

A Review of Government Intervention in Reducing Industrial Accidents

N. Nasidin¹, S.S. Zulkifly¹, A.K. Abu Bakar², N.H. Hasan¹, M.S. Khalid³

^{*1}Department of Occupational Safety and Health, 70000 Seremban, Negeri Sembilan

²Department of Occupational Safety and Health, Selangor, Malaysia

³ Department of Occupational Safety and Health, Malaysia

*Corresponding author: norlinda@mohr.gov.my

Submitted: 9th Apr. 2020

Correction received: 13th Aug. 2020

Abstract

This paper is a review of a quasi-experimental research with the main objective of determining the effect of government safety leadership interventions such as workplace safety monitoring as well as safety promotion and consultation including training, campaigns, and dialogue sessions towards reducing workplace accidents. A quasi-experiment used a pre-test or baseline measure for the year before (2011) and post-test after a year (2012). The intervention was conducted on 12 companies selected from those with the highest number of workplace accidents (as reported to SOCSO). Department Occupational Safety and Health provided interventions in the form of transactional leadership namely regular monitoring, training, and consultations. This REACH program has resulted in a 70% decrease in accidents at the selected workplaces compared to the previous year.

Keywords: government intervention, transformational leadership, transactional leadership and workplace accidents

© 2020 Perdana Centre UTM. All rights reserved

■ 1.0 INTRODUCTION

In Malaysia, the Department of Occupational Safety and Health (DOSH) is the government agency responsible for occupational safety and health (OSH). DOSH reported that the department had investigated 2429 in (1993 - 2013) cases involving fatality, permanent disability as well as non-permanent disability cases of industrial accidents from 10 sectors of industry (as stipulated in the Occupational Safety and Health Act 1994). Total fatal accident cases at workplaces investigated by the department totalled 192 for the year 2012, while total investigated permanent disability cases were 207 cases (DOSH Annual Report, 2012). In 2013, DOSH investigated a total of 2826 cases of industrial accidents, which consisted of 187 fatal cases. Industrial accidents cause a lot of economic and morale impact to the involved organisations as they will lose in terms of finances (such as cost of machinery repair, medical expenses, and legal fees) and also suffer non-monetary effects such as decreasing morale of employees as well as company's reputation (Noorul Huda *et al.*, 2012). Therefore, industrial accidents are a big issue for Malaysia nowadays and they must be seriously prevented in order to prevent losses for businesses as well as the country.

DOSH performs enforcement activities which are carried out by officers from the state offices through periodic inspections as well as safety and health audits on factories, machinery, and other workplaces covered by the Occupational Safety and Health Act 1994. Its 2012 annual report recorded that DOSH performed 31,425 workplace inspections on various sectors of industries throughout Malaysia. Besides enforcement, DOSH also conducts promotional and publicity activities including assistance and expert services in complying with the laws, dissemination of information, seminars, dialogues, talks, and road shows. In 2012, DOSH delivered 3136 OSH talks,

conducted 1367 OSH related road shows and organised a total of 2001 dialogue sessions and related seminars. According to OSHA (1994), it is a general duty of the employer to provide and maintain a workplace and work system, which as far as practicable is free from injury and health risks. OSHA also promotes a tripartite collaboration order between employer, employee, and the government in ensuring the occupational health and safety of Malaysia's workers.

Previous research found that management commitment towards work related safety namely appointing safety staff, establishing safety committees, and providing regular safety training could reduce workplace accidents (Cohen & Cleveland, 1983; Smith *et al.*, 1978 & Baba Md Deros *et al.*, 2012). Previous researchers also determined that workers' safety behaviour could predict industrial accidents (Neal & Griffin, 2006; Gyekye, 2010; Noorul Huda Zakaria *et al.*, 2012). Accidents at workplaces can be reduced if employees are more committed in applying good safety behaviour (Makin & Suntherland, 1994; Christian *et al.*, 2009). Apart from management commitment and employee safety responsibility, evidence was also found by Scholz and Gray (1990) that OSHA enforcement has a significant impact on injuries in a substantial portion of the manufacturing sector where number of lost workday injuries decreased significantly after the increase of specific contacts with enforcement bodies. In contrast, Mears and Chapple (1996) found that government intervention results in little impact on safety outcomes in workplaces.

