Leadership Style as a Predictor of Employee Safety Performance in the Oil and Gas Industry

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Abstract

Some managers experience challenges in addressing workplace safety concerns and employees' needs to enhance worksite safety performance. This quantitative simple linear regression research examined if/to what extent a relationship existed between managers' safety-specific transformational leadership style and employee safety performance in the oil and gas industry in southeast Saskatchewan, Canada's oil and gas industry. We used 89 valid anonymous responses from 32 organizations for the data analysis. The statistical test showed managers' safety-specific transformational leadership styles could significantly predict employees' safety performance ($F(1, 89) = 49.03$, $p<0.001$, $R^2 = 0.36$). Additionally, the curve estimation of the data revealed that about 35.4% to 38.30% of the change in employees' safety performance was attributed to managers' safety-specific transformational leadership behaviors. This research has broad implications, a medium to large effect size, and a higher confidence level. The findings of this research encourage the oil and gas businesses to promote and grow more safety-specific transformational leaders to attain higher employee safety performance excellence in the industry.

Keywords*:* Safety-specific transformational leadership, safety motivation, safety incident, and safety performance

Introduction/Background

Leadership involves efficiently making a difference in the personal and professional lives of colleagues, subordinates, business organizations, communities, and other stakeholders. Business issues are essential, especially those related to human suffering or losses due to preventable or controllable workplace incidents. Employee safety performance is a critical business issue for the employees and colleagues working together around the safety-sensitive oil and gas job sites and the families and loved ones waiting for their safe arrival at home.

Both the province of Saskatchewan and Canada face significant workplace incidents each year, causing a tremendous amount of lost-time injury claims and even fatalities. There were 334 fatalities in Canada-wide, and Saskatchewan experienced 15 workplace fatalities in 2021. The compensation provided by Canada to the injured workers was 7,993.6 million dollars, 8439.6 million dollars, 8612.3 million dollars, and 9,128.0 million dollars in 2018, 2019, 2020, and 2021 respectively. Saskatchewan's WCB paid 215.8 million dollars, 222 million dollars, 222.0 million dollars, 215.7 million dollars, and 228.6 million dollars to the injured workers in 2018, 2019, 2020, and 2021 respectively (Association of Workers' Compensation Boards of Canada, n.d.-a, n.d.-b, n.d.-c, n.d.-d). Hence, it is pertinent for the business world to proactively address workplace safety-related issues, especially employee safety performance and appropriate leadership style. Scholars extensively studied workplace safety, leadership styles in general, and the significance of safety leadership for workplace safety in the past.

Various oil and gas industry studies discovered or recommended multiple leadership styles for workplace safety or employee safety performance. Further, as per Furey and Rixon (2020), leadership lacked, to some extent, commitment and honesty in Atlantic Canada’s offshore oil sector. Despite being mandated by the Canada Energy Regulatory, only 72% of the oil and gas industry companies allocated the resources to grow the safety culture (Government of Canada: Canada Energy Regulator, 2021) in 2020. On the other hand, Addo and Darty-Baah (2019) claimed that the transformational leadership style of leaders could predict employee safety behaviors, also referred to as employee safety performance. Thus, there was contradictory or confusion and ambiguity on what leadership style business organizations and managers in the oil and gas industry in southeast Saskatchewan, Canada, could or should embrace to cultivate and grow higher employee safety performance in the workplace to generate values for multiple stakeholders, including owners/investors, communities, and employees of the business organizations.

Literature Review

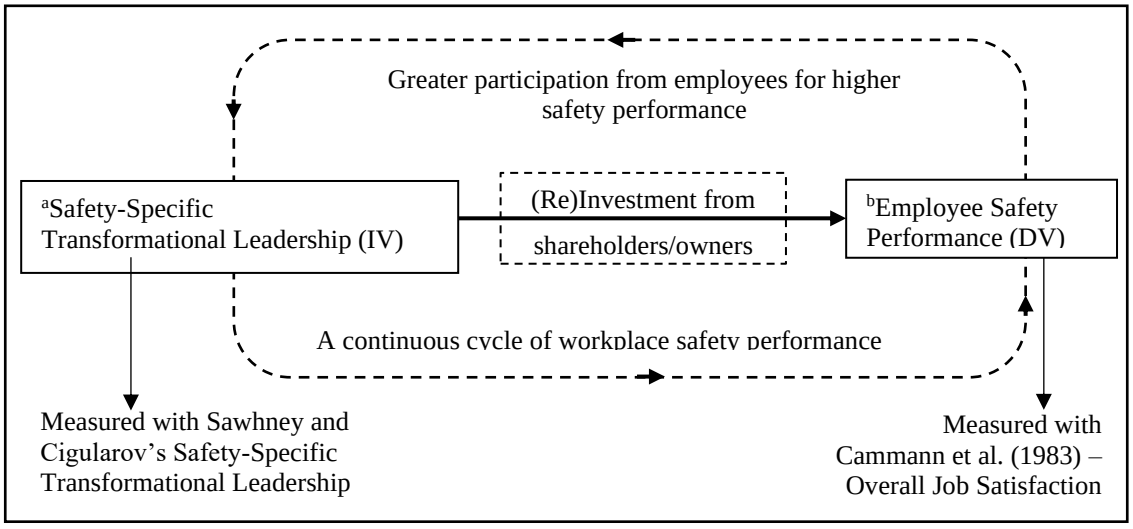
To complete the extensive literature review in this research, the researchers scanned the reference pages of credible peer-reviewed journal articles by previous scholars. We reviewed the secondary sources, websites, conferences, and other such sources and cited if required to provide a specific context to the readers. Even though it appeared there were over 110 years of workplace safety literature (Eastman, 1910; Hofmann et al., 2017), due to the limited time and resources, we primarily focused on how the research variables: safety-specific transformational leadership and safety performance had been researched since 2018 to date.

