RELATIONSHIP BETWEEN SAFETY CULTURE AND SAFETY COMMITMENT AT WESTSTAR AVIATION SERVICES IN KOTA BAHARU

By

ABD LATIF BIN SAID

806355

A Project Paper is submitted to the School of Business Management, Universiti Utara Malaysia, in partial fulfillment of the requirement for the Master of Science (Occupational Safety and Health Management)

DECLARATION

The author is responsible for the accuracy of the information provided in this Project Paper. The author bears full responsibility for the checking whether material submitted is subjected to copyright or ownership right. University Utara Malaysia (UUM) does not accept any liability for the accuracy of such comment, report and other technical and factual information and the copyright or ownership right claims.

The author declares that this Project Paper is his own work and that none of this Project Paper has been previously submitted for any academic Masters Program. All sources quoted have been acknowledged in the references.

Date : …… Student Signature : ……..

KOLEJ PERNIAGAAN
(College of Business)
Universiti Utara Malaysia

PERAKUAN KERJA KERTAS PROJEK
SSMZ 6699 CONSULTATION
(Certification of Project Paper)

Saya, mengaku bertandatangan, memperakukan bahawa
(I, the undersigned, certified that)
ABD LATIF BIN SAID (806355)

Calon untuk Ijazah sarjana (Candidate for the degree of)
MASTER OF OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT
telah mengemukakan kertas projek yang bertajuk (has presented his/her project paper of the following title)

RELATIONSHIP BETWEEN SAFETY CULTURE AND SAFETY COMMITMENT AT WESTSTAR AVIATION SERVICES IN KOTA BAHARU.

Seperti yang tercatat di muka surat tajuk dan kulit kertas project
(as it appears on the title page and front cover of the project paper)

Bahawa kertas projek tersebut boleh diterima dari segi bentuk serta kandungan dan meliputi bidang ilmu dengan memuaskan.(that the project paper is acceptable in the form and content and that a satisfactory knowledge of the field is covered).

Nama Mentor : **DR FADZLI SHAH BIN AB AZIZ**
(Name of Mentor)

Tandatangan : _____
(Signature)

Tarikh :
(Date)

PERMISSION TO USE

In presenting this Project Paper as partial requirement for the Masters of Science (Occupational Safety and Health) in Universiti Utara Malaysia, I agree that the Universiti may make it freely for inspection. I further agree that the permission for copying of this Project Paper in any manner, in whole or in part, for scholarly purpose may be granted by my supervisor, or in his absence, by the Dean of School of Business Management. It is understood that any copy or publication or use of this Project Paper or parts there of for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to Universiti Utara Malaysia for any scholarly use which may be made of any material from the Project Paper.

Request for permission to copy or make use of the material in this Project Paper in whole or in part should be address to :

Dean of School of Business Management

Universiti Utara Malaysia

06100, UUM Sintok

Kedah Darul Aman

ABSTRACT

The study was conducted to determine the relationship betIen safety culture and safety commitment as Ill as level of safety culture and safety commitment of employees in Iststar Aviation Services Sdn Bhd (WASSB). This survey was distributed among 200 respondents at WASSB by using Loughbourough university safety climate assessment tool kit (2003) to measure safety culture and safety commitment questionnaire developed by Abd Aziz (2008). 140 valid responses was received, all the results of measurement Ire then analysed statistically using SPSS version 22, with descriptive frequencies on demography, correlations and regression analysis. The findings indicated that the level of safety culture and safety commitment is moderately high. Result also indicate that safety culture and safety commitment was partially mediated by employee commitment. Further suggestions Ire discussed according to the findings to complete the conclusions and recommendations.

