THE RELEVANCE OF EMOTIONAL INTELLIGENCE IN PROJECT MANAGEMENT FOR THE AVIATION INDUSTRY

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Over the past few years, increasing attention has been given to the importance of emotional intelligence (EQ) in the project environment. Project managers and project team members are faced with increasing amounts of stress and responsibilities with regard to project deliverables in a constantly changing environment.

The key focus of the research study reported in this paper was to determine whether the success of project managers in the aviation industry is associated with how they master the use of EQ skills and also whether a specific EQ clusters plays a more important role in the effective management of aviation projects. The paper focused on project managers and project team members involved in aviation projects inside of South Africa.

The first step of this research was to conduct a comprehensive literature study on EQ, project human resource management and the aviation industry. It was decided to use the EQ model, as proposed by Daniel Goleman, as a basis for the research study. The next step was to generate a questionnaire and to gather data. The results are based on the perceptions of 84 respondents. The questionnaire used in this study was adapted from a questionnaire developed during a previous study. The four clusters consist of the quadrants of: self-awareness, self-management, social awareness and relationship management. EQ was found to be an important attribute for project managers in the aviation industry and all the quadrants were found to be of equal importance.

Key phrases: Emotional intelligence, project management, aviation industry, project success

1   INTRODUCTION

The volume of air traffic has increased incredibly over the past few years. Travelling by air is often referred to as one of the quickest and safest means to move from one point to another and the aviation industry is a safety critical environment. It is therefore important that aviation projects are managed effectively and efficiently to make sure that the desired specifications and outcomes are met.

However, aviation accidents do occur on a regular basis. All regions recorded a decrease in aviation accidents the past few years, except for Africa. During 2006, the Aviation Safety Network (Anonymous 2008a:1) recorded a total of 27 fatal aviation accidents, resulting in 888 fatalities. 18.5% of all fatal accidents happened in Africa, while the continent only accounts for approximately 3% of all world aircraft departures (Anonymous 2008b:1)

Project managers make the difference in today's project conscious enterprises; this is also true in the aviation industry. It is therefore important to know what competencies are required to ensure a person is a great project manager.

According to Goleman (2006:32-33), IQ and technical skills are important, but EQ is the *sine qua non* of project management.

The key focus of the research reported in this paper was to determine if the success of project managers in the aviation industry is closely associated with how they master the use of EQ methodology and which of the EQ clusters plays a more important role in the effective management of projects. However, research was not done specifically on project managers in the aviation industry.

Previous research (Barry 2006:ii) has shown that EQ is an important competence for project managers. The research reported in this paper thus focuses on the importance of EQ for project managers in the aviation industry.

The associated research questions are as follows:

- Do project managers and project team members in the aviation industry within South Africa perceive EQ to be an important competence for a project manager in this industry?

- Which of the EQ clusters is most important for project managers in the aviation industry?

Participants in the research were project managers and project team members within South Africa who work in the aviation industry. The most typical project that a project manager needs to manage in the South African aviation industry is airport upgrading due to the increasing amount of passengers to the airports. This includes expanding the current infrastructure. The biggest challenge for a project manager during airport upgrading is to complete the upgrade without interrupting the current operations of the airport. Therefore any project activity that could influence the airport operations negatively needs to be done after hours. This increases project cost. This also limits the on site working hours that influences the project program. The expanded infrastructure also needs to be integrated with the current infrastructure. Insufficient knowledge of the current infrastructure can therefore be a challenge to the project.

According to existing research, EQ is a competence that can be improved Goleman (2006:1) Project managers can thus learn to improve their EQ and then manage their projects more effectively. Ultimately, the research could contribute to improved project management in the aviation industry. The findings could be used to develop EQ improvement courses for project managers specifically for the aviation industry.

2   PROPOSED MODEL AND LITERATURE STUDY

A comprehensive study on the theory of EQ for project managers was completed. Existing data was found on EQ for project managers. No existing data could be found on EQ for project managers specifically in the aviation industry.

Emotional Intelligence (EQ)

EQ refers to an ability to recognize the meanings of emotions and their relationships and to reason and problem-solve on the basis of these. EQ is involved in the capacity to perceive emotions, assimilate emotion-related feelings, understand the information provided by the emotions, and manage these (Ciarrochi, Forgas & Mayer 1999:267).

