

Professional Sports Exploration for Risk Strategic Management

W. Mohd Rashid W. Ahmad*

Faculty of Technical and Vocational Education, University Tun Hussein Onn Malaysia, 86400 Parit Raja, Batu Pahat, Johor, Malaysia

Fatimah Mustafa

Department of Professionalism Research and Innovation, Malay Women Teachers Education Campus, Jalan Maktab 75400 Durian Daun, Melaka, Malaysia

Abidah Ainah Mohamed Jamal

Faculty of Technical and Vocational Education, University Tun Hussein Onn Malaysia, 86400 Parit Raja, Batu Pahat, Johor, Malaysia

Mohamed Sadek Mustafa

Faculty of Sport Science & Recreation, University of Technology Mara, 40450 Shah Alam, Selangor, Malaysia

Abstract

Strategic risk management helps sports professionals in controlling, avoiding and minimizing the risk of accidents and injuries in sports. This strategic management affects the personality, cognitive, and individual emotional features in managing risks. Developed countries like Australia and the United Kingdom have adopted standardized sports risk strategic management strategies. This indicates that organizations that offer or implement sports programs or activities require sports professionals such as administrators, sports instructors or instructors who have the basic competence of SRSM in a knowledgeable aspect, that is clear and skilled theories and philosophies and has the necessary attributes of the attitude to handle program. This study was conducted for the exploration of sport risk strategic management (ESRSM) elements. This study focuses on the dominant SRSM. This study also confirmed whether the resulting element was an element in determining the SRSM criteria. In determining the element, the Classic Test Theory (CTT) using qualitative methods through two approaches is used (i) based on the analysis of the documents by making a literature review decision; and (ii) interviews. Rasch's model element analysis using the main component analysis on residuals is used in this study to ascertain and validate elements or elements. It is possible to determine the constructibility of constructs to identify the possibility that other elements may affect the element. Based on the findings from document analysis and interviews show the dominant elements and dimensions of the SRSM of sports professionals, is the identification, assessment, selection and implementation of operations. With this SRSM it can improve the safe sports environment and can improve sports performance. Through the analysis of the elements conducted, it is found that all the elements produced have met the criteria set by the Rasch model, the percentage of the raw variance is explained by the measurement of more than 40%, the percentage of variance not explained in the first contrast is less than 10% and the first value of the first eigen less than 3.0. This proves and confirms that the whole extract is unidimensional and capable of measuring what to measure. In conclusion through this study, elements have been produced and validated as the dominant SRSM elements and no other dominant elements are detected.

Keywords: Strategic management; Sports risk management and rasch measurement model.



CC BY: [Creative Commons Attribution License 4.0](https://creativecommons.org/licenses/by/4.0/)

1. Introduction

Sports professionals are empowered by the public to take into account in providing and ensuring a safe environment for their specific knowledge and training skills. The exploration of the SRSM element helps individual sports professionals perceive risks in terms of controlling, avoiding and minimizing the risk of accidents and injuries. This strategic management affects the personality, cognitive, and individual emotional features in managing risks. Developed countries such as Australia and the United Kingdom have adopted a standardized SRSM model Guidelines for the Safe Conduct of Sport and Physical Activity in Schools (Sobski, 1999) and Safety in Sport: Guidance for UK National Governing Bodies that have been adopted since 1999 (Fuller, 1999). Strategic management of these risks is important and innovative in improving the efficiency and management of sports organizations. This indicates that organizations that offer or implement sports programs or activities have been using the SRSM model. They find that the model is very important and needs to be in standard form.

Sports risk management is aimed at avoiding and minimizing accidents in sports (Ang, 2007; Hsiu-Chin and Chao-Chien, 2010; Rejda, 2011). The incidents of riots among spectators, conflicts between players, fallen stadiums and injured athletes are among the accidents in sport that occur beyond expectations. These accidents bring threats and concerns to humans, property damage or cause the process of competition to be interrupted. According to Hsiu-Chin and Chao-Chien (2010), the element of accident is the result of human negligence during the management and management of sports programs, the use and maintenance of unsafe sports facilities and equipment. Another element

is lack of knowledge (Harun, 2012; Kassim, 2012; Thomas, 2012) among participants on the risk of an activity. Prior to taking part, the organizers were less prepared with an emergency response plan, accident reports were not properly made, unpaid rented facilities and incomplete rules (Slade, 2010; Sulaiman, 2010; Thomas, 2012). All this is negligence in sports, which is the cause of the accident when there is no SRSM.