ABSTRAK

Kajian telah dilakukan untuk menentukan kaitan antara budaya keselamatan terhadap penglibatan keselamatan dan begitu juga kaitan tahap budaya keselamatan terhadap penglibatan keselamatan olih pekerja Iststar Aviation Services Sdn Bhd (WASSB). Kaijian ini telah dilakukan kepada 200 pekerja dalam WASSB dengan menggunakan alat mengukur budaya keselamatan university Loughbourough (2003) bagi mengukur budaya keselamatan dan penglibatan keselamatan dalam soalselidik yang dibentuk olih Abd Aziz (2008). 140 maalum balas yang layak telah diperolihi, semua keputusan penilaian statistic telah dilakukan dengan menggunakan SPSS versi 22, penjelasan setiap tahap telah dianalisa menurut demografi, yang ada kaitan dan tiada kaitan antaranya. Keputusan menunjukan tahap budaya keselamatan dan penglibatan keselamatan adalah agak tinggi. Keputusan juga menunjukan budaya keselamatan dan penglibatan keselamatan olih pekerja adalah separuh tinggi. Cadagan kajian yang selanjutnya akan dibincangkan untuk mengemukan penemuan dan kesimpulan bagi melengkapkan pengkajian ini.

ACKNOWLEDGEMENT

First and foremost, II would like to thank to my supervisor of this project, Dr. Fadzli Shah Bin Abd. Aziz for the valuable guidance and advice. He inspired me greatly to work in this project. I also would like to thank him for showing me some examples that related to the topic of our project which helped to strengthen my humble Project Paper. Besides, I would like to thank the authority of Graduate School of Business Management, Universiti Utara Malaysia (UUM) for providing me with a good environment and facilities to complete this project. Also, I would like to take this opportunity to thank the School of Business Management, Universiti Utara Malaysia (UUM) for offering this program, Master of Science (Occupational Safety and Health Management). It gave me an opportunity to participate and learn about the OSH management. Grateful acknowledgment is also extended to Weststar Aviation Services Sdn Bhd. which provides me valuable information and cooperation in the feedback questionnaire that was being distributed. I would also like to extend my appreciation to Weststar Aviation Services CEO, General Tan Sri Muhammad Ismail Jamaluddin, for his continuous support and cooperation during the completion of this project.. Finally, an honorable mention goes to my families especially my beloved mother Habshah Bte Shariff for her valuable advice and support and mostly to my beloved wife, Siti Mariam Bte Ismail, my son Muhammad Asyraf and Muhammad Adli , my daughter Nor Diyana and Nur Dayini for being patient to support and sacrifice in order for me to complete this study. With their help, support and encouragement, , I had faced challenges while doing this project successfully

TABLE OF CONTENTS

CHAPTER I INTRODUCTION

CHAPTER II LITERATURE REVIEW

LIST OF TABLES

LIST OF FIGURES

LIST OF ABREVIATIONS

CEO	Chief Executive Officer
DCA	Department of Civil Aviation
DOSH	Department of Occupational Safety and Health
HR	Human Resource
HRM	Human Resource Management
HSES	Health, Safety, Environmental and Security
ILO	International Labour Organization
PETRONAS	Petroliam Nasional Berhad
SRP	Sijil Rendah Pelajaran
SPM	Sijil Pelajaran Malaysia
STPM	Sijil Tinggi Perlajaran Malaysia

WASSB	Weststar Aviation Services Sendirian Berhad
SOCSO	Social Security Organization (Malaysia)

CHAPTER 1

INTRODUCTION

1.1 Introduction

In the past two decades there has been an increasing interest in the concept of safety culture as a mean of reducing potential accidents at the workplace. Notwithstanding its recent appearance in the field of safety management, safety culture is gaining acceptance due to its critical role for improving organizational safety performance. Safety culture influences not only accident rates, but also on work methods, absenteeism, quality, productivity, commitment, loyalty and work satisfaction (Teo and Feng, 2008).

Teo and Fang (2008) explain that safety culture is a concept defined at the group level or higher. The concept refers to the shared values among all members in the organization who are concerned with safety issues at the workplace. It relates to the safety management system at the upper and lower level and emphasizes everyone's participation to practice and promote safety. It reflects the physical behavior of employees, willingness of organization for continual improvement in safety and the reward system for the individual safety performance.