Transformational Leadership

A transformational leader can be described as "one who motivates us to do more than we originally expect to do" (Bass, 1985a, p. 20, 1985b, p. 31), which is also introduced as "the one, best way to lead" (Willis et al., 2021). During the literature review of past studies, this research observed that scholars were primarily inspired by Burns' (1978, 2003) definition or Bass' (1985a) interpretation of transformational leadership. In short, transformational leadership is a change agent (Kariuki et al., 2022) which motivates subordinates to attain more meaningful goals for teams, organizations, or individuals by "challenging the status quo" (Mwesigwa et al., 2020, p. 255). The conceptual framework for this research included the Full-Range Leadership Model (FRLM) by Bass (1985a). The FRLM is a generic leadership theory with three separate categories: transformational, transactional, and laissez-faire, also known as "non-leadership" (Bass & Riggio, 2006, p. 7) or passive-indifference (Bass & Riggio, 2006; Draghici et al., 2022; Khan et al., 2014; Lee et al., 2019; Northouse, 2019, 2022; Yukl, 2013). Employee (safety) performance or job-satisfaction was the second theory in the conceptual framework of this research. The Theoretical Framework: Leadership Styles as a Predictor of Employee Safety Performance depicts the study's theoretical framework (See Figure 1).

Figure 1

Theoretical Framework: Leadership Styles as a Predictor of Employee Safety Performance



[a]Safety-Specific Transformational Leadership is the independent variable (IV) measured with the customized eight-item measuring instrument Sawhney and Cigularov (2019) utilized for safety-specific transformational leadership behaviors in this research.
[b]Employee Safety Performance (DV) is the dependent variable measured with the three-item Overall job satisfaction survey by Cammann et al. (1983) in this research.

Components of Transformational Leadership

Past scholars identified multiple components (three, four, and even six components) of transformational leadership. Bass (1985a) alluded that transformational leadership had "three components: charisma, intellectual stimulation, and individualized consideration" (Hofmann &

Morgeson, 2004, p. 176), and Podsakoff et al. (1990) recognized six behaviors or components of transformational leadership, as also cited by Ferozi and Chang (2021) and Peng et al. (2020): articulating a vision, fostering the acceptance of group goals, setting high-performance expectations, providing an appropriate model, intellectual stimulation, and individualized support" (p. 112). Past scholars, such as Bass and Avolio (1990), Bass and Riggio (2006), Hoch et al. (2016), Irshad et al. (2021), Kayaalp et al. (2021), Minhaj et al. (2019), Mwesigwa et al. (2020), Peng et al. (2020), Smith et al. (2020) studied the four components or 4I's of transformational leadership: Idealized Influence (II), Inspirational Motivation (IM), Intellectual Stimulation (IS), and Individualized Consideration (IC). The 4I's are components of transformational leadership as explained by Bass and Riggio (2006, pp. 5-7) and measured safety-specific transformational leadership (independent variable) with the customized eight-item measuring instrument inspired with Barling et al. (2002), by Sawhney and Cigularov (2019). Despite the criticism regarding transformational leadership pointed out by Yukl (1999), Northouse (2019), and Andersen (2015), transformational leadership has a broader application, as Burns (1978) claimed and posited that safety-specific transformational leaders, with those four specific components (II, IM, IS, and IC), might generate an "additive effect" (Northouse, 2019, p. 273, 2022), motivating subordinates to attain higher safety performance.