The KPI (Key Performance Indicator) of the Human Resources Ministry Malaysia aims to reduce the industrial accident rate to 2.0/1000 workers by the year 2020. The accident rate for 2010 was 3.28/1000 workers. Thus, a lot of effort including various types of effective interventions should be conducted by DOSH in achieving the set target. As far as Malaysia's OSH is concerned, studies conducted on government intervention in reducing workplace accidents are hard to find. Therefore, this paper aims to explore the impact of government leadership intervention in terms of workplace safety towards workplace accidents in Negeri Sembilan, Malaysia.

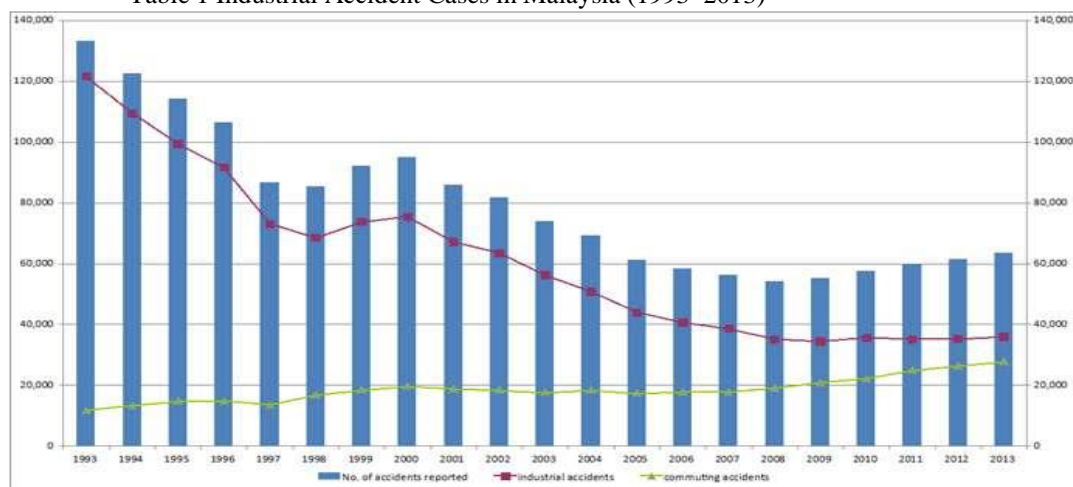
■ 2.0 LITERATURE REVIEW

As discussed earlier, industrial accidents are a global issue and have a huge impact towards organisations as well as nations. Previous research also found that safety behaviour contributes the most towards industrial accidents. Thus, factors that cause unsafe behaviour should be seriously tackled in order to reduce accidents at workplaces (Neal & Griffin, 2006).

■ 2.1 Industrial Accident Statistics in Malaysia

Accident rates had declined to 11 per 1000 workers by 1999 and continued to decline in recent years (Maimunah Aminuddin, 2013). Figure 1 is a graph expressing the most recent industrial accident statistics in Malaysia based on data from SOCSO and DOSH (2014).

Table 1 Industrial Accident Cases in Malaysia (1993–2013)



■ 2.2 Factors of Industrial Accidents in Malaysia

Previous overseas researchers have concluded that unsafe behaviour committed while working contributed the most in industrial accident cases. Malaysian researchers have also discovered the same results. Noorul Huda Zakaria *et al.*, (2012) found a high significant relationship between stress and fatigue due to workload and workplace accidents and also a low to moderate significant relationship between workers' unsafe act and workplace accidents. The unsafe acts found are namely not wearing personal protective equipment and not following safe working procedures. In addition, Sarok & Susil (2012) conducted a study in a Japanese electronics factory in Sarawak and found that a majority of the workers failed to comply with safety related regulations especially in terms of wearing personal protective equipment. Prior to the research, Zaliha Hj Hussin *et al.*, (2008) conducted a study on accident predictors in 51 SME food-manufacturing companies in Kedah. A total of 46.2% of the 256 respondents perceived that the accidents are caused by their colleagues' safety misconducts.

■ 2.3 Leadership and Industrial Safety

Generally, leadership is defined by the ability to influence people or a group towards achieving or attaining the set vision and goals (Northouse, 2010; Yukl *et al.*, 2011). Leadership also can be viewed as social influence that is enacted by individuals in formal positions of power or leadership positions (manager, political leader, and enforcement authority), as stated by Kelloway and Barling (2010). Burns (1978) introduced two leadership styles or behaviours known as transactional and transformational leadership. Transformational leadership is where a leader emphasises followers' intrinsic motivation and personal development to achieve the desired organisational outcomes. Furthermore, transformational leaders are able to inspire the followers to exceed their expected performance in order to achieve the organisational goals (Sivanathan & Fekken, 2002; Bass & Riggio, 2006). The attributes include motivation, consultation, advice, concern, supervision, coaching, and counselling. In contrast, transactional leadership focuses on the link between rewards and performance and vice versa, and has also been called task-oriented leadership (Krause & Weekly, 2005; Wu *et al.*, 2007).

