safety outcomes, Griffin and Hu (2013) found that employees demonstrate increased safety compliance when aware of workplace outcomes. Specifically, Griffin and Hu found that “when leaders are aware of any unsafe behaviours or errors, they should encourage employees to learn from these mistakes, and encourage the employees to challenge the current safety system which may have contributed to the occurrence of errors and mistakes” (p.201). Together the above studies solidify the notion that trust, leadership presence and safety communication foster stronger workplace safety culture.

In contrast to that, the ongoing COVID-19 pandemic has significantly changed leadership’s presence in the workplace. Specifically, Wu et al. (2016) are correct, and onsite presence of leadership creates a perception of care (p.1504) then the COVID-19 pandemic has likely impacted effective leadership communication. For the past two years, many organizational leaders have worked from home during the COVID-19 pandemic. During that time, many organizations shared messaging about health and safety in relation to the pandemic, in the absence of on-site leadership. While many studies have been done post pandemic to look at the impact of the COVID-19 pandemic on the remote workforce, little research could be found on the impact to those “left onsite”. As managers and leaders work from home, they may begin to feel “detached from his/ her company and make an employee lack the community feeling and attachment to his / her company” (Kaushik & Guleria, 2020, p.13). Therefore, in addition to on-site employees not seeing management or leadership,

those working remotely may not feel inclined to go on-site to connect. Kaushik & Guleria (2020) note that “working from home does not foster communication and kinship with the company”, which may lead to a divide between the onsite and remote workforces. This divide could have a critical impact on the effectiveness of safety communications and the safety culture.

Although few studies have been done for on-site workers, Orange Fieri, a New York Communications and Consulting firm, explored Leadership Communications during Covid-19, in an online survey of US organizations in March of 2020. They found that employees “wanted more frequent communications, with an opportunity to connect with leaders” (p.25). While employees they surveyed were not unhappy with the content of pandemic communications, they did feel leadership visibility was lacking (p.25).

It should be noted that as organizations return from the pandemic, leaders will also need to think about the communication model they choose to use. Traditional top-down messaging may no longer be effective. The Harvard School of Business (2021) spoke to 600 CEOs about *The Pandemic Conversations that Leaders Need to Have Now*, and they found that

In recent conversations with CEOs and other company leaders, people have shared mostly top-down, generic approaches to communicating their plans with their employees. Although mass emails and newsletters are not problematic in and of themselves, they are no substitute for the kind of communication this moment calls for—namely, conversations. In fact, leaders should start scheduling frequent conversations with individual employees during this critical time.

This clearly demonstrates that leaders need to be mindful about top-down messaging and its effectiveness.

Methodology

Case study research typically includes multiple data collection techniques with data collected from multiple sources. Data collection techniques include interviews, observations (direct and participant), questionnaires, and relevant documents (Yin, 2018). For the purpose of this research, two of Yin's data collection procedures will be used, questionnaire and relevant documents.

Research Method

An online questionnaire was developed using SurveyMonkey to collect the data through 28 qualitative/open-ended and quantitative/closed ended questions (see Appendix A). Users were routed based on how they self-identified as a leader vs. frontline employee to answer questions tailored to their role. These questions will capture the beliefs and opinions related to their perception of safety within their organization, and related communications, from both leaders and employees. The research gathered information from a cross section of those in leadership roles and front-line roles in operational organizations, specifically those who are accounted for under the organization's safety index metrics.

Users self-administered their replies through a snowballing method and were able to share the survey with their networks on their own free will. This survey was made available between March 20-30, 2022 and had full ethics board approval from the McMaster Research Ethics Board (MREB). Screening questions were asked in order to limit the respondents to employees, residing within Canada, who work for a complex operational organization. The survey

included both Likert Scale style and value-based questions (Stacks 2017), and respondents could opt out of the survey at any time.

A pretest was conducted with four colleagues, who took on average seven minutes to complete the survey. The insight from the pretest was used to improve the survey.

To help mitigate potential bias, social media provided a convenience sample of respondents. Social media reach was based upon the researcher's relationship and availability. The survey was shared by others within the researcher's network, which provided more convenience sampling; however, limitations exist based on the researcher's social network on LinkedIn.

The goal was to achieve a sample size of at least 125 individuals with the objective of 100 completed surveys. SurveyMonkey data shows 138 respondents took the survey; however, only 110 continued past the initial screening questions. All 110 respondents completed the full survey.

Results

In this study, there was a total sample size of 138 respondents who completed the survey between March 20th, 2022, to March 30th, 2022. Of those 138 respondents, 28 dropped out of the survey during the question to identify industry. The remaining 110 respondents completed the survey in its entirety. Within the sample, 70.91% of the respondents self-identified as being in a leadership role, while 29.09% self-identified as being in a frontline role.

The sample was comprised of subjects who identified as working in the following sectors: 67.27% of respondents work in aviation, 2.73% work in rail, 0.91% work in bussing, 2.73% identified as “other transportation type”, 3.64% are employed by a utility company, 3.64% work in a hospital or health care setting, 4.55% work in the energy sector, and 14.55% work in another sort of complex operating environment. There were no respondents employed in the mining sector. Other operating environments included: mail services, emergency services, catering, retail, postal, public administration, housing, nuclear, pharmaceutical, commercial printing, and facilities services.

Figure 1

Operational Environment or Industry

ANSWER CHOICES	RESPONSES	
Aviation	67.27%	74
Rail	2.73%	3
Bussing	0.91%	1
Other transportation type	2.73%	3
Utility Company	3.64%	4
Hospital or Health care	3.64%	4
Mining	0.00%	0
Energy	4.55%	5
I do not work in an operational environment	0.00%	0
I have decided not to participate in this survey	0.00%	0
Prefer not to answer	0.00%	0
Other complex operating environment (please specify)	Responses 14.55%	16
TOTAL		110

Although there was some variation in occupational fields, the majority of subjects (67.27 %) identified as working in the aviation sector (Figure 1). This occupational concentration is a result of using the snowball sampling technique in my research. Participants were recruited through posting a survey invitation via the researcher's LinkedIn network which is primarily comprised of aviation contacts.

After examining the operational environment data, the remaining data was analyzed through the lens of the two research questions identified to illuminate employee perception of safety as an outcome of leadership engagement in communications.