Safety Performance/Job Satisfaction Theory

Safety performance in this research represented employees' ability to perform the job safely, minimizing workplace injuries or preventing workplace incidents while complying with the applicable rules and regulations (Barling & Frone, 2004; Barling et al., 2002; Najj et al., 2021). The literature agree that a close relationship exist between workplace injuries, accidents, and motivation (Mariani et al., 2015). On the other hand, "job satisfaction is the pleasurable emotional state resulting from the appraisal of one's job as achieving or facilitating the achievement of one's job value" (Locke, 1969, p. 316). As per Robbins and Judge (2018) and Spector (2022), job satisfaction is an attitude and "the extent to which people liked (satisfaction) or disliked (dissatisfaction) their jobs" (Spector, 1997, p. 2). Simply put, employees with higher job satisfaction have greater positive feelings towards their jobs than employees with lower job satisfaction.

Safety-Specific Transformational Leadership (Predictor)

Safety-specific transformational leadership (SSTL) is the only predictor variable of this research. Business researchers have extensively studied safety-specific transformational leadership to examine or explore the effectiveness or impact of safety-specific transformational leadership on workplace safety. Despite the previous research, such as Lu et al. (2019) and Mirza and Isha (2020) on workplace safety and safety leadership, Irshad et al. (2021) called out the limited knowledge of safety leadership in the body of literature and completed a quantitative time-lagged study to examine if/to what extent safety-specific transformational leadership and safety consciousness of healthcare workers impact the employees' perceived risk on COVID-19 and psychological well-being at the workplace.

Safety Performance (Outcome Variable)

According to Campbell et al. (1993), “performance is what the organization hires one to do and do well” (p. 40). The opponents of Campbell et al. (1993) model of performance criticism, such as Hesketh and Neal (1999), also noticed by Neal et al. (2000, p. 101) that Campbell et al. (1993) do not consider “the situational factors” that can impact the individual's performance. Nevertheless, Campbell et al. (1993) significantly reviewed and cited literature on performance. Adapting the concept from the definition of performance by Campbell et al. (1993), should safety-sensitive organizations or industries, as noted in Burke et al. (2002, p. 431), such as chemical processing, manufacturing, and mining, define safety performance in what the organizations hired employees to do and do well.

For this research, safety performance was defined as the employees’ workplace safety-related job performance as (un)expected by the business leaders, including managers and supervisors, business organizations, industry, and the laws. The quality of employee safety performance can be expected because, as Campbell et al. (1993) define it, this research posited that employees in the oil and gas industry in southeast Saskatchewan, Canada, are considered *hired to do work and do it safely*. The business organizations in the oil and gas industry in southeast Saskatchewan, Canada, generally provide employees with workplace health and safety orientation to be informed on workplace safety expectations and to perform their jobs safely.

Safety-Specific Transformational Leadership and Safety Performance

Literature, such as Zhao et al. (2022), discover the relationship between safety-specific transformational leadership and safety participation. Additionally, various literature on safety-specific transformational leadership and safety behaviors (Draghici et al., 2022), optimal safety leadership and safety performance (Willis et al., 2021), safety-specific transformational leadership and employee’s near-miss recognition ability (Lu et al., 2019), safety-specific transformational leadership and employee’s learning goal orientation (Lu et al., 2019), safety-specific transformational leadership and workplace accidents (Mirza & Isha, 2020), safety-specific transformational leadership and safety voice (Conchie et al., 2012), and safety-specific transformational leadership and safety motivation (Smith et al., 2020) indicate that safety-specific transformational leadership and employee safety performance having, to some extent or significant statistical relationship.

Further, based on the findings of multiple literature, we posited that general leadership style of transformational leadership and employee performance had to have, to some extent or significant relationship even though Nelviana et al. (2022) suggested that there was no significant relationship between transformational leadership and employee performance during COVID-19 pandemic on remote working employees in various companies in Jakarta. Further, Chen et al. (2018) discovered a “U-shaped relationship” (p. 19) between transformational leadership and employee task performance in northern China’s specific manufacturing, telecommunications, and hotel industries, as well as the Bank of China. In addition, Bazzoli et al. (2020) reported that safety-specific transformational leadership, also known as transformative safety leadership, predicted a promotive safety voice in the workplace.

The literature review during this research experienced no knowledge or limited knowledge on if/to what extent safety-specific transformational leadership could predict employee safety

performance in the oil and gas industry in southeast Saskatchewan, Canada. Thus, the following research question and hypothesis are used for this research:

Research Question (RQ): Do Safety-specific transformational leadership style scores of managers predict employee safety performance in the oil and gas industry in southeast Saskatchewan, Canada?
Null Hypothesis 1 ($H1_0$): Safety-specific transformational leadership style scores of managers do not significantly predict employee safety performance in the oil and gas industry in southeast Saskatchewan, Canada.
Alternative Hypothesis 1 (H1a): Safety-specific transformational leadership style scores of managers do significantly predict employee safety performance in the oil and gas industry in southeast Saskatchewan, Canada.