Several researches have been conducted to identify the relationship between safety leadership and safety behaviour. Sivanathan *et al.* (2005) investigated whether transformational leadership in terms of motivation, consideration, and communication could become a mechanism in improving safety performance, specifically safety behaviour. The results revealed a significant influence between the variables. Lu and Yang (2010) used motivation and concern to represent transformational leadership, and safety policy to represent transactional leadership; and conducted a study to quantify the relationship between safety leadership dimension and safety behaviour. The study found that safety leadership behaviour of the superiors at a container terminal company in Taiwan significantly influenced workers' safety behaviour. Ford and Tetrick (2008) as well as Neal and Griffin (2006) also found that safety motivation influences safety behaviour.

■ 2.4 Interventions and Industrial Safety Performance

A lot of previous research explored safety performance (as the dependent variable). Commonly, safety performance is measured by workplace accident rate and fatality statistics. However, several researchers emphasised that accident rate is a reactive measure, thus safety performance should be measured by workers' safety behaviour (e.g., Cheyne *et al.*, 1998; Neal, Griffin & Hart (2000); Komaki *et al.*, 1980; McDonald *et al.*, 2000). The government of Australia outlined several elements in enabling the government to become a leader in OSH. The items include providing incentives for good OSH performance, providing OSH related consultations, and becoming a focal point on safety compliance requirements. It could be stated that empirical studies on the influence of government leadership towards organisational safety performance are hard to find.

■ 3.0 METHODOLOGY

—Reduce Accidents and Hazards (REACH) was an intervention program initiated by the Negeri Sembilan DOSH State Director, Ahmad Kahar Abu Bakar, and was implemented from 2011 to 2012 in the state. This program involved the state of Negeri Sembilan because it was an idea and innovation initiated by its own director to accomplish his mission to —Reduce Workplace Accidents, Love Negeri Sembilan Workers. This type of quasi experiment refers to a group of pre-test and post-test designs. The experiment used a pre-test or baseline measure for

the year before (2011) and post-test after a year (2012). Accident rate was used as an indicator data (records obtained from SOCSO). The main objective of this program was to reduce the total number of accidents in the selected workplaces compared to the previous year.

This program's main strategy was maximising government interventions regarding occupational safety and health in the selected workplace. DOSH still believes that interventions from the relevant enforcement authority are vital in order to reduce the workplace accident rate as well as elevate the OSH level among the organisation. Several workplaces from various sectors including manufacturing, agriculture, and utility were selected to participate in this program as respondents. The workplaces selection was based on the high accident rate reported to the Negeri Sembilan DOSH.

For each workplace, one or two DOSH officers were appointed as program coordinators (Table 2). Their roles were to conduct or coordinate OSH interventions in order to reduce industrial accidents at the selected workplaces. The interventions included:

- a. Workplace inspections (informed or surprise),
- b. Consultation and advice on OSH compliance,
- c. Awareness and promotional activities (talks, dialogues, training etc.),
- d. Regular coaching on any OSH related programs and interventions and punitive actions (notices, compounds, and court proceedings).

Besides the above-mentioned activities, the selected workplaces were instructed to submit:

- a. Accident statistics plus the full investigation reports complete with the appropriate countermeasures taken on a monthly basis.

The coordinators had to review and evaluate the submitted reports as well as to present them to the Director of N9 DOSH on a regular basis. The program was conducted for duration of 1 year.