The studies had shown that between 5 to 15 percent of accident at the workplace were caused by inherent job hazards and 85 to 95 percent of accidents were caused by the failure

The contents of the thesis is for internal user only

REFERRENCES

Abd Aziz, F. S. (2008). *Safety culture and commitment to safety in the Malaysian railway system*. Unpublished doctoral dissertation, University of Nottingham, UK.

Adams-Roy, J. E., Knap, M. A., & Barling, J. (1995). Commitment to occupational health and safety in management training.

Allen, N.J. & Meyer, J.P. (1990). The measurement and antecedents of affective, continuance and normative commitment to the organisation. *Journal of Occupational Psychology*, 63, 1-18.

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, *50*(2), 179-211.

Arfanis, K., Shillito, J. and Smith,A.F. (2011). Risking safety or safely risking? Healthcare professionals' understanding of risk-taking in everyday work. *Psychology, Health & Medicine* Vol. 16, No. 1, January 2011, pp. 66–73.

Anderson, D. R., Sweeney, D. J., & Williams, T. A. (2000). *Quantitative methods for business* (8th ed.). Dallas, Texas: South-Western Educational Publishing.

Barling, J. & Hutchinson. (2000). Commitment vs. control-based safety practices, safety reputation and perceived safety climate. *Canadian Journal Administrative Sciences*, 17(1), 76-84.

Berge, Z., Verneil, M., Berge, N., Davis, L., & Smith, D. (2002).The increasing scope of training and development competency. *Benchmarking: An International Journal,9*(1), 43-61.

Boeing. (2014*), Statistical Summary of Commercial Jet Aircraft Accidents, Worldwide Operations 2010-2014.* Boeing Commercial Airplane Group. Seattle, W.A.

Becker, H.S. (1960). Notes on the concept of commitment. *American Journal of Sociology*, 66, 32-40.

Becker, T. E. & Randall, D.M. (1995). The multidimensional view of commitment and the theory of reasoned action: A comparative evaluation. *Journal of Management*, 21(4), 617-638.

Brown, M.E. (1969). Identification and some conditions of the organisational involvement. *Administrative Science Quarterly*, 14 (3), 346-355.

Bowander, B. (1987). The Bhopal accident. *Technological Forecasting and Social hange* 32 (2), 169–182.

Bureau of Labor Statistics, U.S. Department of Labor (2006). *Industry injury and illness data*. Retrieved June 6, 2015, from http://www.bls.gov/iif/oshsum.htm#06summary%20News%20Release.

Cascio J. & Baughn K.T. (2000). Health, safety and ISO 14001. *Manufacturing Engineering*, 124(5), 126-135.

Chai, W. (2005). The impact of safety culture on safety performance: A case study of a construction company. Apublished doctoral dissertation thesis. Department of Instructional System Technology, Indiana Universiti, USA.

Chen, C.F., & Chen, S.C. (2014). Measuring the effects of Safety Management System practices, morality leadership and self-efficacy on pilots' safety behaviors: Safety motivation as a mediator. *Safety Science*, 62 (2014) 376–385.

Cheyne, A., Cox, S., Oliver, A., & Tomás, J. M. (1998). Modelling safety climate in the prediction of levels of safety activity. *Work & Stress*, *12*(3), 255-271.

Cheyne, A., Cox, S., Oliver, A., & Tomas, M. (1998). Modeling safety climate in prediction of level of safety activity. *Work and Stress*, *12*(3), 255-271.

Choudhry, R. M., Fang, D., & Mohamed, S. (2007). The nature of safety culture: A survey of the state-of-the-art. *Safety science*, *45*(10), 993-1012.

Chouhan, T.R. (2005). The unfolding of Bhopal disaster. *Journal of Loss Prevention in the Process Industries*, 18 (4–6), 205–208.

Clarke, S. (1998). Organisational factors affecting the accident reporting of train drivers. *Work and Stress*, 12, 285-292.

