CHAPTER III

MATERIALS AND METHODOLOGIES

3.1 INTRODUCTION

This chapter describe the materials used in this study as well as the methodology that was implemented during the research . Both qualitative and quantitative approach has been selected for this research. Qualitative research is a method of an investigation employed in many different academic disciplines such as collecting evidence and producing findings that were not determined in advance. While Quantitative research is the logical way of investigating the observable phenomena through statistical, mathematical or computational methods. However this study involves statistical methods in which the data will be analyzed using Statistical Package for the Social Science (SPSS software). Meanwhile SPSS is a window based program that can be used to perform data entry and data analysis.

3.2 RESEARCH DESIGN

The main instrument for this research is the questionnaire which served as the source of primary data. A 3-point scale was used to determine the level of relevance of a particular item. The highest point of the scale represents "Yes", followed by "No" and "Not Sure" which is the lowest point. In this research, quantitative method of research was adopted. The questionnaires were distributed through physical contacts with the staff of the Global Open Access Learning System (GOALS) in Universiti Sains Islam Malaysia (USIM) that consists of 10 staffs in total and that was the respondents for this research.

3.2.1 Ethical Overview

The researcher will be vigilant of ethical needs in every step it takes. Despite the research not involving any hazardous or harmful implications, it will be conducted or carried out in the best possible manner and approach in such a way that participants (staff) are not pressurized or harassed. It will also be ensured that the selection of the participants or respondents is not bias and any contribution of suggestion from others personalities on the way that will be relevant in getting accurate result will be fully considered, welcomed and appreciated.

3.2.2 Accessibility of Information

This section is devoted to introduce the main data available for this study. Fundamentally, the data that will be used in the research can be broadly divided into two main categories including:

a) Previous studies and previously published papers as well as reports. This should include books and electronic books, related literature, relevant newspapers and magazines, electronic publication (Web Pages), and qualitative information to support this research study.

b) The second category is quantitative research, basically concerning the data collection throughout employing a widely spread questionnaire including staff in USIM that work particularly in G.O.A.L.S Center to answer the questionnaire regarding the Information Security Risk Assessment of E-learning System in the university "USIM" and take advantage of the results.

3.3 THE RESOURCES

The knowledge resources used in this research consisted of online publication related to e-learning, readiness e-learning and risk assessment e-learning from selected online databases from 2001 to 2014. The publications will mainly related on several aspects of classification of security threats, e-learning system vulnerabilities, information security threats, challenges to e-learning in Higher Education and Security Management Policy. In addition, risk assessment in the e-learning system.

The main approach to obtain the information in this project is as follows:

a) Library:
   - Include consideration of preliminary information.
   - All references and relevant research literature.
   - Magazines and newspapers as well as the related Web Pages.

b) Resources and electronic sources such as the Internet, e-books.

c) A field study to include collecting of information (Questionnaire).

3.4 RESEARCH METHODS

This research is based on the published books, references and the use of electronic sources, magazines, newspapers and research papers. Elicitation technique is used to get the data and include data collection and then these are analyzed data collected and get them to explore the research topic.

3.5 RISK ASSESSMENT METHODOLOGY

Based on previous studies, both qualitative and quantitative approach was seen suitable for this research. Data were collected among staff who work in G.O.A.L.S in this section. In order to answer the questionnaire, which specializes in Information Security

Risk Assessment of E-learning System, this questionnaire included the following aspects:

1. **Personal Information:** This section collect personal data of respondents such as gender, educational level and position in the department.
2. **Unauthorized release of information:** Disclosure of confidential or sensitive information can result in loss of credibility and reputation,
3. **Unauthorized modification of information:** Unauthorized people has ability to modify the information. The result will be loss of the quality to content and credibility for e-learning.
4. **Unauthorized denial of resource use:** Misuse of IT resources such as network bandwidth may cause slow response times, delaying legitimate computer activities that, in time-critical applications such as test and quiz.

3.6 METHOD OF DATA COLLECTION

There are a total number of ten staffs at the GOALS center, therefore only ten questionnaires will be distributed to the staffs in GOALS in Universiti Sains Islam Malaysia to deduce a quantitative information. The result of the questionnaires was documented for statistical analysis. This quantitative information allowed researcher to assess Information Security Risk currently faced by GOALS that is e-learning system in USIM. The statistical analysis was performed with the help of SPSS software to establish a clear picture of the information security risk of e-learning and examine its impact on the e-learning system.

3.7 QUESTIONNAIRE VALIDATION

The questionnaire was based on items derived from the studyintegrating information security in the e-learning environment, Vasilescu et al. (2011) outline 3 items on general information security risks categories which are:

1. Unauthorized release of information.

2. Unauthorized modification of information.

3. Unauthorized denial of resource use.

However the questionnaire consists of three categories: Section A, B, C and D as shown in Table 3.1.

Table 3.1: Questionnaire Validation Table

Questions Number	Reference
SECTION A	
A1	Garrison and Vaughan (2008)
A2	Garrison and Vaughan (2008)
A3	Garrison and Vaughan (2008)
SECTION B	
B1	Vasilescu et al. (2011)
B2	Vasilescu et al. (2011)
B3	Vasilescu et al. (2011)
B4	Vasilescu et al. (2011)
B5	Vasilescu et al. (2011)
B6	Vasilescu et al. (2011)
B7	Vasilescu et al. (2011)
B8	Vasilescu et al. (2011)
B9	Vasilescu et al. (2011)
B10	Vasilescu et al. (2011)
SECTION C	
C1	Vasilescu et al. (2011)
C2	Vasilescu et al. (2011)
C3	Vasilescu et al. (2011)
C4	Vasilescu et al. (2011)
C5	Vasilescu et al. (2011)
C6	Vasilescu et al. (2011)
C7	Vasilescu et al. (2011)
C8	Vasilescu et al. (2011)

C9	Vasilescu et al. (2011)
C10	Vasilescu et al. (2011)
SECTION D	
D1	Vasilescu et al. (2011)
D2	Vasilescu et al. (2011)
D3	Vasilescu et al. (2011)
D4	Vasilescu et al. (2011)
D5	Vasilescu et al. (2011)
D6	Vasilescu et al. (2011)
D7	Vasilescu et al. (2011)
D8	Vasilescu et al. (2011)
D9	Vasilescu et al. (2011)
D10	Vasilescu et al. (2011)

This table above shows the sectional arrangement of the questionnaire and the validation of source as from where the questions were generated. This questionnaire was distributed to GOALS staffs so as to gather both information related to the security risk face by GOALS.