Table 2: List of companies and officers in REACH programme 2012

Employer Name	Accident 2011	Accident 2012	Officer
A (Manufacturing)	505	79	Pn.Maziah Mohamad
B (Utility)	10	3	Pn.Noor Laila Md Nong
C (Manufacturing)	10	6	En.Suzarwadi Zahri
D (Manufacturing)	36	32	Pn.Nor Asnida A.Razak
E (Manufacturing)	8	13	Pn.Siti Fatimah Talib
F (Manufacturing)	52	40	En.Yusaini Yusof
G (Agriculture)	53	29	Pn.Zalinda Hamzah
H (Manufacturing)	16	12	Pn.Nurhana Md Chulan
I (Manufacturing)	5	0	Pn.Norasidah Mat Yasan
J (Manufacturing)	11	5	En.Suhaimi Abu Bakar
K (Agriculture)	5	0	En.Ahmad Nizam
L (Agriculture)	7	5	En.Abdul Hadi Ramli

■ 4.0 RESULTS AND FINDINGS

Based on the accident data, it can be seen that accident cases in the selected companies had reduced in 2012, post to the program. Chart 1 shows a comparison of the of accident cases in 2011 as the input and 2012 as the results for 12 employers or workplace accidents involving REACH Program participating companies. It can be seen that post to the REACH program, 11 out of 12 participating organisations had successfully reduced their workplace accident statistics compared with the previous year (Company A, B, C, D, F, G, H, I, J, K and L). Hence, it's indicated about comparison that gauging the accident cases through REACH program was a significant success in reduced number of accident in respectively companies.

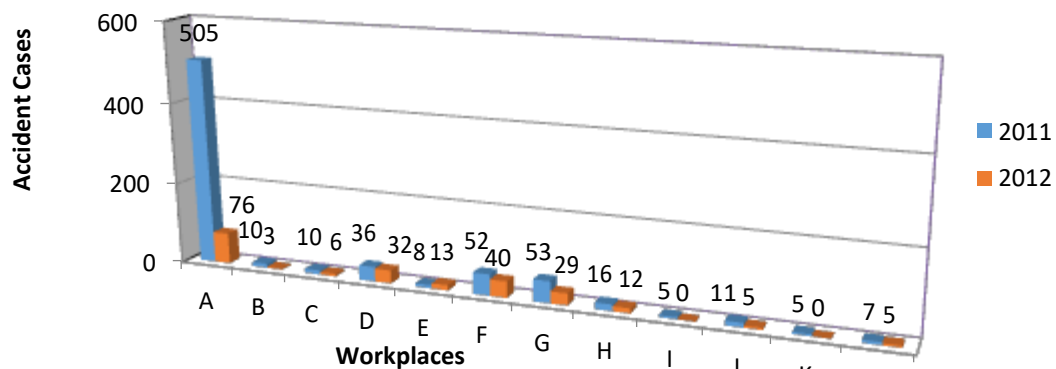


Figure 1: Comparison of accident cases in 2011 and 2012

Chart 2 refers to the percentage of accident reduction after implementation of the REACH program at the end of 2012 that shows that two (2) companies managed to achieve a 100% accident rate reduction (Company I and K), which is a -zero accident achievement. Four (4) companies had achieved more than 50% accident rate reduction. This reduction will boost up the Company Loss time injury towards the productivity of Company as a whole.

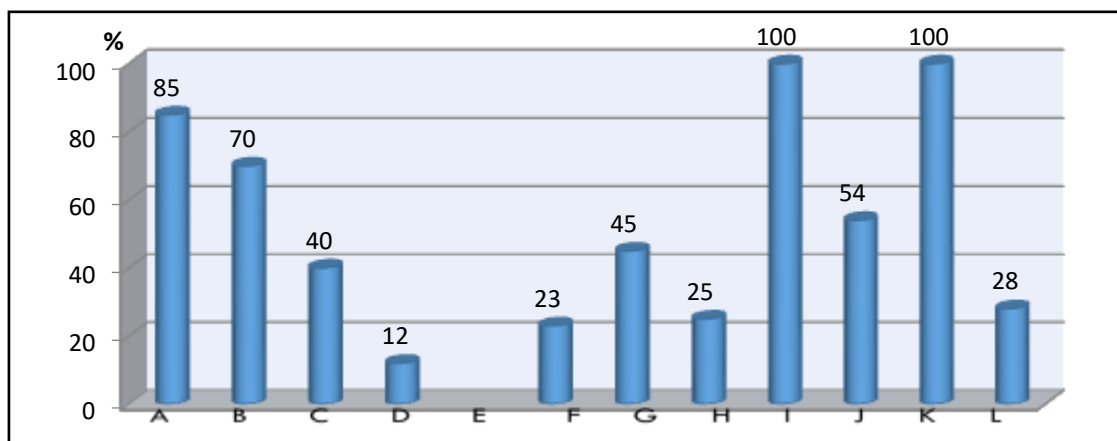


Figure 2: Accident reduction percentage

Table 3 shows that most coordinators preferred monitoring visit activities, followed by activity discussions with employers and monitoring employers' reports at the workplaces. This clearly demonstrates that employers were more focused on safer work places conditions for their employees by these activities.