Sports organizations in Malaysia, no standard SRSM model to be adopted by sports professionals such as administrators, coaches and sports teachers to create zero risk in sports, as well as to increase the involvement of the community in sports. Malaysia should already be available and ready with the SRSM plan to ensure the safety of all tools and equipment as well as the need for sports activities (Utusan Malaysia, 2011). Sports organizations in Malaysia, among them Teachers' Educational Institutions in Malaysia are based only on professional circulars issued according to current needs (Abdul Rahim, 2004; MOE, 2012; Sang, 2008). Therefore, sports professionals only build the SRSM model according to their creativity based on experience, knowledge, skills and professional circulars that emphasize safety rules on the field, at the courts and at the swimming pool (Abdul Razak *et al.*, 2009; Sang, 2008; SPI, 1988;2000). In addition, some aspects of safety such as general safety, personal safety and friends as well as equipment and area safety (Harun, 2012; Nord and Moore, 2008; Sulaiman, 2010) are important issues that need to be addressed to ensure the work environment and the atmosphere of systematic and safe sports activities to avoid accidental injuries (Che Lan, 2012; Daroji and Chia, 2012; Teng, 2005). Since there is no standard SRSM model, researchers will conduct research and strive to produce SRSM models for sports professionals.

1.1. Research Objective

Explore and form the SRSM element for sports professionals in Malaysian.

2. Literature Review

The implementation of strategic risk management in sports programs underscores the implications that led to the alleged lack of supervision or supervision (Olsen and Kowalski, 2010; Van der Smissen, 1990). Among the cases categorized as a case of supervisory negligence in sports were court cases involving sports in New York, ie the professional negligence of the softball sport using face-to-face adversaries (Lachapelle, 2004). There is also a case of failure of sports training organization to provide a catcher during the training session. This is in contrast to the standard rules of sports in New York, for example the case of Zmitrowitz sued Roman Catholic in 2000 (Lachapelle, 2004). In addition, there is also a case of sports organization being sued for failure to increase the risk of hazard risks inherent in sports (Lachapelle, 2004).

According to Rothe (2009), SRSM exploration planning is one of the methods to prevent and protect the problem and can be used as a guideline in the present and future. This planning is aimed at the prevention, protection and safety aspects of the school to be free of negative elements (Abdul Razak *et al.*, 2009; Che Lan, 2012) such as the sport's current injury. Most of the strategic risk management models available in Malaysia revolve around building, transport, environmental and business risk management (Bakhtiar, 2008; HIRARC, 2008; MIROS, 2007; MOE, 2012; Mohd *et al.*, 2005; Mukhtar, 2001; Nurman, 2011). However, SRSM is less emphasized. The school should have a standard SRSM model (Esa and Mustaffa, 2014; Mustaffa and Esa, 2013) which can be applied in discharging responsibility for the safety of students while they are in school sports programs.

3. Methodology

This study uses a qualitative approach to obtain information in the process of exploration and the formation of elements and dimensions of the study through findings of document analysis and interviews from Sports Field Members. At this stage, the objectives and focus of the study are determined first based on the previous research reviews undertaken both locally and internationally.

According to Stemler (1998), (Fleiss, 1971; Fliess, 1981) and Cohen (1960), elements and dimensions can be explored and set through two approaches, namely analysis of documents and interviews of Field Members, then reviewing items through the Cohen Index coefficient Kappa to determine its reliability.

The population for this study is a SRSM Expert. A total of 5 respondents were involved in this study, sports officers, sports coaches and sports administrators from the Ministry of Education Malaysia and the Malaysian Sports Organization.

Qualitative findings data such as document analysis and expert interviews were analyzed using rasch measurement model frequency matrix table.

4. Results and Findings

4.1. SRSM Element Document Analysis

Through the analysis of the document, the researcher obtained the findings of data as summarized in Table 1 which have been examined from the exploration of the previous researcher's study on sports SRSM.