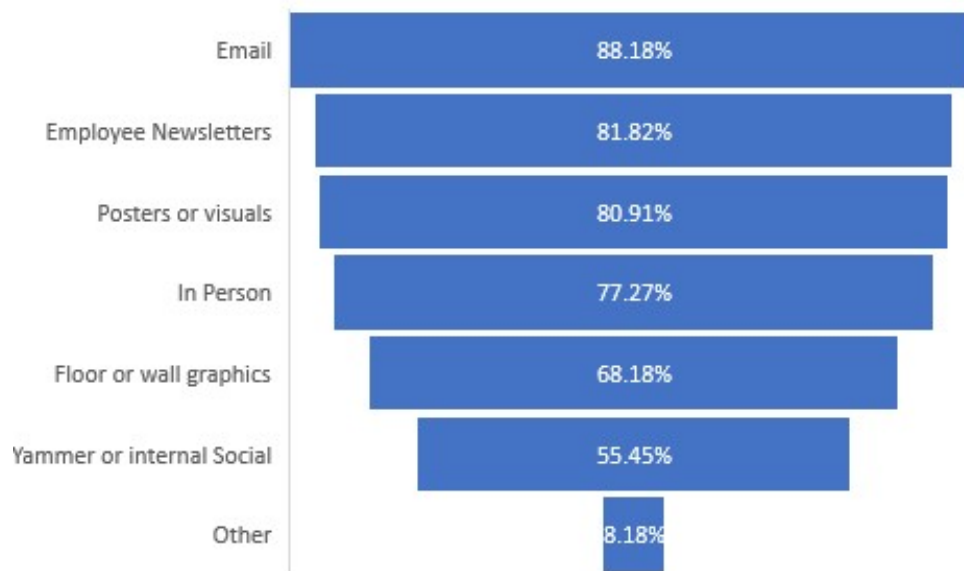
RQ1: How and in what ways does the communications model that an organization uses to communicate safety messaging impact overall employee perception of safety?

All respondents (n=110) confirmed that their organization distributes safety communications to employees. The most predominant channels for safety communication are email, posters or visuals, in person, and floor or wall graphics. The least predominant are Yammer and other methods such as training or safety meetings. The ways in which communications are distributed was reflected in several channel choices. Email was used predominantly at 88.18% of the time, 81.82% of communications used employee newsletters, posters are used 80.91% of the time, Intranets are used 80.91%, in person meetings was used 77.27% of the time, wall or floor graphics are used 68.18% of the time, Yammer or other internal social media was used 55.45% of the time, and 8.18% of uses identified

other such as; regular safety talks, organizational training, videos, objectives in annual ratings, storytelling, daily operational meetings with safety moments.

Figure 2

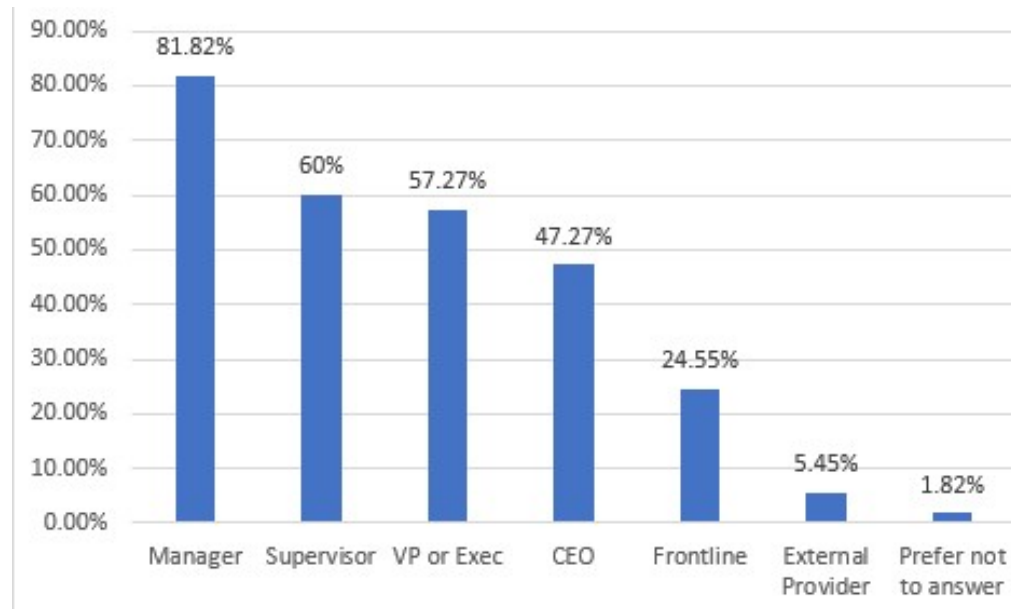
Safety Communication Methods used by Leadership to Inform Employees



When it came to who sends out the safety messaging (n=110), 81.82% of messages were sent by managers, 60% of messaging was sent by supervisors, 57.27% of messaging came from vice president level or above, 47.27% came from the CEO, 24.55% came from frontline employees, 5.45% came from an external provider, and 17.27% responded with other. 1.82% preferred not to answer this question. In identifying “other” respondents shared safety department or officer, Human Resources, safety volunteers, and communications team. One respondent shared “It's a strong safety culture that is owned by everybody”.

Figure 3

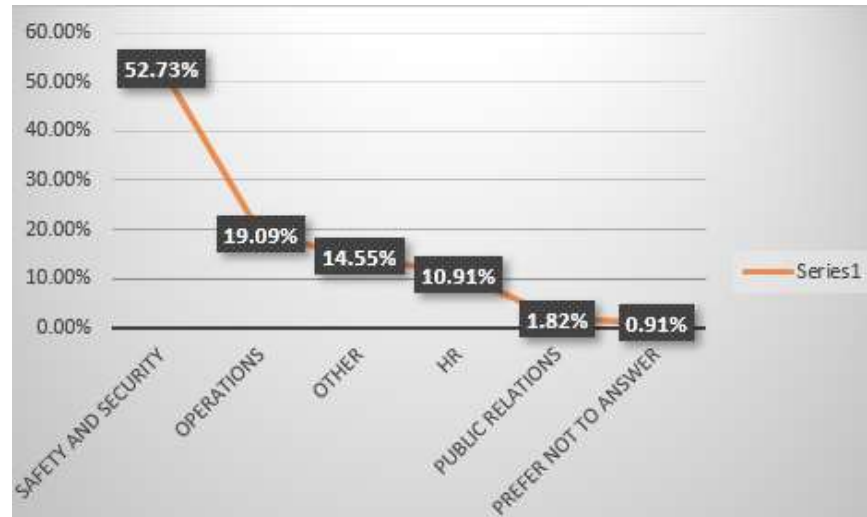
Who Sends Out Safety Messages?