Clarke, S. (1999). Perceptions of organisational safety: implications for the development of safety culture. *Journal of Organisational Behaviour*, 20, 185-198.

Clinton, V.O., Strong, J.S. & Zorn, C.K. (2013), Analyzing Aviation Safety: Problems, Challenges, and Opportunities. *Research In Transport Economics*, Vol. 43, pp148-164.

Cohen, A. (1977). Factors in successful safety programs. *Journal of Safety Research* 9,168–178.

Cohen, H. H., & Cleveland, R. J. (1983). Safety program practices in record-holding plants. *Professional Safety, 28*(3), 26-33.

Cohen, A., Smith, M., Cohen, H.H. (1975). Safety Program Practices in High Versus Low Accident Rate Companies. HEW Publication No. (NIOSH) 75-185. National Institute of Occupational Health and Safety, Cincinnati, OH.

Cooper, D. (1998). *Improving safety culture: A practical guide*. England: John Wiley and Sons Ltd.

Cooper, D. (1999). Behavioral Safety: Acase study from ICI Autocolours, Stownmarket. *Management of Occupational Health, Safety and Environment*, 3, 10.

Cox, S. J., & Cheyne, A. J. T. (2000). Assessing safety culture in offshore environments. *Safety science*, *34*(1), 111-129.

Cox, S. & Flin, R. (1998). Safety culture: philosopher's or man of stew. *Work and Stress*, 12(3), 189-201.

Creswell, J. W. (2003) *Research design : Qualitative, quantitative and mix methods Approaches.* 2nd ed. Thousand Oaks. Sage Publication.

Creswell, J. W.(2005). *Educational research: Planning, conducting and evaluating quantitative and qualitative Research*.

Dedobbeleer, N. & Beland, F. (1991). A safety climate measure for construction sites. *Journal of Safety Science*, 22, 97-103.

DePasquale, J.P., Geller, E. (1999). Critical success factors for behaviour based safety: a study of twenty industry-wide applications. *Journal of Safety Research* 30, 237–249.

Diaz, R.I. & Cabrera, D.D. (1997). Safety climate and attitude as evaluation measures of organisational safety. *Accident Analysis and Prevention*, 29 (5) 643-650.

Donald, I., Canter, D. (1994). Employees attitudes and safety in the chemical industry. *Journal of Loss Prevention in the Process Industries* 7, 203–208.

Duta, N. and Rafaila, E. (2014). Training the competences in Higher Education – a comparative study on the development of relational competencies of university teachers. Romania: Elsevier Ltd.

Dyer, W. G. (1994). Potential Contributions of Organizational Behavior to the Study of Family-Owned Businesses. *Family Business Review*, *7*(2), 109-131.

Fernández-Muñiz, B., Montes-Peón, J. M., & Vázquez-Ordás, C. J. (2009). Relation between occupational safety management and firm performance. *Safety science*, *47*(7), 980-991.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*.

Flin, R., Mearns, K., O'Connor, P., & Bryden, R. (2000). Measuring safety climate: identifying the common features. *Safety science*, *34*(1), 177-192.

Glendon, A. I., & Litherland, D. K. (2001). Safety climate factors, group differences and safety behaviour in road construction. *Safety science*, *39*(3), 157-188.

Garrett, R. B., & Perry, A. J. (1996). A safer way to move patients. *Occupational health & safety (Waco, Tex.)*, *65*(9), 60-1.

Geller, E.S. (2001). The Psychology of safety handbooks, Boca Raton, Florida: Lewis Publisher.

Geller, E.S. (1994). Safety Management: Ten Principles for Achieving a Total Safety Culture. *Professional Safety*, 39 (9), 18-24.

Goetsch, D.L. (2005). *Occupational Health and Safety for Technologists, Engineers and Managers,* 5th Ed. Prentice Hall.

Goetsch, D.L. (1999). *Occupational safety and health for technologists, engineers and managers. (3rd ed.)*. New Jersey: Prentice Hall.