Table-1. Findings of SRSM element analysis analysis

	Element SRSM	Identification	Assessment	Operation Selection	Implementation
1.	Hronek and Spengler (2002)	/	/	/	/
2.	Carpenter (2000)	/	/	/	-
3.	Fuller (1999)	/	/	/	/
4.	Mulrooney and Farmer (1998)	/	/	/	/
5.	Van der Smissen (1990)	/	/	/	/

4.1.1. Analysis of SRSM Dimension Formation Analysis

a. Finding Document Analysis of Dimension Identification

In order to produce the dimensions of risk management identification elements, researchers have analyzed documents on Van der Smissen (1990), Peterson and Hronek (2003) and Zimmerman (2007). Table 2 shows comparisons of previous studies to the dimensions of identification that should be available to sports professionals.

Table-2. Findings of document analysis dimensions of identification

	Dimensional Identification	Liability & tort	Equipment and facilities	Sports professional demographics
1.	Van der Smissen (1990)	/	/	/
2.	Peterson and Hronek (2003)	/	/	-
3.	Zimmerman (2007)	/	-	/

b. Findings of Document Analysis of Assessment Dimensions

Based on table 3, it shows comparisons by exploring previous research documents on the dimensions of assessment that should be available to sports professionals. As a result of the analysis, the dimensions of the regular assessment model stated in the document analyzed are (i) the basis of professional circulars; (ii) ISO documents; and (iii) existing risk warnings.

Table-3. Findings of the analysis of the assessment dimension document

	Evaluation dimensions	Professional circular policy	ISO documents	Existing risk warnings
1.	Van der Smissen (1990)	/	/	/
2.	Peterson and Hronek (2003)	/	/	/
3.	Zimmerman (2007)	/	/	/

c. Findings of Document Analysis of Dimensions of Operation Selection

Table 4 shows the comparison of the survey by exploring previous research documents on the dimensions of operation selection that should be available to sports professionals. Researchers are producing the dimensions of the selection of SRSM professional sports operations, sports professionals need to identify appropriate operating selections to ensure safe environment in sports programs as stated by Van der Smissen (1990), Peterson and Hronek (2003) and the Special Olympic Coaching Guide (2003).

Table-4. Findings of document analysis of dimensions of operation selection

	Dimensions of Operations	Communication	Technology	Emergency Management and Transport Dimensions
1.	Van der Smissen (1990)	/	/	-
2.	Peterson and Hronek (2003)	/	/	/
3.	Special Olympic Coaching Guide (2003)	/	-	/

d. Find Out the Analysis of the Implementation Dimension Document

Table 5 shows the findings of the findings from the Peterson and Hronek (2003), the Special Olympic Coaching Guide (2003) and Aaron (2004).

Table-5. Findings of the document of dimension of implementation of the document

	Dimensions of Implementation	Supervision	Training	Sports Activities / Programs
1.	Peterson and Hronek (2003)	/	/	/
2.	Special Olympic Coaching Guide (2003)	/	-	/
3.	Aaron (2004)	/	/	-

4.2. Analysis of Survey Data Discovery Field Expert

The researcher also identifies elements contained in each element based on the interview session with five Field Experts. The results of this interview data finding are made into dimensions on each element. Structured interviews are conducted on five Field Experts in relevant fields, namely experienced officers in the field of sports risk management from KOAM, MOE Sports Division and Malaysian Teacher Education College (MTEC). The hidden practices are identified through interviews to obtain information on the SRSM required by MOE. Table 6 shows a summary of interview findings on the Expert Fields involved. The researcher summarizes the findings as outlined in Table 6 below which shows the comparison of the views on the SRSM that a sports professional should have in implementing risk management in each sports program. The SRSM which is often stated by Field Expert is the identification, evaluation, selection of operations and implementation.

Table-6. Findings of expert interview analysis SRSM elements

	Element SRSM	Identification	Assessment	Operation Selection	Implementation
1.	Field Expert 1	/	/	/	/
2.	Field Expert 2	/	/	/	/
3.	Field Expert 3	/	/	-	/
4.	Field Expert 4	/	/	/	/
5.	Field Expert 5	/	/	/	-

The elements of the SRSM are derived based on the analysis of the documents formulated from previous researchers as well as the approval by the Sports Field Managers in field.

4.2.1. Interview of the SRSM Dimension Establishment Field Expert

a. The Findings of the Dimensions of the Identification

Table 7 shows the comparative findings of interview data on the dimensions of identification that should be available to sports professionals. The table clarifies that the dimensions of frequent identification are sports equipment and facilities and demographics. While liabilities and tort are only approved by the four Field Members.