By contrast, the accountability for safety communications resides in the following locations (n=110). 52.73% of respondents replied that it sits with Safety and Security, 19.09% of respondents replied that it sits with Operations, 10.91% said it sits with Human Resources 1.82% said it sits with Public Relations, and 14.55% said other including “all of the above”, everyone, employee communications, Director of Safety, all managers, a combination, and lastly the OHS representative.

Figure 4

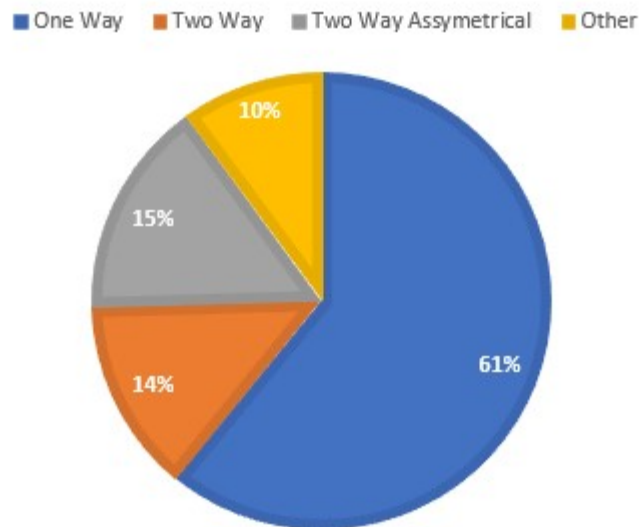
Where Does the Accountability for Safety Communications Reside?



Respondents (n=110) were then asked to identify the most commonly used safety communications model in their organization. The majority (60.91%) reported that one-way communications are used, such as a poster, eblast or a wall graphic. Next, 15.04% reported that two-way symmetrical communications are used, such as a group discussion or a tiger team, while 13.64% shared that two-way communication, such as a survey or a discussion post are used. Lastly, 10% identified “other” and this included: all of the above, some of the above, and mostly one way but with the ability to report incidents.

Figure 5

Safety Message Model Most Often Used



RQ2: How and to what extent is the communications role of leadership important to the perception of an effective safety culture?

Midway through the questionnaire, those who self-identified as leadership (n=78) were presented with slightly different questions than those who self-identified as frontline employees (n=32).

Leaders were asked how often they speak to employees about safety. Frontline employees were asked how often they hear leadership asking about safety. The table below illustrates all responses.

Table 1*How Often Does Leadership Speak to Employees About Safety?*

	Leadership (n=78)	Frontline (n=32)
Daily	35.90%	18.75%
Weekly	23.08%	34.38%
Monthly	20.51%	25.00%
Quarterly	3.85%	9.38%
Bi-Annually	2.56%	0%
Annually	1.28%	0%
I do not hear/I do not speak	7.69%	12.5%
Prefer not to answer	5.13%	0%

On a rating scale of 1 to 10, with one being most important and 10 being least important, leaders were asked how important it is for them to model safe workplace practices, while frontline employees were asked how important it is for leadership to model safe workplace practices.

Table 2*How Important is it For Leadership to Model Safe Workplace Practices?*

	Leadership (n=78)	Frontline (n=32)
1 (least important)	0%	3.13%
2	0%	0%
3	0%	0%
4	0%	3.13%
5	0%	0%
6	0%	0%
7	2.56%	0%
8	5.13%	3.13%
9	11.54%	9.38%
10 (most important)	79.49%	81.25%
N/A	1.28%	0%

*(10-point scale)

The survey then looked at the types of safety communications that each group participates in. When providing “other” comments, leaders mentioned training sessions, health and safety meetings, shift briefings, e-learning, storytelling in person, incident reviews and design of safety communications. Frontline employees when sharing “other” comments identified emergency exercises, safety moments, and safety meetings.

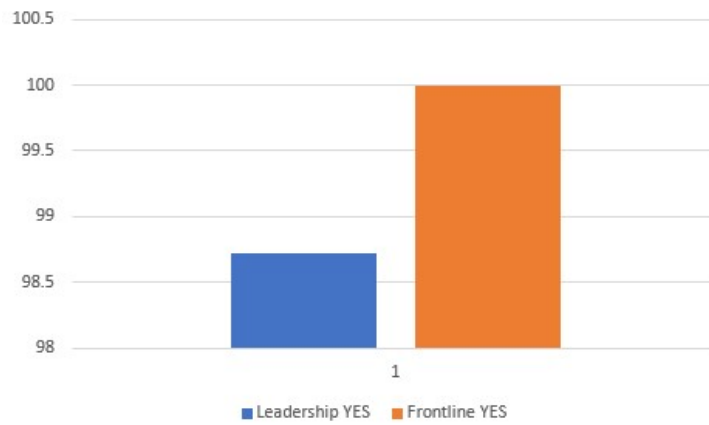
Table 3*Types of Safety Communications or Events You Participate in the Most*

	Leadership (n=78)	Frontline (n=32)
Story telling in newsletters or employee message boards	5.13%	6.25%
Safety Week events	10.26%	28.13%
Daily safety talks	23.08%	15.63%
Townhall safety messages	17.95%	12.50%
Speaking at conferences or events	1.28%	0%
Prefer not to answer	5.13%	18.75%
Other	37.18%	18.75%

The next question focused on the individual's belief in whether they follow safety guidelines in the workplace, and model safe behaviour. Both leaders and frontline employees were asked "Do you believe that you follow safety guidelines in the workplace, and model safe behaviour?" 98.72% of leaders (n=78) said yes, and 100% of frontline employees (n=32) said yes.