Table 3: Activity reports by coordinators (Strategy planning)

Employer	Monitoring visit	Talk	Promotion	Campaign	Dialogue	Discussion in office	Monitor reports	Surprise visit	Notices NOI/NOP	Compound / Court
A	3	2	0	0	0	3	9	0	2	0
B	6	1	0	0	0	3	0	3	0	0
C	2	0	0	0	0	2	0	0	0	0
D	2	1	0	0	0	2	0	1	9	0
E	5	0	0	0	0	3	3	0	4	0
F	3	0	0	0	0	2	0	0	0	0
G	4	1	0	0	3	2	2	2	0	0
H	4	0	1	5	0	4	4	5	7	0
I	2	0	0	0	0	6	1	0	1	0
J	4	0	0	0	0	3	0	0	0	0
K	8	0	0	0	0	5	3	0	0	0
L	8	0	0	0	1	6	2	1	1	0
TOTAL	44	5	1	5	4	36	21	12	20	0

■ 5.0 CONCLUSION

The REACH program conducted by DOSH N9 had achieved its objectives, which is to reduce workplace accidents through government leadership intervention. Safety leadership provided by the coordinating officers was found to be relevant for the employers as well as employees in improving their workplaces' safety performance. It also could be said that regular monitoring and consultation by the relevant authority officer is more likely to gain employers' commitment as well as employees' cooperation in OSH. This paper also revealed that though OSHA 1994 promotes self-regulation among the employers, government intervention, specifically on safety leadership is still vital in order to elevate OSH level and furthermore decrease the accident rate. However, lack of parameters such as effectiveness of regulation and behavioural of workers weren't included in the intervention program. Therefore, those parameters could be significant ponders into further studies in enhancing the REACH program.

ACKNOWLEDGEMENT

I would like to express my great appreciation and gratitude to Mr. Ahmad Kahar Abu Bakar (Director of N9, DOSH), Ir. Dr. Nor Halim (Deputy Director N9 DOSH), and Mr. Syazwan and Dr. Mohd Shamsuri Khalid (colleagues) for theirs gracious ideas, encouragement, support and valuable technical assistance to this program. I would also like to extend my appreciation towards other DOSH officers as coordinators for their help in running this project.

REFERENCES

- Baba Md Deros, Ahmad Rashdan Ismail & Mohd Yusri (2012). Conformity to occupational safety and health in small medium enterprise. *Journal of Occupational Safety and Health*. Vol.9 No.1. Page 1-6. ISSN 1675-5426.
- Bass and Riggio, (2006). *Transformational Leadership*, 2nd Ed.
- Burns, J. M. (1978). *Leadership*. New York: Harper & Row.
- Christian, M. S., Bradley, J. C., Wallace, J. C., & Burke, M. J. (2009). Workplace safety: A meta-analysis of the roles of person a situation factors. *Journal of Applied Psychology*, 94(5), 1103–1127. <https://doi.org/10.1037/a0016172>