Table-7. Survey findings of identification dimensions

	Dimensional Identification	Liability & tort	Equipment and facilities	Sports professional demographics
1.	Field Expert 1	/	/	/
2.	Field Expert 2	-	/	/
3.	Field Expert 3	/	/	/
4.	Field Expert 4	/	/	/
5.	Field Expert 5	/	/	/

b. The Findings of Interview Dimensions of Assessment

Table 8 shows the comparison of the prototype data of interviews to the dimensions of assessment that should be available to sports professionals. Based on the table, it is clear that frequent evaluation dimensions are a professional circulars, ISO documents and existing risk warnings.

Table-8. Survey findings of assessment dimensions

	Evaluation dimensions	Professional circular policy	ISO documents	Existing risk warnings
1.	Field Expert 1	/	/	/
2.	Field Expert 2	/	/	/
3.	Field Expert 3	/	/	/
4.	Field Expert 4	/	/	/
5.	Field Expert 5	/	/	/

c. The Interview Findings of the Selection of Operation Dimensions

Table 9 shows the comparison of the findings of protokal data interviews to the dimensions of the selection of operations that should be available to sports professionals. Based on the Table, it is clear that the dimensions of operational selection are often identified as emergency management and transportation. While communication and technology have not obtained approval from Field 5 and Expert Field 3.

Table-9. The interview findings of the selection of operations dimensions

	Dimensions of Operations	Communication	Technology	Emergency Management and Transport Dimensions
1.	Field Expert 1	/	/	/
2.	Field Expert 2	/	/	/
3.	Field Expert 3	/	/	-
4.	Field Expert 4	/	/	/
5.	Field Expert 5	-	/	/

d. The Survey Findings of Dimension of Execution

Table 10 shows the comparison of the protokal data of interviews to the implementation practices that should be available to sports professionals. Based on the Table, it is clear that the dimensions of the practice of regular implementation are supervisory and training.

Table-10. Survey findings dimension of execution

	Dimensions of Implementation	Supervision	Training	Sports Activities / Programs
1.	Field Expert 1	/	/	/
2.	Field Expert 2	/	/	-
3.	Field Expert 3	/	/	/
4.	Field Expert 4	/	/	/
5.	Field Expert 5	/	/	-

Implementation dimensions for sports activities / programs are not approved by Expert Field 2 and Field Member 5. They inform that supervision includes aspects of training and sports activities or programs.

4.3. Analysis of the SRSM Elements According to Rasch's Model

Table-11. Analysis of the main component of SRSM

Element	Identification	Assessment	Operation Selection	Implementation
Percentage of raw variance	4.62%	46.2%	46.2%	46.2%
Variance not explained in the first contrast	7.5%	8.4%	8.4%	5.9%
Contrast Eigen Values	2.8	3.3	3.3	3.0

The results of the analysis show that the elements formed are 4 elements of SRSM consisting of identification, evaluation, selection of operations and implementation. These four elements are unidimensional elements ie no other dimensions affect. The analysis findings show that the findings have fulfilled the rasch model factor analysis criteria where Linacre (2010) states to produce a unidimensional element, then the percentage of variance not explained in the first contrast unexplained variance does not exceed 10%, and the first contrast eigen value (first contrast eigenvalue) also does not exceed 3.0.

5. Discussion

5.1. SRSM Element form Analysis

Based on Hronek and Spengler (2002), effective SRSM for sports professionals is (i) risk identification; (ii) risk assessment, ie the frequency experienced or anticipated and the severity of the risk event; (iii) risk treatment either withholding risks, reduced risks, risk being transferred and avoiding risks; and (iv) the implementation of risk, that is, when a policy or policy is corrected, exchanged or constructed to address the risks.

Based on the model through the findings conducted by Carpenter (2000), lists that the elements that affect the sports professional SRSM are (i) risk identification; (ii) risk assessment, that is, assessing all life-threatening or injured risks, if liabilities will bear risks and any risks to the program's reputation; and (iii) the selection of operations, ie managing risks by choosing whether the risks are removed, reduced or transferred.

Similarly, the model produced by the study conducted by Fuller (1999), which found that the elements affecting the SRSM were (i) identifying facilities, equipment and sports activities; (ii) risk assessment; (iii) selection of risk operations by identifying hazards associated with sports facilities, equipment and activities; and (iv) implementing risk control measures.