Figure 6

Belief That They Follow Safety Guidelines in the Workplace, and Model Safe Behaviour

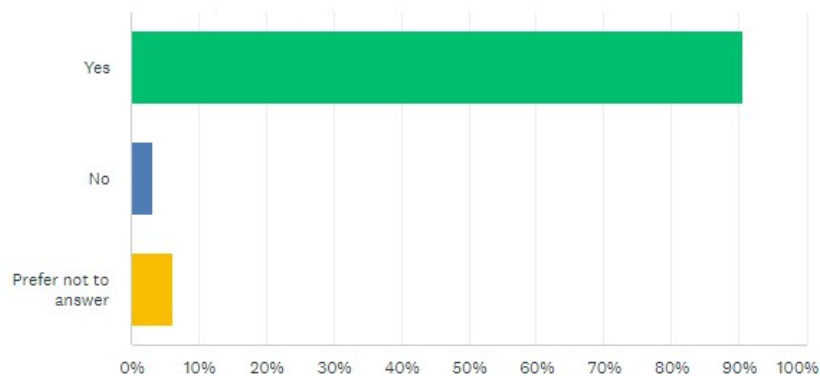


Frontline employees (n=32) were asked an additional question, which is “Do you believe that your leaders follow safety guidelines in the workplace and model safe behaviour? 90.63% said yes, 3.13% said no, and 6.25% preferred not to answer.

Figure 7

Belief That Your Leaders Follow Safety Guidelines in the Workplace, and Model Safe Behaviour

Respondents were then asked about risky behaviour in two ways. Leaders

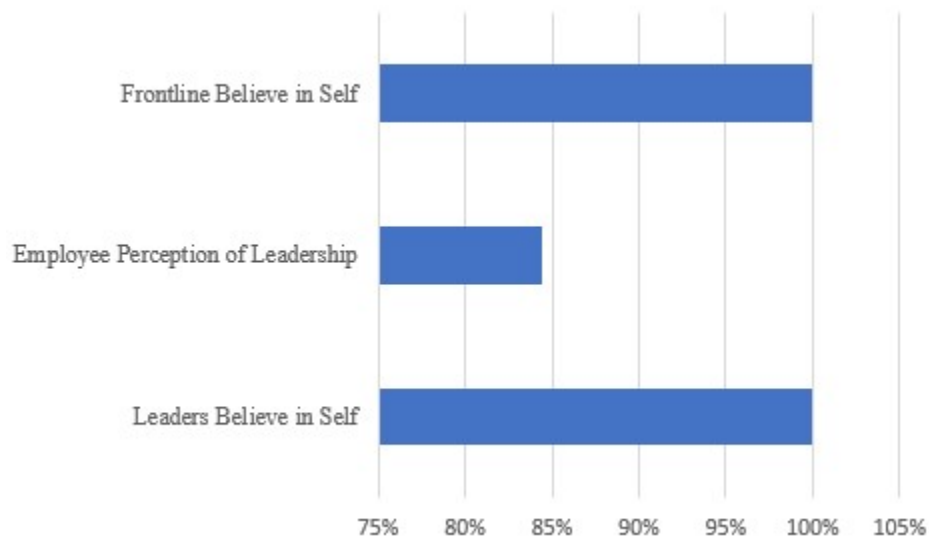


were asked if they believe they do their best to avoid risky behaviour, while

frontline employees were asked if they believe that leaders in their organization do their best to avoid risky behaviour. 100% of leaders (n=78) said that they do their best to avoid risky behaviour. 84.38% of frontline employees (n=32) perceived their leaders to avoid risky behaviour, 6.25% believe they do not, and 9.38% preferred not to answer. Frontline employees (n=32) were also asked if they avoid risky behaviour, and 100% of respondents replied yes.

Figure 8

Avoidance of Risky Behaviour



Next respondents were asked if they voluntarily carry out tasks or activities that help improve workplace safety.

Table 4

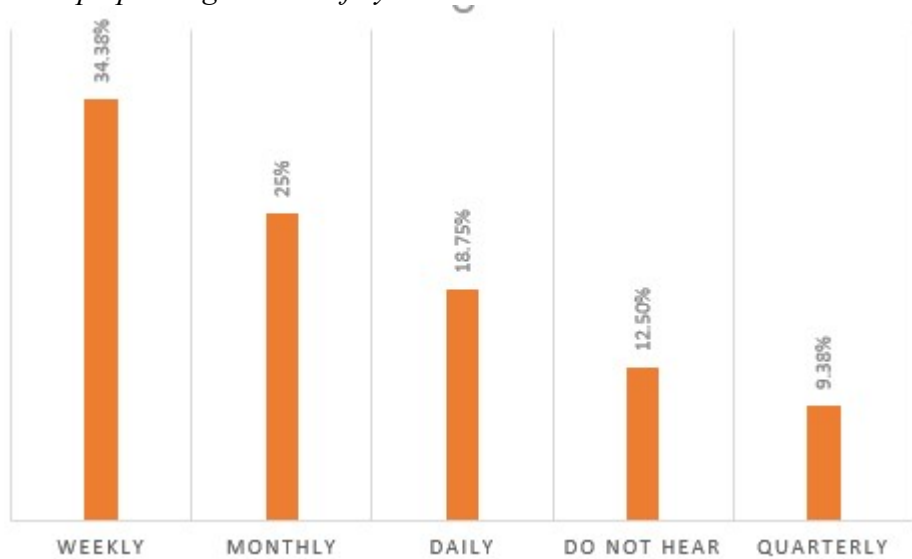
Do You Voluntarily Carry Out Tasks or Activities That Help Improve Workplace Safety?

	Leadership (n=78)	Frontline (n=32)
Yes	92.310%	87.50%
No	7.69%	9.38%
Prefer not to answer	0%	3.13%

Frontline employees (n=32) were then asked how often they hear their leadership speak about safety. 34.38% hear weekly, 25% hear monthly, 18.75% hear daily, 12.5% do not hear leadership speaking about safety and 9.38% hear quarterly

Figure 9

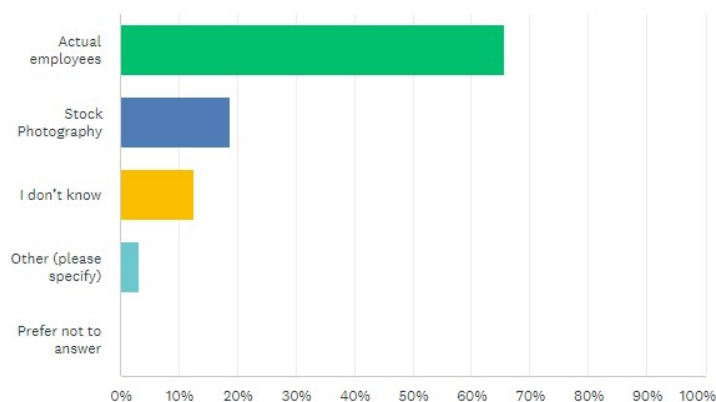
Leadership Speaking About Safety



When asked, “Does your organization use actual employees in visual safety communications, or do they use stock photography?” 65.63% of frontline employees (n=32) said actual employees, 18.75% said stock photography, 12.50% do not know, 3.13% said other.