Goodrum, P. M., & Gangwar, M. (2004). Safety incentives. A study of their effectiveness in construction. *Professional Safety*, 49(7), 24–34.

Griffin, M.A., Neal, A. (2000). Perceptions of safety at work: a framework for linking safety climate to safety performance, knowledge, and motivation. *Journal of Occupational Health and Psychology* 5, 347–358.

Griffiths, D.K. (1985). Safety attitudes of management. *Ergonomics* 28, 61–67.

Gupta, J.P. (2002). The Bhopal gas tragedy: could it have happened in a developed country? *Journal of Loss Prevention in the Process Industries*, 15 (1), 1–4.

Hagan, P.E., Montgomery, J.F., O'Reilly, J.T. (2001). Accident Prevention Manual for Business and Industry, 12th ed. NSC, Illinois, USA.

Hall, D. T., Schnieder, B., & Nygren, H. T. (1970). Personal factor in organisational identification. *Administrative Science Quarterly*, 15 (2), 176-190.

Hajmohammad, S., & Vachon, S. (2014). Safety culture: A catalyst for sustainable development. *Journal of business ethics*, *123*(2), 263-281.

Hair, J. F., Tatham, R. L., Anderson, R. E., & Black, W. (2006). *Multivariate data analysis* (Vol. 6). Upper Saddle River, NJ: Pearson Prentice Hall.

Hair, J. F., Wolfinbarger, M. F., Ortinau, D. J., & Bush, R. P. (2010). *Essentials of marketing research*. McGraw-Hill/Irwin.

Healey, M. (2005) Linking research and teaching: disciplinary spaces. In: R. Barnett (Ed.) *Reshaping the University: New Relationships between Research, Scholarship and Teaching*, 30-42. Maidenhead: McGraw-Hill/Open University Press.

Harper, A.C., Cordery, J.L., de Klerk, N.H., Sevastos, P., Geelhoed, E., Gunson, C., Robinson, L., Sutherland, M., Osborn, D., Colquhoun, J. (1997). Curtin industrial safety trial: managerial behavior and program effectiveness. *Safety Science* 24, 173–179.

Harvey, J., Erdos, G., Bolam, H., Cox, M.A.A., Kennedy, J.N.P. & Gregory, D.T. (2002). An Analysis of Safety Culture Attitudes in a Highly Regulated Environment. *Work & Stress*, 2002, vol. 16, no. 1, 18± 36.

Haytham Remawi, Paul Bates, Ian Dix. (2011). The Relationship Between The Implementation Of A Safety Management System And The Attitudes Of Employees Towards Unsafe Acts In Aviation. *Safety Science*, Vol. 49, pp 625 – 632.

Hinze, J. (2002). Safety incentives: do they reduce injuries? ASCE Practice Periodical on Structures and Construction 7 (2), 81–84.

Hofmann, D., Jacobs, R., Landy, F. (1995). High reliability process industries: individual, micro, and macro organizational influences on safety performance. *Journal of Safety Research.* 26, 131–149.

Hopf, H. (1994). Safety culture, corporate culture, organisational transformation and the commitment to safety. *Disaster Prevention and Management*, 3 (30), 49-58.

Ivancevich, J.M. (1995). Human Resource Management. 6th Ed. Chicago: Irwin.

International Labor Organization, (2014). Retrieved on 5 Mei 2014 at http://www.ilo.org/global/topics/safety-and-health-at-work/lang--en/index.htm Kolvereid, L. (1996). Prediction of employment status choice intentions. *Working Paper Series-Henley Management College Hwp*.

Kathryn Mearns, Barry Kirwan, Tom W. Reader, Jeanette Jackson, Richard Kennedy, Rachael Gordon. (2014), Development of A Methodology For Understanding And Enhancing Safety Culture in Air Traffic Management, *Safety Science*, Vol.53, pp 123 – 133

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educ Psychol Meas*.