Mulrooney and Farmer (1998) explains about sports professionals SRSM, namely (i) risk identification through risk recognition; (ii) risk assessment refers to the number of events and the amount of financial loss that may arise from the risks; (iii) the selection of operations through risk treatment whether the risks are avoided, diverted, stored or reduced; and (iv) the implementation of risk by developing standard operating procedures or risk management manuals.

According to Van der Smissen (1990), sports professional SRSM elements are (i) risk identification by analyzing risk and determining approaches to controlling; (ii) risk assessment through policy statements or related documents recommended by the entity building the policy; (iii) selection of operations by specifying appropriate operating practices and formatting into the model; and (iv) implement a risk management model.

Based on the criticism and the literary passage, the researcher has listed the frequent elements and was widely mentioned by the previous researcher as an element affecting sports professional SRSM, among others: (i) identification; (ii) assessment; (iii) the selection of operations; and (iv) implementation obtained through the analysis. As a result of the findings, researchers have proposed the formation of four elements that support the development of ESRSM, Teacher Education College (TEC) sports professionals in Malaysia.

5.2. SRSM Dimension Analysis

Based on Van der Smissen (1990) findings, the conclusion is that sport professionals need identification practices in SRSM, namely (i) liability and tort; (ii) equipment and facilities; and (iii) sports professional demographics. According to Peterson and Hronek (2003), sports professionals need to choose the practice of identification, namely (i) liability and tort; and (ii) equipment and facilities as a practice in managing risks. However, Zimmerman (2007) states that the practice of identification in sports risk management is (i) liability and tort; and (ii) sports professional demographics. Based on Table 7, it is clear that the frequent identification dimensions are liabilities and tortages, equipment and facilities, and sports professional demographics.

The dimensions of SRSM model evaluation elements can be identified after the researchers performed document analysis on risk management models Van der Smissen (1990), Peterson and Hronek (2003) and Zimmerman (2007). Based on Van der Smissen (1990), sports professionals should evaluate (i) professional circular policy; (ii) ISO documents; and (iii) existing risk warnings. Zimmerman (2007) also noted that in risk management, sports professionals should evaluate (i) professional circular policy; (ii) ISO documents; and (iii) existing risk warnings. Likewise Zimmerman (2007), states that in risk management, sports professionals should evaluate (i) professional circular policy; (ii) ISO documents; and (iii) existing risk warnings.

Van der Smissen (1990) states that in SRSM, sports professionals should choose appropriate operations to manage risks through (i) communication; and (ii) technology. According to Peterson and Hronek (2003), sports professionals need to practice risk management practices through (i) communication; (ii) skilled with the latest technology in sports; and (iii) emergency management and transportation. Special Olympic Coaching Guide (2003) states that sports professionals need to master the aspects of (i) communication; and (ii) basic knowledge of emergency management and transportation. Referring to the above discussion makes it clear that the dimensions of operational selection are often defined as communication, technology and emergency management and transportation.

Based on the Peterson and Hronek (2003) document, researchers found that competent sports professionals SRSM should always carry out activities in safe situations and environments through (i) effective supervision; (ii) training; and sports activities / programs. As a result of the analysis of the document, the dimension of implementation which is often stated by the document analyzed is the supervision, training and sports activities / programs. The researchers also analyzed the Special Olympic Coaching Guide (2003) and found that the dimensions of the SRSM implementation to ensure safe risk management is (i) supervision; and (ii) sports activities / programs. The researcher also analyzed Aaron (2004) and found that the implementation dimension of SRSM was (i) supervision; and (ii) exercise.

5.3. Analysis of the SRSM Elements According to the Rasch Model

Based on the findings specified in the Table shows that there is no second dimension on the elements as stated by Bond and dan Fox (2007) and Linacre (2010) stating that there is no second dimension when it complies with the criteria set to determine the integrity of the element. This is also in line with Baghaei (2008) statement stating that the validity of the elements is related to the production of the appropriate items to measure the single dimensions and fit the model. He added, the Rasch measurement model is a tool for the element. Therefore, the researcher concluded that the element of SRSM generated through 4 elements namely identification, evaluation, selection of operations and execution is valid and reliable to be used as a reference in applying the practice of risk management of coach trainers in TEC.