Figure 10

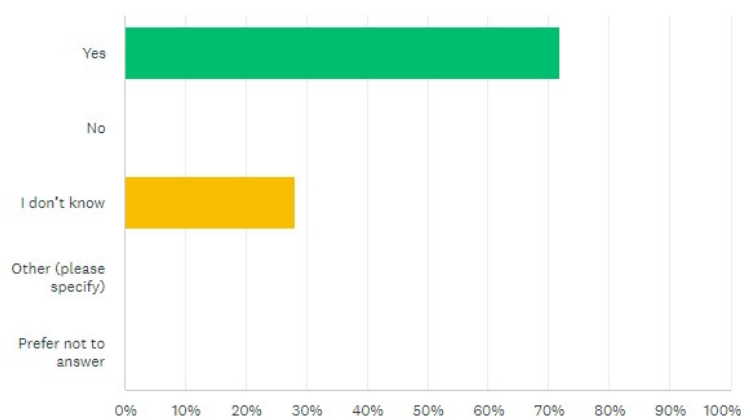
Actual Employees in Visual Safety Communications, or Use of Stock Photography



When asked if their organization had a way to measure safety, 71.88% of frontline employees (n=32) said yes, while 28.13% said they did not know.

Figure 11

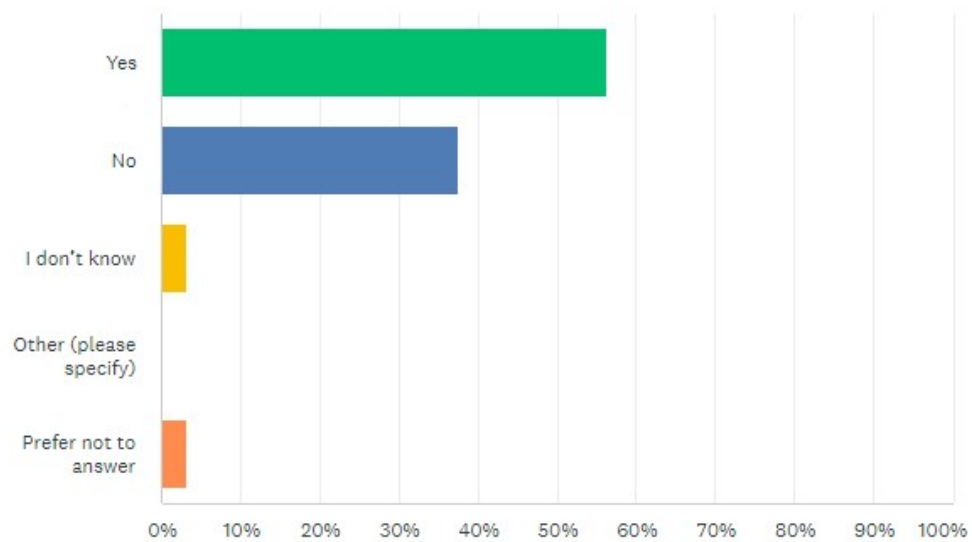
Measurement of Safety



Of frontline employees, 56.25% (n=32) responded that they see or hear safety messages daily, 37.5% said that they do not, 3.13% said they do not know if they do and 3.13% declined to answer.

Figure 12

Do You Hear or See Safety Messages Daily?

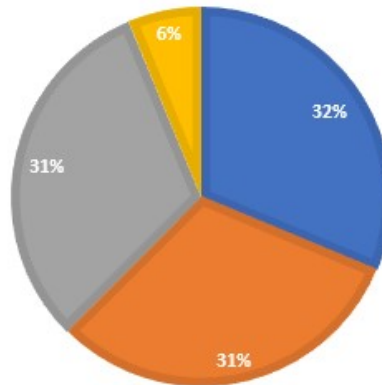


Perceived effectiveness of communications was asked of frontline employees showing, 32% of frontline employees (n=32) felt communications are somewhat effective, 31% felt they are better than average, 31% felt they are moderately effective and 6% felt they are 100% effective.

Figure 13

Do You Feel Safety Communications in Your Organization Are Effective?

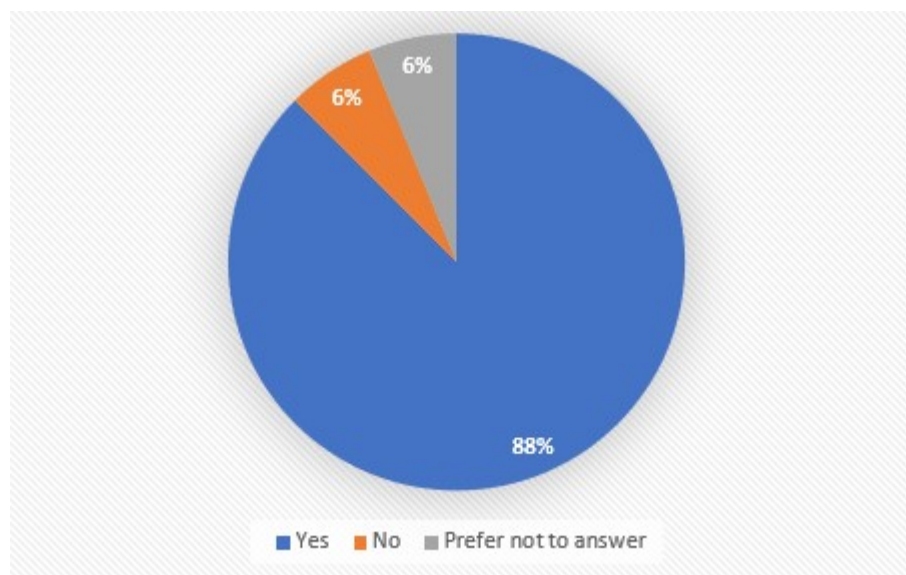
■ Somewhat effective ■ Moderately effective ■ Better than average ■ 100% effective



Respondents who identified as frontline employees (n=32) were asked “In your opinion, does your organization’s safety communications have a positive impact on safety?” 87.50% of employees feel that they do, 6.25% felt they do not, and 6.25% preferred not to answer.