There are two major components of EQ, i.e. personal competence and social competence. (Goleman 2006:32). Personal competence refers to the ability to understand one's own feelings, strengths, and weakness (self-awareness), and the ability to manage those feelings effectively (self-management). Social competence refers to the ability to understand what others are feeling (social awareness) and having the skills to work effectively with others (relationship management) (Lubit 2004:1-2). The ability to understand what people think and feel, knowing how to persuade and motivate them and how to resolve conflicts and forge cooperation are among the most important skills of successful leaders and managers (Lubit 2004: 1-2).

The Goleman (2006:32-33) framework, as indicated in Table 2.1, is the most recent version of this framework and consists of a 2 x 2 matrix.

Table 1: Goleman model (Tifimae 2006:32-33)

Self-awareness	Self-management
Emotional Self-awareness	Self-awareness
Accurate self-assessment	Transparency
Self-confidence	Adaptability
	Achievement
	Initiative
	Optimism
Social Awareness	**Relationship Management**
Empathy	Inspiration
Organizational awareness	Influence
Service	Developing others
	Change Catalyst
	Conflict management
	Teamwork
	Collaboration

In terms of the above:

- *Self-awareness*: Is defined as knowing one's internal state, preferences, resources and intuitions and knowing one's emotions, strengths, weaknesses and capabilities (Tifimae 2006:32-33).

- *Self-management*: Is managing one's internal states, impulses and resources in order to facilitate reaching goals by being flexible, dedicated and trustworthy (Tifimae 2006:32-33).

- *Social awareness*: Is awareness of others' feelings, needs and concerns, including being empathetic, being aware of a group's inter-relationships and knowing others' needs (Tifimae 2006:32-33).

- *Relationship management*: Is adeptness at inducing desirable responses in others, assisting others to develop themselves and the ability to resolve arguments and build good relationships (Tifimae 2006:32-33).

Goleman (2006:1) includes a set of emotional competencies within each construct of EQ. Emotional competencies are not innate talents, but rather learned capabilities that must be worked on and developed to achieve outstanding performance. Goleman (2006:1) posits that individuals are born with a general EQ that determines their potential for learning emotional competencies (Bar-on et al 2006:1).

The need for EQ in the workplace and for project managers

The most important qualities that characterize effective leaders include integrity, maturity, business acumen and social skills - which are EQ traits (Abraham 2006:2).

EQ was perceived as an important competence for project managers in the 21st century, as most of the respondents (89.79%) felt that EQ is important (Barry 2006:5). The main implications for and contributions to project management practice are as follows: "This research shows EQ is an important competence for project managers and therefore needs more attention in selection and development of project managers. According to the literature, EQ is something that can be learned and improved. EQ should thus be taught to project managers" (Barry 2006:5).

Personal EQ skills (self-awareness, self-regulation and motivation) are essential if individuals are to recognise their own strengths and weaknesses, develop good self esteem, maintain integrity, demonstrate flexibility, take responsibility for their own actions, take initiative and strive for excellence (Abraham 2006:2). This involves understanding the needs of others, implementing successful conflict management strategies, listening and leadership. Thus EQ is an essential ingredient for a productive workplace (Abraham 2006:2).

Coetzee (2005:31) determined that the managers of the future will have to be prepared to cope with change if they are to be effective and will require abilities such as: being team oriented, strong communicators, team players, problem solvers,

change-makers and leaders. He further indicated that managers will have to be competent leaders in order to transform their people to achieve required company outcomes.

Coetzee (2005:31) describes a 21st century leader as having the ability to demonstrate a greater empathy and concern for people issues than his/her earlier counterparts. A leader will have to play various roles within this new, changing environment and in order to ensure that changes takes place successfully, greater consideration for the individual should be instilled in leaders with regard to aspects such as understanding how people view the world. Coetzee indicated further that the importance of structures, programmes and processes should be disregarded, given that people are the programmers of these programmes (Coetzee 2005:31).

Project managers try to get things done through a large and diverse set of people, despite having little direct control over most of them (El-Sabaa 2001:1). He categorized the skills needed for a project manager into six skill areas: communication, organizational, team building, leadership, coping, and technological skills. He also suggested that effective administration rests on three basic developable skills, namely human skills, conceptual skills and technical skills. It is clear from the previous discussion around EQ that the skills referred to here are essentially EQ skills.

EQ can be misunderstood and misrepresented, but the manager who can think about emotions accurately and clearly may often be better able to anticipate, cope with, and effectively manage change (Mayer & Caruso 2002:1).