6. Conclusion

It can therefore be concluded that the element of the SRSM is derived from document analysis and formulated from earlier researchers as well as agreement by Sports Risk Management Specialists, is identification, evaluation, selection of operations and implementation. This SRSM element has been proven that its entire element is unidimendiate and capable of measuring what to measure. The resulting element is also endorsed as the dominant SRSM element and can not find the dominant other element. This study has also contributed to the body of knowledge to produce the appropriate SRSM elements for TEC sports professionals in Malaysia.

Acknowledgement

- a) University of Tun Hussein Onn Malaysia
- b) Research, Innovation, Commercialization & Consultancy Office.
- c) Fundamental Research Grant Scheme (FRGS) under Vote 1638.

References

- Aaron, T. C. (2004). Factors affecting the performance levels of risk management behaviors of Florida High Schools athletic directors.
- Abdul Rahim, A. A. (2004). *Kursus perguruan lepas ijazah, pengurusan gerak kerja kokurikulum*. Selangor.
- Abdul Razak, M. N., Ismail, C. I. and dan Panting, A. J. (2009). *HBPE3203: Kebersihan dan keselamatan persekitaran*. Open University Malaysia: Selangor.
- Ang, K. K. (2007). Kompetensi setiausaha sukan dan SRSM dan keselamatan program sukan sekolah menengah di Malaysia.