Figure 14

Do Safety Communications Have a Positive Impact on Safety?



Lastly, all survey respondents (n=110) were asked “What do you feel are potential barriers to effective safety communications?”. The majority (n=108, 98%) skipped this question, with only two replying. Culture and messages not resonating were the two answers provided.

Analysis

This study was designed to identify the effectiveness of safety communications and the role that leadership plays in cultivating an effective safety culture. Specifically, this study focused on leadership communication and its effect on employee perception of safety. Trends found identified gaps and opportunities for leadership to impact the effectiveness of safety communications and the safety culture.

First, based on the survey findings, it appears there is a missed opportunity for increased leadership participation in safety communications, thereby positively impacting safety culture and perception of safety. Within many complex operational organizations there is an effort to improve safety, with a focus on empowering employees to practice safer standards. The data shows there is a definitive perception that safety communications play a pivotal role in safety culture, with the majority (87%) of frontline employees in agreement. However, employees in this study do not perceive that safety communications are 100% effective, with only 6.25% in agreement that safety communications play a pivotal role. Most reported safety communications are only somewhat effective to better than average.

Knowing that communication is impactful on safety culture, improving safety communications should lead to an improved safety culture. To that end, Sherwood (2017), stated “Communication and culture are intertwined; culture is lived through communication across the organization. A positive safety culture demonstrates effective communication guided by mutual trust, shared perceptions of the importance of safety among all members and leadership, and confidence that error-preventing strategies will work” (p.3).

In terms of perception of safety communication, over 90% of frontline employees believe that their leaders follow safety guidelines and model safe behaviour. However, only 34.38% hear about safety from leadership on a weekly basis. Given the evidence that communications are impactful on safety culture, this is a missed opportunity for organizations. In their study of “the effect of leadership, safety climate and safety culture on safety behaviours in nuclear power plants” Martínez-Córcoles et al. (2011). agree, stating that “When leaders behave as empowering leaders, they produce an appropriate safety climate, which results in a greater number of safety behaviours” (p. 1125). In terms of leadership behaviours, this study showed that the majority of leadership (92%) participate in carrying out tasks or activities to improve workplace safety. However, this study failed to identify if these activities are related to communications. Leaders as a whole (98.72%) view themselves as following safety guidelines and modelling safety behaviour. What is interesting though, is that when asked who has accountability for safety, 52.73% of all respondents replied that responsibility sits

with Safety and Security. Because of this it is unclear if leadership safety behaviour contributed to a positive safety culture.

So, how critical is it that leadership plays a role in safety communications? It would seem that safety behaviour combined with communication is key. For example, “There is a consistent body of literature that illustrates the important role that different management levels play in influencing perceptions of safety climate. In particular, leaders’ behaviours, leadership styles and practices influence employees’ perceptions of the importance that the organisation places on safety as well as behavioural expectations regarding safety” (Lekka & Healy, 2012; Barling et al., 2002; Kelloway et al., 2006; Clarke & Flitcroft, 2008; McFadden et al., 2009; Mullen & Kelloway, 2009). One could argue that leadership should be accountable for both safety culture and overall effectiveness of safety communications as it ultimately drives the safety culture or climate. For example, Kelloway & Barling (2010) argue in Lekka & Healy (2012), “Safety climate has been defined in terms of shared perceptions of leaders’ behaviours such as management policies and practices, and therefore, ‘it is a small leap to assume that leaders who are seen as promoting safety would also create a positive safety climate’” (p. 267).

The most commonly used safety communications model used in participating organizations was one-way communications (60.91%), such as a poster, eblasts or a wall graphics. One-way communications are arguably passive communications that impede the opportunity for a dialogue and interaction with senior leaders. This was illustrated by Lekka and Healy (2012) who explored

passive leadership and the outcome on safety and found that, “active and passive leadership had distinct positive and negative effects on safety-related outcomes respectively. Specifically, passive leadership was associated with a decrement in safety-related outcomes in terms of safety consciousness and safety climate; it was also associated with an increase in safety-related events and injuries” (p.22). It is also notable that post pandemic as organizations return to hybrid work structures, traditional top-down messaging may no longer be effective. In fact, the Harvard School of Business (2021) spoke to 600 CEOs about *The Pandemic Conversations that Leaders Need to Have Now*, emphasised the need for conversation.

So, what is contributing to the frontline employee’s perception of safety? The data from this study shows it is a combination of both leaderships’ behaviour and communications. Specifically, the data shows leadership believe it’s important to model safety behaviour, with 79.49% saying it is a 10 on a scale of 1 to 10 with 10 being most important. When asked if they believe they follow safety guidelines in the workplace, and model safe behaviour, the majority (98.72%) of leaders said yes. Interestingly, all of the frontline employees said yes when asked the same question about leadership indicating there was a shared perception between both employees and leadership. Yet, in a study by Hoffmeister (2013), it was found “idealized attributes were the most important for establishing a positive safety climate” (p.75). Leaders who actively participate in safety activities, must also show idealized values, Hoffmeister’s study argues that “a leader’s values and the way a leader is perceived by employees (e.g., respected,

trusted) may be more important than engaging in particular motivating, stimulating, coaching, or rewarding behaviours” (p.75). While the data shows that leadership believes it is important to model safe behaviour, the question remains if that is all that is contributing to an overall positive safety culture or climate. Perhaps communications are reinforcing the organization's values and beliefs. Furthermore, many leaders have not been on site for the past two years, so modelling of safety behaviours may not be as impactful as it once was. Moreover, when frontline employees were asked if they believe that leaders in their organizations do their best to avoid risky behaviour, 84.38% perceived this to be true. Frontline employees were also asked if they avoid risky behaviour, and all of the respondents replied yes. Both of these indicate that there is a perception of importance placed on safe behaviour shown in the data.

Frontline employees (87%) perceive that safety communications have a positive impact. Is it the combination of behaviour and communications that contributes to an overall safe culture? Real & Cooper (2009) think so, as “safety communication satisfaction was positively related to perceptions of management commitment, prioritization, supervisory communication and self-reported safety behaviours” (p.21). What would elevate the perception of safety to even higher levels? The findings of Real & Cooper (2009) believe it’s about open communication environments, wherein employees “feel comfortable in seeking out safety information, have expectations of receiving safety information, are satisfied with the extent to which safety information is made available to them” (p.22). Their research showed that this open communication climate “may then

contribute to greater safety-related interaction among workers which could lead to effective approaches to addressing existing and potential hazards” (Real & Cooper, 2009 p.22)

The answers to the final survey question are limited, however they reference both culture and messages not resonating as potential barriers to safety communications. While the data shows that frontline employees receive information, it is not able to determine if the content resonates. Given that the majority of communication outlined in the data is one way, such as posters and newsletters, the absence of two-way asymmetrical communication may lead to an inability for leadership to have a dialogue and ensure that the content is meaningful.