Krueger, R. A. (86). Casey. MA (2000). *Focus groups: A practical guide for applied research*.

Krueger, N.F. and Carried, A.L. (1993). Entrepreneurial intentions: Applying the theory of planned behaviour. *Entrepreneurship for Regional Development*, 5, 315-330.

Labodová, A. (2004). Implementing integrated management systems using a risk analysis based approach. *Journal of Cleaner Production*, *12*(6), 571-580.

Loughborough University Business School (2003), *Safety climate Measurement: User guide and Toolkit*, Retrieved November 4, 2003 from http://www.lboro.ac.uk/departments/bs/safety/document.pdf.

Majid, S. (2000). *Foundations of quantum group theory*. Cambridge university press.

Mars, G. (1996). Human factor failure and the comparative structure of jobs: the implications for risk management. Journal of Managerial Psychology 11, 4–11.

Martyka, J. & Lebecki,K. (2014). Safety Culture in High-Risk Industries. *International Journal of Occupational Safety and Ergonomics*, 20:4, 561-572.

Mattson, M., Torbiörn, I & Hellgren, J. (2014). Effects of staff bonus systems on safety behavior. Human *Resource Review 24*. 17-30.

Mearns, K., Whitaker, S. M., & Flin, R. (2003). Safety climate, safety management practice and safety performance in offshore environments. *Safety Science*, *41*(8), 641-680.

Melamed, S., Yekutieli, D., Froom, P., Kristal-Boneh, E., & Ribak, J. (1999). Adverse Work and Environmental Conditions Predict Occupational Injuries The Israeli Cardiovascular Occupational Risk Factors Determination in Israel (CORDIS) Study. *American journal of epidemiology*, *150*(1), 18-26.

Mohamed, S. (2003). Scorecard approach to benchmarking organizational safety culture in construction. *Journal of Construction Engineering Management,* 129 (1), 80–88.

Meyer, J.P. & Allen, N.J. (1990). Affective and continuance commitment to organisation: Evaluation of measures and analysis of concurrent and time-lagged relation. *Journal of Applied Psychology*, 75, 710-720.

Morrow, P.C. (1983). Concept redundancy in organisational research: The case of work commitment. *Academy of Management Review*, 8(3), 486-500.

Morrow, S. L., Koves, G. K., & Barnes, V. E. (2014). Exploring the relationship between safety culture and safety performance in US nuclear power operations. *Safety Science*, *69*, 37-47.

Neal, A., & Griffin, M. A. (1997, April). Perceptions of safety at work: Developing a model to link organizational safety climate and individual behavior. In *12th Annual Conference of the Society for Industrial and Organizational Psychology, St. Louis, MO*.

Neal, A., & Griffin, M. A. (2000). Perceptions of safety at work: A framework for linking safety climate to safety performance, knowledge, and motivation. *Journal of Occupational Health Psychological*. 5(3), 347-358.

Neal, A., & Griffin, M. (2004). Safety climate and safety at work. In J. Barling & M.R. Frone (Eds.). *The psychology of workplace safety* 34-15.

Nicoleta Duta and Elena Rafaila, 2014. *Training the competences in Higher Education – a comparative study on the development of relational competencies of university teachers*. Romania: Elsevier Ltd.

O'Toole, M.F. (1999). Successful safety committees: participation not legislation. *Journal of Safety Research*, 30, 39-65.

O'Toole, M. (2002). The relationship between employees, perception of safety and organisational safety. *Journal of Safety Research*, 33, 231-243.

Pidgeon, N. F. (1991). Safety culture and risk management in organizations. *Journal of cross-cultural psychology*, *22*(1), 129-140.

Reason, J. (1997). Safety paradoxes and safety culture. *Injury Control and Safety Promotion, 7:1, 3-14.*

Reason, J. (1990). *Human error*. New York: Cambridge University Press.

Rundmo T. (1996) Associations between risk perception and safety. *Safety Science* 24, 3, 197-209.