Methods

This research study utilized a quantitative, simple linear regression design. The two primary data sources were the safety-specific transformational leadership instrument and the employee-perceived overall job satisfaction instrument, excluding the demographic questionnaires. The existing survey instrument was adopted for safety-specific transformational leadership style (predictor) customized by Sawhney and Cigularov (2019). Further, Sawhney and Cigularov (2019) completed the confirmatory factor analysis (CFA) on the measuring instrument in their study's context. Thus, this research reused Sawhney and Cigularov's (2019) safety-specific transformational leadership instrument by following the approach of previous scholars and had a Cronbach's alpha of 0.93. The employee-perceived overall or global job satisfaction survey developed by Cammann et al. (1983) was used even though there was a debate in academia about whether global job satisfaction or facet-composite job satisfaction survey had greater validity (Bowling & Zelazny, 2022).

Population and Sample

This research study was conducted in southeast Saskatchewan, Canada's oil and gas industry. The participants were associated with multiple business organizations that provided products and services to the local oil and gas industry, including contractors and self-employed persons, and internal employees of the business organizations that explored, extracted, produced, and refined oil and gas energy in southeast Saskatchewan, Canada. A convenience sampling strategy and G*Power 3.1.9.4 software were used to determine the sample size. Effect size was 0.30, type I error (α) was 0.05, and type II error ($1-\beta$) was 0.80 to calculate the sample size. The likelihood of type I and type II errors were reduced with a confidence level of 95%. This research's minimum sample size was 29 employees working in the oil and gas industry in southeast Saskatchewan, Canada.

Data Collection Procedures

Paper format survey packages were created for participants who preferred paper format and online versions of survey instruments with the help of SurveyMonkey online platform for the participants who chose technology to complete the survey instruments. Responses were collected from the population interested in participating in this research voluntarily. Before and after

reviewing the consent form, the potential participant could freely decide to leave the study or proceed to complete the survey instruments of this research. Participants completed the surveys electronically via SurveyMonkey online or returned the completed surveys to the author personally or via their company representative, enclosing them in sealed envelopes. The research participants from the oil and gas industry in southeast Saskatchewan, Canada, rated their managers' or supervisors' safety-specific transformational leadership styles on a Likert scale of 1 to 5, with 1 being "not at all" and 5 being "frequently, if not always." Finally, participants rated their overall job satisfaction on a Likert scale of 1 to 7, with 1 being "strongly disagree" and 7 being "strongly agree." The overall job satisfaction survey with three items used in this research also had an item with a Reverse (R) score.

Data Analysis

Invitations were sent to 41 business organizations, including larger and small oil and gas producers, contractors, and consultants, via emails and personal text messages. Among 41 business organizations, 31 oilfield businesses and one non-profit organization, which had the authority to inspect, issue, or reject operating licenses of the boiler and pressure vessels used in the oil and gas industry in southeast Saskatchewan, participated in this research. Nine business organizations did not respond to the invitations or did not wish to participate in this research. Ninety-seven responses (paper format: 34 and online surveys: 63) anonymous responses were collected from January 24 to January 31, 2023. Only one anonymous online response was submitted on February 1, 2023, after the deadline set by this research, which was also considered in the data analysis. Participants took about 2 to 10 minutes to complete online surveys, and most of the responses were submitted on the first day of the study (January 24, 2023). Thus, the response rate of the oilfield business organizations for this research was 78%, and a total of 89 valid responses were accepted for the data analysis of this research. In the data analysis procedure, the data were compiled, cleaned, and outliers addressed. The assumptions associated with the research design were assessed. Regression testing was performed. The results are reported below.

Results and Discussion

Descriptive Statistics

Demographic responses were coded to simplify the descriptive statistics analysis process in SPSS 28.0. We coded "male = 0," "female = 1," "yes = 1," and "no = 0" for both "EC" and "C" in SPSS 28.0. "EC" was short form for the oil and gas energy companies which explored, extracted, produced, refined, or transported oil and gas energy in southeast Saskatchewan, Canada, and "C" represented companies that provided products or services to the oil and gas industry in southeast Saskatchewan, Canada, including oilfield contractors/ consultants. "EM" in this research represented the research participants' experience in the number of years working with/under the current managers/supervisors, and "IE" was abbreviated for the participants' industry experience in the number of years in this research. Table 1 displayed the frequency and statistics associated with the demographic of the research participants.

