**RISK-BASED RANKING FOR SELECTING KEY ISSUES IN PROFESSIONAL DEVELOPMENT COURSE**

Abstract

The professional development plays an important role for maintaining and/or improving organization performance. It is natural that there can be a large numbers of issues to be considered in the courses of professional development and it is not always possible to solve all issues at the same time. Accordingly, the issues to be developed needed to be ranked and solved in a consecutive manner. In this paper, a simple methodology of issue ranking based on a risk metric is proposed. The methodology is comprised of two main steps. The first step is the determination of issues to be considered in the course of professional development. This is accomplished using the questionnaires. The questionnaires are given to the workers who have been involving the works of interest with long experiences. In other words, the workers have comprehensive knowledge, specifically tacit knowledge, about the works. Every acquired issue is then scored by each experienced worker. The scoring is performed based on a risk metric. The total score for the same issue is determined from all worker responses. Finally, the scores for all issues from all workers are compared and ranked. The issues with high risk-based scores are then proposed to be considered first for the course of professional development.

*Keywords*: Professional development, risk-based ranking, expert.

**INTRODUCTION**

The professional development plays an important role for maintaining and/or improving organization performance. For examples, competency of people who provide service is a deciding factor in choosing low-cost airlines [1]. Regarding the professional development, it is natural that there can be a large number of course to be considered in the professional development and it is not always possible to offer all courses at the same time due to the time and budget constraints. Accordingly, the courses needed to be ranked.

This work introduces a systematic methodology of prioritizing courses of interest. The methodology employs risk as a measure of importance. The assessment of the risk magnitude is carried out by experts in the development areas. A scoring table for risk determination is also proposed.

After this introduction section, the proposed methodology will be next described. The clarification of the methodology is done by means of illustrative example. Concluding remarks are given at the end.

**PROPOSED METHODOLOGY**

The courses to be offered are elicited from the experts in the profession. The role of expert elicitation plays an important role in reliable design [2]. The experts must, of course, belong to the organization, not the outsiders because the latters are not in the organization operation and environment. The experts are expected to have long experiences in the relevant areas to be improved. Each expert is given with the so-called risk assessment table (see Table 1).

Table 1: Risk Assessment Table

|  |  |  |  |
| --- | --- | --- | --- |
| **Course** | **Level of Use Frequency****(F)****(1-10: 1 for never and 10 for always)** | **Level of Damage****(if not offered)****(D)****(1-10: 1 for minimum and 10 for maximum)** | **Risk = F x D** |
|  |  |  |  |
|  |  |  |  |

The Risk Assessment Table comprises of Course, Level of Use Frequency (F), Level of Damage (D), and Risk. The elicitation process is in the form of interview in which only a specific numbers of courses are required from the experts, e.g. 5 courses. The elicited courses are not necessarily the same for each expert. The courses from all experts are collected and put in the Risk Assessment Table. It is emphasized that all courses are considered. Every expert is then given with a Risk Assessment Table which contains the same course titles.

Then each expert fills in the Risk Assessment Table for the columns of Level of Use Frequency and Level of Damage while the last column of Risk is obtained from computation. It is noted that the column Level of Use Frequency defines the frequency of the real operation corresponding to the course and the column Level of Damage signifies the level of negative effects if the workers are not competent enough in that operation. The Risk is defined as the product between the Level of Use Frequency and the Level of Damage. This definition is in accordance with [3]. The respective Risk scores are summed up from all experts. Finally, all courses are ranked according to their scores from maximum to minimum ones. The courses with higher scores will be selected as first priorities to be offered in the professional development program.

Next section illustrates the proposed methodology via examples

**ILLUSTRATIVE EXAMPLE**

1. The example shows the selection of courses for improving in-flight operations. Suppose there are three experts, namely A, B, and C. Each expert is interviewed to specify 5 courses that he/she consider important. The following are the exemplified courses from the respective experts:

Expert A:

1. First-aid

 2. Service

3. Public Announcement

4. Crew Resource Management

5. Handling of Emergency Situation

 Expert B:

1. Self-defence

2. Position Transition

3. Job Motivation

4. Public Announcement

5. Service

Expert C:

1. First-aid

2. Service

3. Self-defence

4. Handling of Emergency Situation

*5. Public Announcement*

It should be noted that there are some repeated course titles from all experts from the eliciting interview above. All course titles will be put into the Risk Assessment Table (see Table 2). There are altogether 8 courses from all 3 experts

Table 2: Risk Assessment Table with elicited course titles.

|  |  |  |  |
| --- | --- | --- | --- |
| **Course** | **Level of Use Frequency****(F)****(1-10: 1 for never and 10 for always)** | **Level of Damage****(if not offered)****(D)****(1-10: 1 for minimum and 10 for maximum)** | **Risk = F x D** |
| 1. First-aid  |  |  |  |
| 2. Service  |  |  |  |
| 3. Public Announcement |  |  |  |
| 4. Crew Resource Management |  |  |  |
| 5. Handling of Emergency Situation |  |  |  |
| 6. Self-defence |  |  |  |
| 7. Position Transition |  |  |  |
| 8. Job Motivation |  |  |  |

The Risk Assessment Table with elicited course titles as shown in Table 2 is then distributed to each expert. The experts are requested to fill in the table. The exemplified results are given in Table 3 to Table 5 below.