Limitations

There are several limitations to this research which include size and homogeneity of the research sample, potential sample bias given the researcher’s social network, anonymity of the sample, and time bound nature of the research.

This research employed only one questionnaire which may limit any findings to generalizations. In order to determine specific trends, further and broader research would need to be conducted. This sample is based on an anonymous questionnaire, which limits trends as there is no opportunity for in depth analysis that traces back to specific communication strategies within an organization. In order to expand on the research, in person interviews should be conducted to allow for further exploration. However, as safety concerns are not

readily transparent when speaking to organizations, it may be challenging to remove the anonymity. Corporations could be concerned about the critical nature of safety in these operational environments and potential liability and therefore, not be open to participation.

The researcher is an employee of the Greater Toronto Airports Authority, which operates Toronto Pearson Airport. This relationship may create a potential bias in analysis of the data. The researcher's personal LinkedIn network was used to recruit participants. While social media allowed for her network to be extended through distribution of the survey, it limited the recruitment of frontline employees as many people in the researcher's extended network are in senior level roles in the same or similar industries. This resulted in a small frontline employee sample and a larger leadership sample size.

In addition, the survey structure did not provide leaders with an opportunity to answer all questions, which resulted in the researcher's inability to do direct data comparisons. When asking leadership about their safety behaviours, the survey also failed to identify specific communications behaviours, and could have been more detailed in the tools and methods used by leadership. The survey could have asked more about leadership onsite presence, particularly during this post-pandemic time as organizations move toward a more hybrid environment.

Respondents who elected to complete this survey may have self-selected to complete the survey based on their individual interest in safety and safety effectiveness. Individuals who have no interest in safety may have opted out.

This survey did not collect any demographic information from respondents.

As the researcher analyzed the data, she identified a missed opportunity to ask questions regarding the connection between safety culture and safety communications which creates a gap in the research. If companies would be willing to deploy such a survey in house, research could be done to determine the effectiveness of communications in relation to safety incidents. However, organizations may be concerned about potential liability as research data may show a correlation between ineffective safety communications and increased safety incidents. Still, it would be an interesting opportunity to make the definitive connection between safety incidents and safety communications.

Lastly, this research is time bound, as it is being completed for academic purposes and does have a submission deadline.

Conclusions and Future Research

This research highlights the need for public relations practitioners to consider the role of leadership's behaviour and communication in the perception of safety culture. Specifically, this research shows that leadership who use one-way communications models may not be as impactful as those who use two-way asymmetrical models. The research also identifies the need for leadership to not only model safety behaviour, but to actively engage with frontline employee safety communications.

How can organizations rethink the role their senior leadership plays in safety communications? This study highlights the need to consider if leadership should play a larger role and be more accountable for the perception of safety in the workplace. The majority (> 80%) of respondents felt that leadership does its best to avoid unsafe or risky behaviour, but an expanded study could seek to look at if behaviour alone is enough to improve the perception of safety.

This research examined how and in what way leadership may impact the success of a safety culture in a highly complex operational environment. Consideration was also given to the behaviours of leadership, and the effectiveness of the leadership role in the dissemination of communications. How and in what ways effective safety communications involving leadership may impact the perception of safety among employees in the workplace and ultimately the safety culture was also examined.

As we look to the future, and organizations move to hybrid workplace models whereby leadership and management roles may be remote, and frontline operational employees are onsite, organizations will need to rethink the way in which leadership communicates effectively about safety. This new hybrid work environment, which has emerged as a result of the COVID-19 pandemic, will need further exploration and research. Research such as this is important for organizations to identify opportunities to improve the perception of safety in the workplace.

This divide in workforces may also impact the success of current organizational models. As the data in this research shows, one-way

communications are the most commonly used forms of safety communications. Safety posters and wall graphics have historically played a large role in highly complex organizational settings. With a hybrid workforce, the effectiveness of on-site communications will likely be reduced. Consideration could be given to examining if images of leadership and management in safety messaging improves perception of safety. Only 65% of respondents identified that their organization uses actual employees in visual safety communications. Further exploration could be done to determine if leadership and management participation in visual communications is effective. Visual communications, such as video or photography, could also be used in electronic channels in addition to wall graphics and posters, leading to a leadership safety presence for those on site as well as remote workers.

While this study focused on formal communications, it might be impactful to also seek to learn more about the impact on informal safety communications as a result of a hybrid workplace. “Beyond offering a richer medium for information exchange, sharing a common space provides opportunities for sustaining social relationships (through touching, eating/drinking, and informal interactions) which is a precondition for effective communication” (Oz & Crooks, 2020, p.7). Being onsite, could allow employees to build meaningful relationships with managers and leadership, which in turn could allow for more effective communications. As Oz and Crooks point out, we learn by observing, even if not consciously (p.7). If employees are unable to observe leadership or their colleagues participating in safe workplace behaviour, will communications alone be enough to create a safety

culture? In our efforts to keep employees safe, it's possible that "the new policies for COVID-19 prevention, such as social distancing and working from home have intervened on the trust and relationships between managers and employees. Remote-working environment has impacted organizational leadership" (Chen & Sriphon, 2021, p.18)

Further research could be done to determine if demographic groupings show trends or identify opportunities for safety communications. For example, millennials may respond differently to different communication modes vs. boomers. The hybrid workforce model may also provide an area of further exploration. In this new era of the hybrid workplace, remote workers are seeking "quick questions and clarifications via instant messaging" (Oz & Crooks, 2020, p.2) which is more of a symmetrical communications model, providing another opportunity for further research.

Further research could also extend recruitment through other social media networks such as Twitter or Facebook. Another opportunity would be to target safety associations and trade unions to see if they would be willing to deploy the survey to their members.

Lastly, while most safety communications often focus on accident or injury, the COVID-19 pandemic also changed safety to wellness for many organizations. As a part of keeping the workforce safe from the COVID-19 virus, some organizations inserted wellness into their safety programs. As the COVID-19 pandemic progresses, with some organizations switching to permanent hybrid models, there is high potential for increased stress and an impact to mental health.