Table 1

Frequency Table: Summary of the Demographic Data

Demographic Statistics	Full Sample			Demographic Statistics	Full Sample	
Gender	N	%		EC	N	%
Male	75	84.3%		No	40	44.9%
Female	14	15.7%		Yes	49	55.1%
Age				IE		
18-25	10	11.2%		1-5	14	15.7%
26-41	38	42.7%		5-10	16	18.0%
42-57	29	32.6%		10+	59	66.3%
58-67	11	12.4%		EM		
67+	1	1.1%		<1	17	19.1%
				1-5	35	39.3%
C				5-10	12	13.5%
No	14	15.7%		10+	25	28.1%
Yes	75	84.3%		5-10	16	18.0%
				10+	59	66.3%

Note. Table 1 represents the demographic statistics of the data collected from 89 participants.

Preliminary Statistics

Outlier Analysis

Outliers outside +3 to -3 standard deviations from the mean of each variable would be considered extreme outliers. The data analysis of this research did not reveal any extreme outliers in the collected data.

Reliability Analysis

Table 2 reported the reliability scores of research instruments for safety-specific transformational leadership (predictor variable), and employees perceived overall job satisfaction (response variable) in this research. The reliability scores of safety-specific transformational leaderships (predictor variable) with eight items and employees perceived overall job satisfaction scores (response variable) with three items to measure employee safety performance were significantly reliable in this research.

Table 2

Reliability Statistics

Variables	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Predictor Variable	0.924	0.929	8
Response Variable	0.900	0.908	3

Testing Assumptions Associated with the Research Design

Normality Testing

Normality testing is a statistical way to evaluate research data's (non)normal distribution. Table 3 displays the tests of normality associated with this research's data.

Table 3

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
LDRAVG	0.148	89	<0.001	0.892	89	<0.001
JSAVG	0.217	89	<0.001	0.844	89	<0.001

[a] Lilliefors Significance Correction

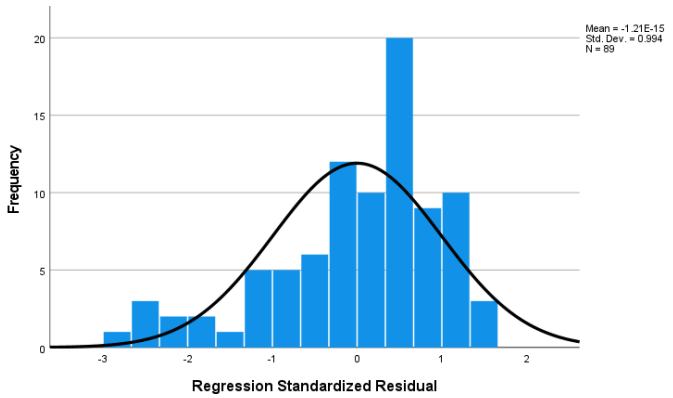
The p-values for both independent and dependent variables were significantly less than 0.05. However, "reporting p-value with null hypothesis testing" (Nahm, 2017, p. 241) is not a universally accepted practice or free from criticisms. Based on the literature, such as Nahm (2017), this research posited that p>0.05 did only mean "no evidence" of normal distribution of data. Still, it did not mean there was "evidence of no" normal distribution of the data. This research further analyzed skewness, kurtosis statistics, histograms, QQ plots, and PP-Plots of the dependent and independent variables to assess the normal distribution of the research data. The skewness and kurtosis of the research data should be within the range of +2 to -2 for the normal data distribution (Garson, 2012). In this research, the average scores of safety-specific transformational leadership had skewness of -0.962 with a standard error = 0.255 and kurtosis of 0.144 with a standard error = 0.506. The average scores of employees' perceived overall job satisfaction variable had skewness of -.1.166 with standard error = 0.255 and kurtosis of 1.129 with standard error = 0.506. We plotted histograms and QQ-plots of both research variables (independent and dependent variables) to make an informed decision on the (non)normal distribution of the research data or residuals.

The early data points emerged as an imaginary line closer to a slope of 45 degrees, though later, some data points scattered ununiformly. Based on this finding, we assumed that the data points

were approximately normally distributed enough to satisfy the assumption related to the normal distribution of the residuals of the dependent variable for this simple linear regression study. Figures 2 and 3 represent the approximately normal distribution of residuals associated with the dependent variable (JSAVG). Therefore, we determined to test the simple linear regression in the following section of this research.