There is a considerable body of research suggesting that a person's ability to perceive, identify and manage emotion provides the basis for the kinds of social and emotional competence that are important for success in almost any job (Cherniss 2000:10). In previous research, Coetzee (2005:3) concluded that EQ relates significantly to leadership behaviour and the outcomes of leadership that are considered either effective of ineffective in a rapidly changing environment. Firstly, he indicated that the level of emotional awareness and the management of emotions in oneself and others influences the level of commitment and involvement of a leader with an individual follower. This involvement enables a leader to influence the behaviour of an individual follower in order to develop the person to rise to higher levels of performance. Secondly, he indicated that such a leader is able to inspire followers to exert extra effort which in turn results in a higher level of satisfaction for followers (Coetzee 2005:3).

The realisation that the knowledge, skills and experience of people are fundamental to the success of an organisation has resulted in the expectation that the leader of the future will need to pay more attention to developing the 'people' aspect of the organisation (Coetzee 2005:31). He further indicated that leadership then takes into account both the emotional attributes and the rational aspects of every individual. In this regard, management is beginning to realise the importance of EQ in improving organisational effectiveness. Coetzee (2005:31) stated that an emotionally intelligent leader focuses on the shared values, training and development of his/her followers and is able to instil vision and purpose. In the conclusion of his study on EQ and a leader's ability to make effective decisions, he states that a leader has to have EQ in order to motivate his/her followers to achieve company outcomes (Coetzee 2005:31).

3   RESEARCH METHODOLOGY

Questionnaire

The research approach consisted of a comprehensive literature review and a sample survey. Questionnaires were sent to all respondents via survey monkey (www.surveymonkey.com).

The questionnaire was compiled using the framework of EQ and competencies as defined by Goleman (2002:7) as referenced in Barry (2006:73-87). An existing EQ questionnaire developed by Barry (2006:73-87) was changed to ensure questionnaire was more applicable to the aviation industry (the existing questionnaire was not focused on a specific industry).

The questionnaire first gathered demographic information; this due to the fact that this information could influence the analysis of the data. It focused on asking the respondents questions relating to the EQ clusters and identifying the cluster most important to project managers in the aviation industry. The first questions were based on typical scenarios in the aviation industry and how the respondents felt a project manager needed to react in a specific situation. The last questions were related to the emotional competence required by a project manager in the aviation industry.

The responses were captured using the five-point Lickert scale, i.e. strongly disagree, disagree, undecided, agree, strongly agree.

The respondents could enter an e-mail address if they wished to have the results sent to them.

During data collection, the snowball method was used. The snowball method is a tool commonly used when the researcher has limited access to the appropriate group. The researcher has access to a specific person in an appropriate group, who then sends the questionnaire to other possible respondents.

The questionnaire was sent to specific people known to the researcher and respondents were asked to send the questionnaire to their colleagues who are involved in projects in the aviation industry. An approximate calculation of the sample size is given in Table 2. This calculation is based on the number of people in each organisation who might have input relevant to the questionnaire. The researcher, however, is not sure whether the questionnaire reached each of these individuals.

A pilot study was done before sending out the final questionnaire. It involved sending out the questionnaire to ten project managers in the aviation industry who were seen as having sufficient experience in project management. A sufficient amount of experience was seen as five years, as most project managers would have completed two major projects within a five year period. The respondents had two weeks to comment on the questionnaire. Eight of the respondents commented on the questionnaire. The respondents did not recommend any changes and thus no changes were made to the questionnaire.

4   DATA ANALYSIS AND RESULTS

The web address was sent to respondents via e-mail. The website was closed and the data processed on Wednesday, 3 September 2008.

It is estimated (see Table 2) that the questionnaire reached approximately 603 potential respondents. There were 90 completed questionnaires returned by the date the questionnaire was closed, 6 of which were only partly completed, providing 84 completed questionnaires. A 14% response rate was achieved. The low response rate could be due to the fact that only a few of the potential respondents were personally approached. The respondents who were personally approached were on a management level and were people for whom direct contact details were available. The snowball method was used thereafter. The time the potential respondents had to complete the questionnaire was approximately 3 weeks. Increasing this timeframe could have increased the number of completed questionnaires.

Table 2 indicates the companies approached regarding the questionnaire and the maximum number of employees involved in aviation projects for that specific company. The last column indicates the number of questionnaires returned by the

company. These are approximate figures as exact figures are not all known due to
the use of the snowball method.