Table 3: Risk Assessment Table from Expert A.

|  |  |  |  |
| --- | --- | --- | --- |
| **Course** | **Level of Use Frequency****(F)****(1-10: 1 for never and 10 for always)** | **Level of Damage****(if not offered)****(D)****(1-10: 1 for minimum and 10 for maximum)** | **Risk = F x D** |
| 1. First-aid  | 2 | 10 | 20 |
| 2. Service  | 10 | 5 | 50 |
| 3. Public Announcement | 2 | 4 | 8 |
| 4. Crew Resource Management | 4 | 4 | 16 |
| 5. Handling of Emergency Situation | 2 | 10 | 20 |
| 6. Self-defence | 1 | 10 | 10 |
| 7. Position Transition | 3 | 6 | 18 |
| 8. Job Motivation | 8 | 2 | 16 |

Table 4: Risk Assessment Table from Expert B.

|  |  |  |  |
| --- | --- | --- | --- |
| **Course** | **Level of Use Frequency****(F)****(1-10: 1 for never and 10 for always)** | **Level of Damage****(if not offered)****(D)****(1-10: 1 for minimum and 10 for maximum)** | **Risk = F x D** |
| 1. First-aid  | 3 | 10 | 30 |
| 2. Service  | 10 | 5 | 50 |
| 3. Public Announcement | 1 | 5 | 5 |
| 4. Crew Resource Management | 2 | 2 | 4 |
| 5. Handling of Emergency Situation | 2 | 10 | 20 |
| 6. Self-defence | 2 | 8 | 16 |
| 7. Position Transition | 4 | 4 | 16 |
| 8. Job Motivation | 8 | 2 | 16 |

Table 5: Risk Assessment Table from Expert B.

|  |  |  |  |
| --- | --- | --- | --- |
| **Course** | **Level of Use Frequency****(F)****(1-10: 1 for never and 10 for always)** | **Level of Damage****(if not offered)****(D)****(1-10: 1 for minimum and 10 for maximum)** | **Risk = F x D** |
| 1. First-aid  | 3 | 10 | 30 |
| 2. Service  | 10 | 4 | 40 |
| 3. Public Announcement | 1 | 4 | 4 |
| 4. Crew Resource Management | 1 | 2 | 2 |
| 5. Handling of Emergency Situation | 1 | 10 | 10 |
| 6. Self-defence | 1 | 8 | 8 |
| 7. Position Transition | 1 | 6 | 6 |
| 8. Job Motivation | 4 | 4 | 16 |

The risk magnitude of each course title is summed up from all 3 experts. The result is given in Table 6.

Table 6: Results from all experts.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course** | **Risk Score** **(Expert A)** | **Risk Score****(Expert B)** | **Risk Score****(Expert C)** | **Total Risk Scores** |
| 1. First-aid  | 20 | 30 | 30 | 80 |
| 2. Service  | 50 | 50 | 40 | 140 |
| 3. Public Announcement | 8 | 5 | 4 | 17 |
| 4. Crew Resource Management | 16 | 4 | 2 | 22 |
| 5. Handling of Emergency Situation | 20 | 20 | 10 | 50 |
| 6. Self-defence | 10 | 16 | 8 | 34 |
| 7. Position Transition | 18 | 16 | 6 | 40 |
| 8. Job Motivation | 16 | 16 | 16 | 48 |

Ranking of courses according to the total Risk Scores yields:

1. Service

2. First-aid

3. Handling of Emergency Situation

4. Job Motivation

5. Position Transition

6. Self-defence

7. Crew Resource Management

8. Public Announcement

 As a result, the professional development should start from Service to First-aid, Handling of Emergency Situation, Job Motivation, Position Transition, Self-defence, Crew Resource Management, and to Public Announcement, respectively.

**CONCLUSIONS**

The professional development plays an important role for maintaining and/or improving organization performance. It is natural that there can be a large numbers of course to be considered in the professional development and it is not always possible to offer all courses at the same time due to the time and budget constraints. This work introduces a systematic methodology of prioritizing courses of interest. The methodology employs risk as a measure of importance. The assessment of the risk magnitude is carried out by experts in the development areas. The Risk is defined as the product between the Level of Use Frequency and the Level of Damage. The Level of Use Frequency defines the frequency of the real operation corresponding to the course and the Level of Damage signifies the level of negative effects if the workers are not competent enough in that operation. The courses with higher scores will be selected as first priorities to be offered in the professional development program. The methodology is realized through the proposed Risk Assessment Table. It is shown that the ranking for selecting key issues in professional development course becomes simplified via such a Risk Assessment Table.

References

1. Kungwola, K. (2016). An Investigation of Service Marketing Mix of Low-Cost Airlines: A Case of International Passengers. Proceedings of 4th International Conference ACE+2016 Actual economy: Local solutions for Global Challenges, Copenhagen, Denmark.

##  2. Bedford, T., Quigley, J., and Walls, L. (2006). “Expert Elicitation for Reliable System Design Statistical Science.” *Statistical Science*, Vol. 21, No. 4, pp. 428–450.

 3. Wilson, R., and Crouch, E.A.C., (1982). *Risk-Benefit analysis Cambridge*, MA: Ballinger.

 4. ISO (2009). *Risk Management – Principles and guidelines*, ISO 31000:2009.