Figure 2

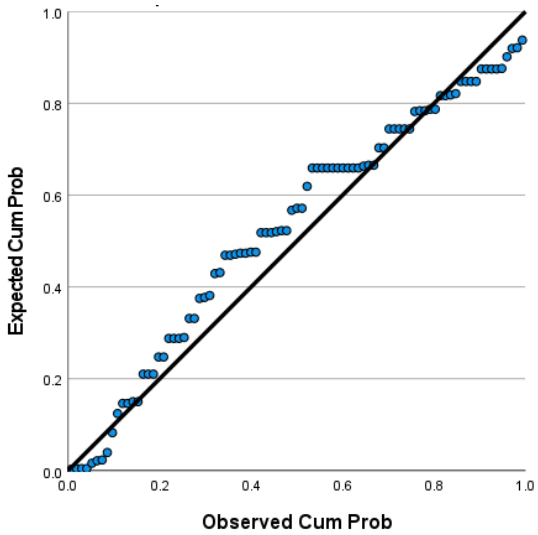
Histogram - Regression Standardized Residual (Dependent Variable -JSAVG)



Note. Histogram of regression standardized residual showing an approximately normal distribution of residuals associated with the dependent variable (JSAVG).

Figure 3

Chart: Normal P-P Plot of Regression Standardized Residual (Dependent Variable – JSAVG)



Note. Normal p-p plot of regression standardized residual showing an approximately normal distribution of residuals. "The P-P plot of the residuals is the preferred graphical tests for normality" (Flatt & Jacobs, 2019, p. 488).

Testing Linear Regression

In this section, we performed simple linear regression and developed various tables and charts associated with the regression test results. The Pearson correlation value displayed in Table 4 shows a significant relationship between the independent and the dependent variables.

Table 4

Correlations Test Results

		JSAVG	**LDRAVG**	**N**
Pearson Correlation	JSAVG	1.00	0.60	89
	LDRAVG	0.60	1.00	89
Sig. (1-tailed)	JSAVG	.	<0.001	89
	LDRAVG	0.00	.	89

The model summary (see Table 5) with R-square value of 0.36 is significant, which suggests 36% of change in employee safety performance (dependent variable) can be influenced by managers' safety-specific transformational leadership styles (independent variable).

Table 5

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.600[a]	0.36	0.35	0.68	0.36	49.03	1	87	<0.001

Note. Where applicable, each numerical number has been rounded to two decimal places using Microsoft Excel.

[a] Predictor: (Constant), LDRAVG

[b] Dependent Variable: JSAVG

Table 6 shows, the impact of managers' safety-specific transformational leadership on employees' safety performance is significant, $F(1, 87) = 49.03$, $p < 0.001$.

Table 6

ANOVA[a]

Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	22.92	1	22.92	49.03	<0.001[b]
	Residual	40.66	87	0.47		

	Total	63.58	88			

Note. Where applicable, each numerical number has been rounded to two decimal place using Microsoft Excel.
[a] Dependent Variable: JSAVG
[b] Predictor: (Constant), LDRAVG

Multicollinearity

Multicollinearity was tested in this study and findings indicated no significant issue.

Residuals

Table 7 shows various statistics associated with residuals, such as Cook's distance with minimum value of 0 and maximum value of 0.264 indicating the residual or point is not highly concerning in this study.

Table 7

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	4.70	6.72	6.17	0.51	89
Std. Predicted Value	-2.89	1.07	0.00	1.00	89
Standard Error of Predicted Value	0.07	0.22	0.10	0.03	89
Adjusted Predicted Value	4.86	6.75	6.17	0.51	89
Residual	-1.88	1.05	0.00	0.68	89
Std. Residual	-2.76	1.536	0.00	0.99	89
Stud. Residual	-2.78	1.60	0.00	1.01	89
Deleted Residual	-1.92	1.14	0.00	0.70	89
Stud. Deleted Residual	-2.90	1.61	-0.01	1.03	89
Mahal. Distance	0.01	8.36	0.99	1.43	89
Cook's Distance	0.00	0.264	0.02	0.04	89
Centered Leverage Value	0.00	0.10	0.01	0.02	89

Note. Where applicable, each numerical number has been rounded to two decimal places using Microsoft Excel.
[a] Dependent Variable: JSAVG

The test results were significant, $F(1, 89) = 49.03$, $p<0.001$, $R^2 = 0.36$. This test result could be interpreted as about 36% of the change in employee safety performance in southeast Saskatchewan, Canada's oil and gas industry, can be attributed to managers' or supervisors' safety-specific transformational leadership behaviors at workplaces. We are convinced that the cases or so-called outliers mentioned were associated with the research sample. Hence, the simple linear regression analysis was computed considering those cases or outliners and was valid in this research's context.