Table 2:   Questionnaire respondents

Company	Maximum possible respondents who could complete the questionnaire	Questionnaires returned
ACSA	500	53
Baggage handling contractors	45	13
Aviation project management companies	14	4
Aviation civil contractors	15	4
Aviation civil consultants	21	7
Aviation architects	8	3
Total	603	84

The demographic data were gathered in respect of the following:

- Geographical region.

- Project role.

- Size of project team.

- Number of projects.

- Number of employees in organisation.

- Years of experience.

The statistics relating to each question were analysed in terms of:

- The demographic analysis.

- Options vs the percentage respondents for each cluster.

- Cronbach's alpha for each cluster.

- Average mean and median per cluster.

The role of project engineer (19%) was the most represented, followed by project
manager (11.16%) consultant and director at 9.13% respectively. The most popular
project team size was between five and nine team members, which were reflected by
39% of respondents. This was followed by between 10 and 49 team members,
reflected by 18% of respondents.

The largest number of projects completed by respondents was less than five. The
duration of a large aviation project is approximately 2 - 4 years. Thus a project

manager who has completed five projects has between 10 and 20 years of experience.

The number of employees in the respondents' organisations, who are involved in projects in the aviation, is mostly less than 50.

The majority indicated years of experience as less than five. No surveys were received from respondents reflecting between 15 and 19 years of experience. There are a limited number of respondents with this amount of experience in the aviation industry. (Five years of aviation project experience is approximately the time required to complete two large aviation projects.)

Table 3 indicates the highest demographic categories.

Table 3: Respondents demographic indications for highest figures

Demographic	Highest indicator	Percentage	Amount
Role in projects	Project engineer	19%	13
Size of project team	From 5 until 9	39%	18
Amount of projects	<5	48%	22
Number of employees	<50	47%	18
Years of experience	<5	73%	35

Statistics per option

The responses to each scenario and question on the five-point Likert-scale were analysed statistically using Minitab and Microsoft Excel. Before analysis, all negatively worded questions were reversed. The responses indicated the perception (personal opinion of a respondent) of the importance of EQ for project managers. A response of strongly disagree indicated that the respondent was of the opinion that emotional intelligence is not very important for project managers in the aviation industry.

The data received from the respondents were analysed according to the number of responses on the five-point Likert-scale. The totals per Likert-scale were counted and graphically displayed in histograms.

The histograms below (Figures 1 to 4) indicate the options versus percentage of respondents who selected the option.
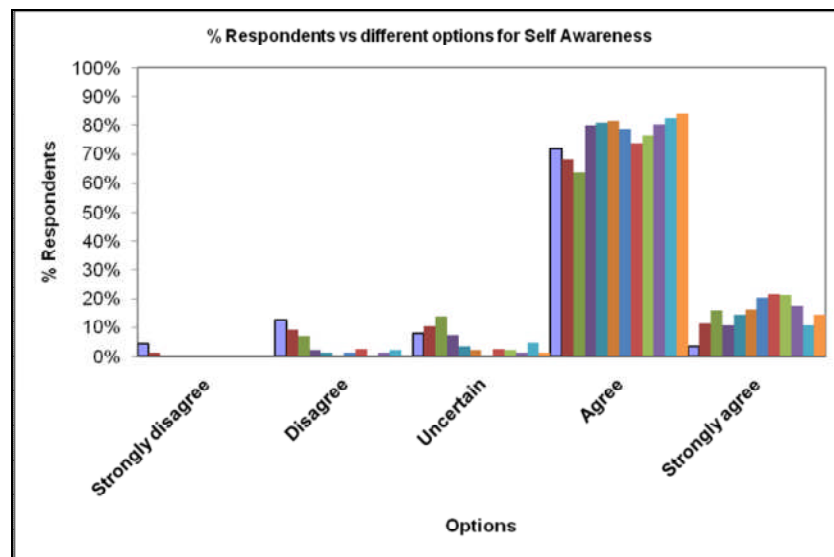
Figure 1: Respondents for Self-awareness

Figure 1 indicates that the majority of the respondents chose agree or strongly agree on the questions relating to self-awareness. Thus the respondents agree that the quadrant self-awareness is important for project managers in the aviation industry.