“Change is stressful and these COVID pandemic conditions are fundamentally changing how staff interact with their colleagues, how they spend their working hours” (Norton, 2020, p.5) However, onsite employees may also be impacted by pandemic stress, and high accident rates are indicative of potential mental health struggles and mental health issues may be a driving factor in an increase in accident rates or unsafe behaviour. (Norton, p.12) Future research could look at this facet of leadership safety communications.

This study found that both leadership behaviours and communications had the largest impact on safety culture. Given that, it is suggested that the two-way asymmetrical model should be further explored. As leadership actively engages in safety behaviours it would be prudent for them to be considering their role in safety communications and dialogue. Moreover, with the advent of the hybrid workplace, leadership may need to rethink the ways in which they engage and communicate with both on-site and hybrid workforces recognizing that these two employee types will have different needs.

Appendix

Table 1

Survey Questionnaire

	Now that I've read all of the options, I work in the following type of operational environment or industry:	<ul style="list-style-type: none"> • Aviation • Rail • Bussing • Other transportation type • Utility Company • Hospital or Health care • Mining • Energy • Other complex operating environment (comment box to identify) • I do not work in an operational environment.> Thank you for your time. It is important that we speak with employees in operational environments for this research. • I have decided not to participate in this survey. > Thank you for your time. • Prefer not to answer> thank you for your time.
	Does your organization distribute safety communications with employees?	<p>Yes> continue with survey</p> <p>No> thank you for your time, it is important that we connect with those whose organizations distribute safety communications</p> <p>Prefer not to answer> thank you for your time.</p>
	Please select all the ways that your organization uses to communicate with employees regarding safety. (Select all that apply)	<ul style="list-style-type: none"> • Employee newsletters • Posters • Internal intranet site • Yammer or other internal Social Media • Email • In person meetings • Wall graphics or floor graphics • Other (please describe) • None of the above (please describe) • Prefer not to answer

Table 1 (continued)

2	Within your organization, who sends out safety messages? (Select all that apply)	<ul style="list-style-type: none"> • The CEO • VP or Executives • Managers • Supervisors • Frontline Employees • External Provider • Other (please describe) • Prefer not to answer
3	In your organization, where does accountability for safety communications reside?	<ul style="list-style-type: none"> • Human Resources • Operations • Public Relations • Safety and Security • Other (please describe) • Prefer not to answer
4	Are safety messages in your organization typically...	<ul style="list-style-type: none"> • One way communication, such as a poster, eblast or a wall graphic • Two-way communication, such as a survey or a discussion post • Two-way symmetrical communication, such as a group discussion or a tiger team • Other (please describe) • Prefer not to answer
5	<p>If you are in a leadership role, how often do you speak to employees about safety?</p> <p>(If this question is answered, move to question 6.)</p>	<ul style="list-style-type: none"> • No, I am not in a leadership role> go to question 11 • Daily • Weekly • Monthly • Quarterly • Bi-Annually • Annually • I do not speak to employees about safety • Prefer not to answer
6	<p>On a scale of 1 to 10, with 1 being least important and 10 being most important, how important do you believe it is for those in leadership to model safe work practices?</p> <p>Move to question 7</p>	<p>10-point scale</p> <p>Option of “Not applicable”</p>
7	As a leader, what types of safety communications or events do you participate in?	<ul style="list-style-type: none"> • Storytelling in newsletters or employee messaging boards • Safety week events • Daily safety talks • Townhall safety messages • Speaking at conferences or events

	Move to question 8	<ul style="list-style-type: none"> • Other (please describe) • Prefer not to answer
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Table 1 (continued)

8	Do you believe that you follow safety guidelines in the workplace, and model safe behaviour? Move to question 9	Yes No Prefer not to answer
9	Do you believe that you do your best to avoid risky behaviour? Move to question 10	Yes No Prefer not to answer
10	Do you voluntarily carry out tasks or activities that help improve workplace safety? Move to question 19	Yes No Prefer not to answer
11	As a frontline employee, how often do you hear leadership speaking about safety? Move to question 12	<ul style="list-style-type: none"> • Daily • Weekly • Monthly • Quarterly • Bi-Annually • Annually • I do not hear leadership speaking to employees about safety • Prefer not to answer
12	On a scale of 1 to 10, with 1 being least important and 10 being most important, how important do you feel it is for those in leadership roles to model safe work practices? Move to question 13	10-point scale Option of “Not applicable”
13	As a frontline employee, what types of safety communications or events do you participate in? Move to question 14	<ul style="list-style-type: none"> • Storytelling in newsletters or employee messaging boards • Safety week events • Daily safety talks • Townhall safety messages • Speaking at conferences or events • Other (please describe) • Prefer not to answer
14	Do you believe that you follow safety guidelines in the workplace, and model safe behaviour?	Yes No Prefer not to answer

	Move to question 15	
15	Do you believe that your leaders follow safety guidelines in the workplace, and model safe behaviour? Move to question 16	Yes No Prefer not to answer

Table 1 (continued)

16	Do you believe that senior leaders in your organization do their best to avoid risky behaviour? Move to question 17	Yes No Prefer not to answer
17	Do you believe that you do your best to avoid risky behaviour? Move to question 18	Yes No Prefer not to answer
18	Do you voluntarily carry out tasks or activities that help improve workplace safety? Move to question 19	Yes No Prefer not to answer
19	Does your organization use actual employees in visual safety communications, or do they use stock photography?	<ul style="list-style-type: none"> ● Actual employees ● Stock Photography ● I don't know ● Other (please specify) ● Prefer not to answer
20	Does your organization have a way to measure safety?	Yes No I don't know Other (please specify) Prefer not to answer
21	Do you hear or see safety messaging daily?	Yes No I don't know Other (please specify) Prefer not to answer
22	Do you feel that safety communications in your organization are effective?	<ul style="list-style-type: none"> ● Not effective at all ● Somewhat effective ● Moderately effective ● Better than average ● 100% effective ● Prefer not to answer
23	In your opinion, does your organization's safety communications have a positive impact on safety?	Yes No- go to question 24 Prefer not to answer

24	What do you feel are potential barriers to effective safety communications?	<ul style="list-style-type: none"> ● Leadership ● Culture ● conflicting priorities ● unclear communications ● messages don't resonate ● Other – please explain
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