Salleh, A. (2010). *Safety behavior in the Malaysian petrochemical industry*. Unpublished doctoral dissertation. University Utara Malaysia,

Saidin Misnan & Abdul Hakim. (2007). Pembangunan Budaya Keselamatan dalam Industri Pembinaan. *The Malaysian Surveyor*, 20-33.

Sekaran, U. (2000). Research Methods for Business; A skill business approach. *New York: JohnWiley and Sons*.

Sekaran, U., & Bougie, R. (2010). Research methods for business: A skill building approach. Wiley.

Shafai-Sahrai, Y. (1971). An Inquiry into Factors that Might Explain Differences in Occupational Accident Experience of Similar Size Firms in the Same Industry. Division of Research, Graduate School of Business Administration, Michigan State University, East Lansing, MI.
.

Shannon, H., Mayr, J., Haines, T. (1997). Overview of the relationship between organizational and workplace factors and injury rates. *Safety Science* 26, 201–217

Sherry, P. (1992). Peer involvement and behavioral safety: a case study. In: Paper at the Annual Meeting of the American Association of Railroads. Safety Conference 8, June, Little Rock, AR.

Smith, M.J., Cohen, H.H., Cohen, A., Cleveland, R.J. (1975). On-site observations of safety practices in plants with differential safety performance. In: National *Safety Congress Transactions*, vol. 12, National Safety Council, Chicago. Tabachnick, B. G., & Fidell, L. S. (2007). Multivariate Statistics (5 th).

Talley, W.K., Jin, D., Kite-Powell, H. (2005). Determinants of crew injuries in vessel accidents. Maritime Policy and Management 32, 263–278.

Teo, E.A., & Feng, Y. (2008). The Role Of Safety Climate In predicting Safety Culture On Construction Sites. Architectural Science Review Volume 52.1, pp 5-16.

Teo, E.A.L., Ling, F.Y.Y., Ong, D.S.Y. (2005). Fostering safe work behaviour in workers at construction sites. *Engineering, Construction and Architectural Management.* 12 (4), 410–422.

Usanmaz, O. (2011), Training Of The Maintenance Personnel To Prevent Failures In Aircraft System. *Engineering Failure Analysis*, Vol.18, pp 1683 - 1688

Verma, D. (1996). Workplace organizational correlates of lost-time accident rates in manufacturing. *American Journal of Industrial Medicine* 29, 258–268.

Vinodkumar, M. N., & Bhasi, M. (2010). Safety management practices and safety behaviour: Assessing the mediating role of safety knowledge and motivation. *Accident Analysis & Prevention*, *42*(6), 2082-2093.

Vredenburgh, A. G. (2002). Organizational safety: which management practices are most effective in reducing employee injury rates?. *Journal of safety Research*, *33*(2), 259-276.

Wiersma, W. (1998). Research Methods In Education: An Introduction. Boston: Allyn & Bacon.

Wilpert, B. (1994). Industrial/organizational psychology and ergonomics toward more comprehensive work sciences. *Proceedings of the 12th Triennial Congress of the International Ergonomics Association*,1,(37–40).

Williamson, A. M., Feyer, A. M., Cairns, D., & Biancotti, D. (1997). The development of a measure of safety climate: the role of safety perceptions and attitudes. *Safety Science*, *25*(1), 15-27.

Zhang, R.Q. & Yang, J.L. (2006), Association Rules Based Research On Man-Made Mistakes In Aviation Maintenance: A Case Study. *Proceedings of the 2006 IEEE, Sixth International Conference on Intelligent Systems Design and Applications*

Zacharatos, A. (2001). An Organization and employee level investigation of the relationship between high performance work systems and workplace safety. A published doctoral dissertation, Queen's University Kingston, Ontario.

Zohar, D. (1980). Safety climate in industrial organizations: theoretical and applied implications. *Journal of Applied Psychology*, 65, 96–102.

Zikmund, W. G. (2003). *Business Research Methods*. Mason: Ohio: South-Western.