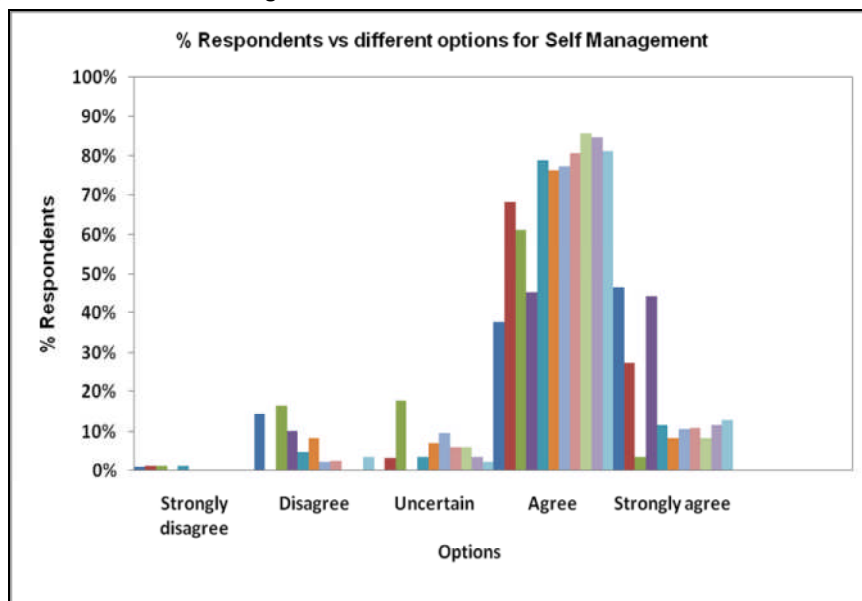**Figure 2: Respondents for Self-management**

Figure 2 indicates that the majority of respondents chose agree or strongly agree on the questions relating to self-management. Thus the respondents agree that the quadrant self-management is important for project managers in the aviation industry.

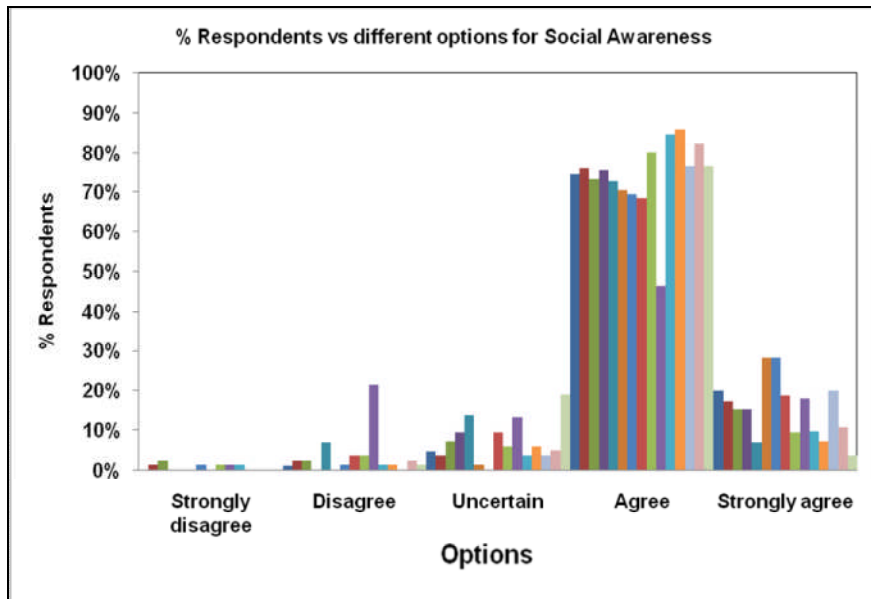**Figure 3: Respondents for Social Awareness**

Figure 3 indicates that the majority of the respondents chose agree or strongly agree on the questions relating to social awareness. Thus the respondents agree that the quadrant social awareness is important for project managers in the aviation industry.