- Baghaei (2008). *The rasch model as a construct validation tool. Rasch measurement transactions.* Rasch Measurement Transactions. 22-1: 1145. <http://www.rasch.org/rmt/rmt221a.htm>
- Bakhtiar, J. N. H. (2008). Kajian penilaian risiko terhadap keselamatan pekerja pemrosesan buah Kelapa Sawit.
- Bond, T. G. and dan Fox, C. M. (2007). *Applying the rasch model, Fundamental measurement in the human sciences.* 2nd edn: Lawrence Erlbaum Associates, Publishers: New Jersey, London.
- Carpenter, L. J. (2000). *Legal concepts in sport, a primer. Physical education recreation and dance.* 2nd edn Saga more Publishing in Cooperation with the American Alliance for Health.
- Che Lan, N. (2012). *HBPE2103 program bersepadu sekolah sihat.* Open University Malaysia: Selangor.
- Cohen, J. (1960). A Coefficient of agreement for nominal scales. *Educ. Psychol. Meas.*, 20: 37-46.
- Daraji, I. and Chia, C. M. (2012). *Pendidikan luar.* Multimedia: Selangor.
- Esa, A. and Mustaffa, F. (2014). Validation of teacher education of Malaysia trainer's sport risk management practices constructs. *International Review of Social Sciences:* 116-29.
- Fleiss, J. L. (1971). Measuring nominal scale agreement among many raters. *Psychol. Bull.*, 76: 378-38.
- Fliess, J. L. (1981). *Statistical methods for rates and proportions.* 2nd edn: John Wiley: New York.
- Fuller, C. W. (1999). *Safety in sport, Guidance for uk national governing bodies.* United Kingdom, UK sport.
- Harun, M. T. (2012). *HBPE1203 kecergasan fizikal.* Open University Malaysia: Selangor.
- HIRARC (2008). *Garis panduan bagi pengenalpastian hazard, penaksiran risiko dan kawalan risiko. Jabatan keselamatan dan kesihatan pekerjaan.* Kementerian Sumber Manusia Malaysia: Kuala Lumpur.
- Hronek, B. B. and Spengler, J. O. (2002). *Leal liability in recreation and sport.* Sangamore: Champaign, IL.
- Hsiu-Chin, W. and Chao-Chien, C. (2010). Improvement of the safe environment of American university indoors sports facilities of research. *The Journal of Human Resource and Adult Learning*, 6(1).
- Kassim, M. (2012). The acquisition of knowledge by the coaches: Can qualitative approach help? *JSSPS Jurnal Sains Sukan dan Pendidikan Jasmani. Jilid*, 1: 35-43.
- Lachapelle, C. F. (2004). The risk and safety practices in youth baseball and softball.
- Linacre, J. M. (2010). *A user's guide to WINSTEPS, Rasch-model computer program.* Beaverton: Oregon.
- MIROS (2007). *Kod amalan keselamatan kesihatan dan alam sekitar untuk sektor pengangkutan.* Institut Penyelidikan Keselamatan Jalan Raya Malaysia: Kuala Lumpur.
- MOE (2012). *Konsep dan manual sekolah selamat, Panduan pelaksanaan menjadikan sekolah, komuniti dan keluarga selamat untuk kanak-kanak.* Bahagian Sekolah Kementerian Pelajaran Malaysia: Putrajaya.
- Mohd, A. S., Abdul Ghani, S. and Ab. Latib, A. (2005). *Konsep dan pelaksanaan sekolah selamat.* Seminar Pendidikan, Fakulti Pendidikan. Universiti Teknologi Malaysia.
- Mukhtar, M. (2001). Tahap pengetahuan tentang keselamatan dan kesihatan pekerjaan di kalangan pekerja kilang Elektornik, Satu kajian kes di sebuah kilang elektronik di Shah Alam.
- Mulrooney, A. L. and Farmer, P. (1998). *Risk management in public assembly facilities. In H. Appenzeller (Ed.), Risk management in sport, Issues and strategies.* Carolina Academic Press: Durham, NC. 267-81.
- Mustaffa, F. and Esa, A., 2013. "Srsm sukan pensyarah institut pendidikan guru Malaysia." In *Prosiding 1st UMS International Sport Science Conference. Sabah: Universiti Malaysia Sabah.* pp. 1-330.
- Nord, N. and Moore, T. H. (2008). Cpsc releases the top five hidden home hazards popular magnetic toys on the list of deadly dangers. *Consumer Product Safety Review Winter* 11(1): 1-2.
- Nurman, S. N. (2011). Mengukur keselamatan dan kesihatan fasiliti sekolah tadika swasta di medan.
- Olsen, H. and Kowalski, C. L. (2010). Enchanging program quality and care through supervision. *Afterschool Matters Spercial.*
- Peterson, J. A. and Hronek, B. B. (2003). *Risk management park, recreation, and leisure services.* 4th edn: Sagamore Publishin: Champaign, IL.
- Rejda, G. E. (2011). *Principles of risk management and insurance.* 11th edn: Pearson: New Jersey.
- Rothe, J. P. (2009). The voluntary use of physical education safety guidelines in schools. *Journal of Physical Education, Recreation & Dance*, 80(3): 43-49.
- Sang, M. S. (2008). *Siri pendidikan kursus penilaian tahap kecekapan pengajaran & pengajaran untuk pegawai perkhidmatan Pelajaran Gred DGA34, DG44 & DG48 (KUP).* Multimedia: Selangor.
- Slade, D. (2010). *Transforming play, Teaching tactics and game sense.* Human Kinetics: United State.
- Sobski, J. (1999). *Guidelines for the safe conduct of sport and physical activity in schools.* Department of Education and Training: New South Wale.
- Special Olympic Coaching Guide (2003). Available: <http://media.specialolympics.org/soi/files/sports/Athletics+Home+Training+Guide.pdf>
- SPI (1988). *Surat pekeliling Ikhtisas Bil.8/1988, Keselamatan diri pelajar di sekolah.* Kementerian Pelajaran Malaysia: Kuala Lumpur.
- SPI (2000). *Surat pekeliling iktisas bil. 9/2000, Panduan keselamatan diri pelajar semasa pengajaran Pendidikan Jasmani dan Kesihatan serta kegiatan Kokurikulum dan Sukan di dalam dan di luar kawasaan sekolah.* Kementerian Pelajaran Malaysia: Putrajaya.
- Stemler, S. (1998). Investigating the practical applications of content analysis. Available: <http://www2.bc.edu/~stemler/contentanalysis.html>
- Sulaiman, S. B. (2010). *HBEF3403 Pengurusan Sukan dalam Pendidikan Jasmani.* Open University Malaysia: Selangor.
- Teng (2005). *Pendidikan Jasmani dan pendidikan kesihatan. Kursus diploma perguruan Malaysia.* Longman: Selangor.

- Thomas, M. G. (2012). The study of the southeast athletic trainers' association (SEATA) District IX Athletic trainers' perceptions of the need for mandated continuing education units in risk management policies and procedures.
- Utusan Malaysia (2011). Pelajar maut di hempap tiang gol.
- Van der Smissen, B. (1990). *Legal liability and risk management for public and private entities*. Anderson Publishing Company: Cincinnati.
- Zimmerman, E. P. (2007). Risk management practice of collegiate athletic trainers, An examination of policies and procedures.