- Cheyne, A., Cox, S., Oliver, A., & Tomas, J.M. (1998). Modelling safety climate in the prediction of levees of safety activity, *Work And Stress*, 12(3), 255-271.
- Cohen, H. H., & Cleveland, R.J. (1983). Safety program practice in recording-holding plants. *Program safety*, 28, and 26-33.
- Department Occupational Safety & Health (2012). Annual Report 2012. DOSH, Kementerian Sumber Manusia, Putrajaya. <http://www.dosh.gov.my>
- Ford, M. T., & Tetrick, L. E. (2008). Safety motivation and human resource management in North America. *International Journal of Human Resource Management*, 19, 1472-1485. DOI: 10.1080/09585190802200231
- Gyekye, S.A. (2006). Workers perception of workplace safety: An African perspective. *International Journal of Occupational Safety and Ergonomics (JOSE)* 2006, 12(1), 31-42.
- Kelloway, E. K., & Barling, J. (2010). Leadership development as an intervention in occupational health psychology. *Work & Stress*, 24 (3), 260 — 279.
- Komaki, J., Heinzmann, A.T., & Lawson, L. (1980). Effect of training and feedback: Component analysis of a behavioural safety program. *Journal of Applied Psychology*, 65(3), 261-270.
- Lu, C.S., & Yang, C.S. (2010). Safety leadership and safety behaviour in container.
- Maimunah Aminuddin (2013). *Malaysian industrial relations & employment law* (8th ed.).Kuala Lumpur: McGraw-Hill.
- Makin, P.J. and Sutherland, V.J. (1994), "Reducing Accidents Using a Behavioural Approach", [*Leadership & Organization Development Journal*](#), Vol. 15 No. 5, pp. 5-10. <https://doi.org/10.1108/01437739410059908>
- McDonald, N., Corrigan, S., Daly, C., & Cromie, S. (2000). Safety management systems and safety culture in aircraft maintenance organisations. *Safety Science* 34, 151-176.
- Mears, T., & Chapple, S. (1996). New Zealand Department of Labour Occasional Paper Series. Occasional Paper, 1.
- Neal, A., Griffin, M., & Hart, P., (2000). The impact of organizational climate on safety climate and individual behavior. *Safety Science*, 34(1-3), 99–109.doi: 10.1016/s0925-7535 (00) 00008-4.
- Neal, A., & Griffin, M. A. (2006). A study of the lagged relationships among safety climate, safety motivation, safety behaviour, and accidents at the individual and group levels. *Journal of Applied Psychology*, 91, 946– 953.
- Noorul Huda Zakaria, Norudin Mansor, Zalinawati Abdullah (2012). Workplace accident in Malaysia: most common causes and solutions *Business and Management Review* Vol. 2(5) pp. 75 – 88 July, 2012 ISSN: 2047 – 0398: <http://www.businessjournalz.org/bmr>.
- Northouse, P.G. (2010). *Leadership: Theory and practice* (5th ed.). Thousand Oaks, CA: Sage.
- Occupational Safety & Health Act 1994 (2003). Kuala Lumpur: MDC Publisher Printers.
- Occupational Safety & Health Master Plan 2009-2015 (2009). Putrajaya: DOSH.
- Occupational Safety & Health (2012). Annual Report, 2012, Percetakan Nasional Berhad (PNB); Putrajaya: Author
- Sarok, Ahi and Susil, Jerip, (2012); Occupational Hazards in the Workplace: A Case of an Electronic Company in Sama Jaya, Kuching, Sarawak, Malaysia (October 27, 2013). *Asian Journal of Business Research*, Vol 2, No. 1, 2012 SSRN: <https://ssrn.com/abstract=2345922>
- Sivanathan, N. and Cynthia Fekken, G. (2002), Emotional intelligence, moral reasoning and transformational leadership, *Leadership & Organization Development Journal*, Vol. 23 No. 4, pp. 198-204. <https://doi.org/10.1108/01437730210429061>
- Sivanathan, N., Turner, N., & Barling, J. (2005). Effects of transformational leadership training on employee safety performance: A quasi-experiment study. *Academy of Management Proceedings*. Retrieved October 19, 2013, from EBSCOhost database.
- Scholz, J.T., Gray, W.B. (1990); OSHA enforcement and workplace injuries: A behavioral approach to risk assessment. *J Risk Uncertainty* 3, 283–305 (1990). <https://doi.org/10.1007/BF00116786>
- Smith, S. M., Glenberg, A. M., & Bjork, R. A. (1978) Environmental context and human memory. *Memory & Cognition*, 1978, 6, 342-353.
- Thomas R. Krause and Thomas Weekly (2005). Safety leadership: A four-factor model for establishing a high-function organisation. *Professional Safety Magazine*. November 2004. www.asse.org
- Van der Geer, J., Hanraads, J. A. J., & Lupton, R. A. (2000). The art of writing a scientific article. *Journal of Science Communication*, 163, 51–59.
- Wu, C., Neubert, M. J., & Xiang Yi. (2007). Transformational Leadership, Cohesion Perceptions, and Employee

Cynicism About Organizational Change. *The Journal of Applied Behavioral Science*, 43(3), 327– 351.
Doi: 10.1177/0021886307302097

Yukl, G., Mahsud, R., Hassan, S., & Prussia, G. E. (2011). An Improved Measure of Ethical Leadership.
Journal of Leadership & Organizational Studies, 20(1), 38–48. DOI: 10.1177/1548051811429352

Zaliha Hussin, Kamal Bahrin Samsudin, Mahadzir Ismail (2008). Laporan kajian impak Universiti Teknologi Mara
Kedah. Julai 2008. Universiti Teknologi Mara (cawangan Kedah).