Additional Data Analysis: Curve Estimation

During the data analysis process of simple linear regression data points seemed skewed on one side of the charts, scattered ununiformly, or appeared to be non-normally distributed or had a curvilinear pattern at some points. Curve estimation was performed because of the data distribution in this research. We computed complex regressions with the help of SPSS 28.0 and compared the tests of curve estimation with the findings of this research's central research design and data analysis: simple linear regression. The following section reports the model equations for each regression model calculated by this research. Table 8 displays the comparative results of linear, logarithmic, inverse, quadratic, cubic, S-curve, and exponential regression.

Table 8

Result of Curve Estimation

Curve Estimation (Regression Types)	**R^2**	**F**	**N**	**Df**	**P-value**
Linear Regression	0.36	49.03	89	1	<0.001
Logarithmic	0.37	51.22	89	1	<0.001
Inverse	0.371	51.276	89	1	<0.001
Quadratic	0.369	25.10	89	1	<0.001
Cubic	0.369	25.10	89	1	<0.001
S-curve	0.383	54.00	89	1	<0.001
Exponential	0.354	47.755	89	1	<0.001

Table 8 represents the test results of various curve estimations: logarithmic, inverse, quadratic, cubic, S-curve, and exponential via SPSS 28.0. All seven R^2 values associated with linear regression, logarithmic, inverse, quadratic, cubic, S-curve, and exponential, were statistically closer. The curve estimations in this research discovered that 35.40% to 38.30% of the change in employee safety performance in the oil and gas industry in southeast Saskatchewan, Canada, could be attributable to managers' safety-specific transformational leadership behaviors at the workplace.

This successful quantitative simple linear regression study was uniquely designed to measure employee safety performance using employees perceived overall job satisfaction. This approach of measuring employee safety performance with employee's perceived overall job satisfaction is new and alternative in southeast Saskatchewan, Canada's oil and gas industry. This research contributes to the literature associated with workplace safety and advances theoretical knowledge on safety-specific transformational leadership, employee safety performance, and employee-perceived overall job satisfaction. Thus, by promoting safety-specific transformational leadership styles or behaviors, the oil and gas industry in southeast Saskatchewan could significantly improve and grow employee safety performance in the oil and gas industry in southeast Saskatchewan, Canada.

Recommendations and Conclusions

This section discusses the recommendations as well as the theoretical and practical implications of this research's findings.

Theoretical Implications

The simple linear regression data analysis revealed a significant statistical relationship between safety-specific transformational leadership behaviors (independent variable) and employee safety performance (dependent variable) measured with employees' overall job satisfaction. The following are the theoretical implications of this research.

1. Safety-specific transformational leadership scores of managers could predict employee safety performance in southeast Saskatchewan, Canada's oil and gas industry. Additionally, this research established the significant relationship between safety-specific transformational leadership and employee overall job satisfaction.
2. This research calculated the curve estimation, especially logarithmic, inverse, quadratic, cubic, s-curve, and exponential regressions. We noticed that the curve estimation and linear regression findings in this research's context were statistically closer or similar.
3. This research's data represented individual or group levels more than organizational levels. Nevertheless, this research's findings supported the findings of Hasan et al. (2021), Lu et al. (2019), Zhao et al. (2022), and Zulkifly et al. (2021) that safety-specific leadership or safety leadership could have a (higher) impact on employee safety participation or employee safety performance or workplace safety performance.
4. This research contributed a definition of employee safety performance by building upon the definition of employee performance by Campbell et al. (1993).
5. Yukl et al. (2022) stated that "most of the studies did not examine curvilinear relationships" (p. 417). Still, this research made a brief scholarly effort to understand safety-specific transformational leadership behaviors' impact on employees perceived overall job satisfaction or employees' performance by performing "curve estimation" in the data analysis process.

Implications for Professional Practice

This research's research data came from various high-risk business organizations. Thus, with a medium to larger effect size, higher Cronbach's alpha values of survey instruments, and significantly higher confidence level in the statistical test results of this research, we posit that this research's findings have broad implications and applications and have wider generalizability for professional practice in the real business world. This research's findings encourage promoting more safety-specific transformational leadership behaviors for improved workplace safety, especially employees' safety performance and overall job satisfaction, not only in the oil and gas industry in southeast Saskatchewan but other high-risk industries, such as construction, welding, trucking, ground transportation of controlled product or chemicals, hydro-facing, equipment maintenance, and steaming. By proactively educating leaders, managers, and supervisors about the significance of safety-specific transformational leadership, business organizations are prepared for workplace safety emergencies and to reduce workplace safety incidents or tragedies. This research also posits that other high-risk not-for-profit business organizations or governmental agencies can benefit from this research's findings. Also, this research suggests that more safety-specific transformational leadership means less burden to the

healthcare system, fewer lost-time injury claims, fewer workplace fatalities, and less economic burden to compensate for workplace injuries or incidents to workers. More importantly, when business organizations in the oil and gas industry in southeast Saskatchewan take sincere initiatives to improve employees' safety performance or perceived job satisfaction, such an approach not only helps business organizations to obtain their mission, vision, and values but also assures the families waiting for the safe return of their loved ones from the job sites at the end of every day.

Recommendations for future research

A further causal-comparative study can be done to assess the differences in the impact of safety-specific transformational leadership behaviors on employees' safety performance based on various age groups or generations, genders, levels of education, salary, work shifts or schedules, and work-family conflicts in southeast Saskatchewan, Canada's oil and gas industry and other similar high-risk industries by using a convenience or random sampling method. Future research can replicate this research in different geographical regions or countries and populations from southeast Saskatchewan's oil and gas industry to validate the broader application and generalizability of this research's findings in other geographical regions, territories, or provinces or countries. A further correlational study can be done using other credible employee safety performance and safety-specific transformational leadership surveys used in this research to evaluate the strength of the relationship between the variable in other high-risk industries. Finally, future researchers can design this research around qualitative research, triangulate the internal safety data associated with employee safety performance and safety-specific transformational leadership behaviors, and explore to validate the findings of this research in high-risk industries, including the oil and gas industry.

Recommendations for practice

This research puts forward five significant recommendations for practice. These five recommendations by this research to multiple stakeholders help ensure a safer industry, a more safety-conscious workplace environment, safer communities, and a better quality of life for the family members who depend on the employees' health and safety.

1. This research recommends that practitioners and business organizations in southeast Canada's oil and gas industry embrace and promote more safety-specific transformational leadership behaviors to improve workplace safety and employees' safety performance and achieve ever-growing employee safety performance or overall job satisfaction.
2. This research recommends the regional, provincial, and federal governments introduce legislation recognizing safety professionals or safety leaders as stakeholders in the internal workplace system.
3. This research recommends that the Occupational Health and Safety Legislation or the Employment Act direct (high-risk) business organizations train their managers, supervisors, and internal safety personnel or professionals on more safety-specific transformational leadership styles, behaviors, or skill sets.
4. This research recommends practitioners support the provincial and federal governments in implementing the new legislation mentioned above by revisiting their traditional workplace safety management system. The practitioners: academia, safety professionals, safety associations, safety training providers, business leaders, and managers can play

active roles in developing and facilitating employee training on safety-specific transformational leadership to grow more safety-specific leaders in the oil and gas industry.

5. In the oil and gas industry or similar high-risk industries, business organizations and managers craft, develop and execute safety goals that are more practical, measurable, and attainable. This research recommends that safety associations, industries, and business organizations promote safety slogans or safety goals, encouraging the honest reporting of workplace incidents, injuries, and safety-related events, such as safety audits, to employees or contractors.

Concluding Remarks

Workplace safety should be a shared business responsibility of all internal stakeholders, including managers and employees. Business leaders and managers should provide clear missions, visions, values, or short-term and long-term directions associated with shared objectives of workplace safety and employee safety performance while making a business effort to generate value for multiple stakeholders. Employees under more effective leadership styles feel inspired or more motivated to exert their best to create higher employee safety performance. Through this research, we essentially made an academic effort to research what leadership styles would be the most effective or appropriate to cultivate and grow employee safety performance in the oil and gas industry in southeast Saskatchewan, Canada. There are three main takeaways of this research to enthusiastic readers in academia and practitioners of workplace safety, safety leadership, job satisfaction, and employee safety from this research.

First, business leaders, managers, policymakers, associations, and professionals associated with workplace safety have vital roles in creating a safer workplace and a more safety-conscious industry by promoting more safety-specific transformational leadership behaviors, which predictably help improve workplace safety, employee safety performance, and overall job satisfaction.

Second, this research demonstrated academically that workplace safety, especially employee safety performance, could be alternatively assessed with employees perceived overall job satisfaction effectively. Therefore, this research encourages business leaders, policymakers, safety associations, business managers, and professionals in workplace safety to employ and promote this new approach of assessing or measuring employee safety performance with employees' (overall) job satisfaction. Employees or followers also need to play proactive roles in attaining higher safety performance by reporting workplace job satisfaction honestly and encouraging coworkers to do so.

Third, we posit that business organizations and leaders benefit by welcoming the presence of shareholders and investors to safety-specific corporate-level meetings or activities. Such opportunities offer the investors to understand the values of workplace safety and safety-specific transformational leaders' roles in employee safety performance. Moreover, such business initiatives on workplace safety, safety performance, job satisfaction, and safety-specific leadership behaviors benefit today's stakeholders tremendously and help create a safer and more joyful place of employment for the generations of stakeholders yet to come.

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