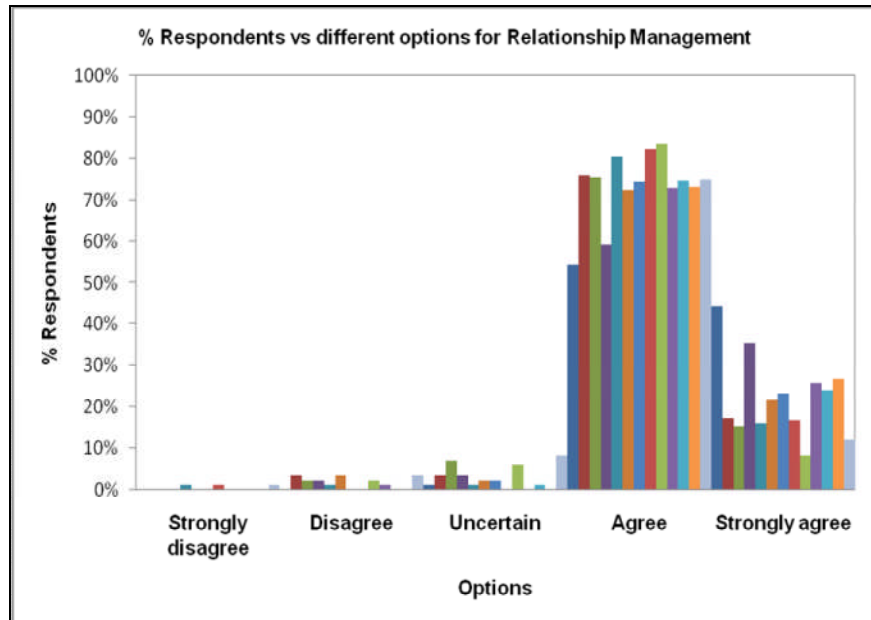**Figure 4: Respondents for Relationship Management**

Figure 4 indicates that the majority of the respondents chose agree or strongly agree on the questions relating to social awareness. Thus the respondents agree that the quadrant social awareness is important for project managers in the aviation industry.

Cronbach's alpha assesses how reliably survey items are and Cronbach's alpha values range between 0 and 1 where higher values indicate higher internal consistency (Nunnaly 1978:1). Nunnaly further indicates 0.7 to be an acceptable reliability coefficient.

Table 4 provides a summary of the alpha values for all the quadrants and the recalculated values after low alpha values have been omitted.

Table 4:   Cronbach's alpha for self awareness

	Self Awareness	Social Awareness	Self Management	Relationship management
Cronbach's Alpha	0.72	0.81	0.72 (Omit Q1.2 & Q4.1)	0.87

The alpha values for self awareness, social awareness and relationship management were above 0.7

The original alpha value for self management was 0.61, but after question 1.2 and 4.1 were removed the alpha value moved to above 0.7. Thus these two questions caused some confusion for the respondents. These two questions need to be removed or rephrased if the questionnaire is used in future studies.

Table 4 indicate that the responses were internally consistent and were reliable to be used for this research.

The average mean and median for the four quadrants are summarised in Table 5. From the data it is clear that all the clusters of emotional intelligence are important for project managers in the aviation industry.

The average mean and median per quadrant was analysed by using Minitab. A box plot was created per question for each quadrant. A box plot (also called box-and-whisker plots) is a graphical summary of the distribution that shows its mean, median, max and min value. A box plot is also used to compare the several distributions.

The **median** value is the middle of the range of data. The **mean** value is the average for all the numbers. (The sum of all the values divided by the number of values). The average of all the questions per quadrant is summarised in Table 5.

The analysis proves that EQ is an important attribute for project managers in the aviation industry.

Table 5:　Average mean and median of the clusters

	Average mean	Average median
Self awareness	4.0	4.0
Social awareness	4.0	4.0
Self management	4.2	4.0
Relationship management	4.2	4.2

The average mean and median for all the quadrants were above 4. Thus the respondents, on average, agree that EQ is an important attribute for project managers in the aviation industry for all four the clusters.

The average mean and median is approximately the same for all quadrants. Thus the respondents indicated that there is not one quadrant that is more applicable to project managers in the aviation industry.

5　CONCLUSIONS AND RECOMMENDATIONS

Research results

The questionnaire reached approximately 603 potential respondents. From the 84 completed questionnaires received back, the conclusion is made that EQ is an important competence for a project manager in the aviation industry. The study also proves that all the quadrants of EQ are of equal importance to project managers in the aviation industry. These were proven by the statistical analysis completed in Minitab with box plots and in Microsoft Excel with histograms. The average mean and median for all the quadrants was above 4. Thus the respondents, on average, agree that EQ is an important attribute for project managers in the aviation industry in terms of all four clusters.

Cronbach's alpha calculations assessed how reliable the survey items were. The values were all above 0.7, which proved that the responses were internally consistent and reliable.

Self-management and relationship management had the highest average mean. Relationship management had the highest average median. Although these two quadrants had higher average mean and median figures, the numbers were not significantly higher. Thus all quadrants were proven to be equally important for project managers in the aviation industry.

Recommendations

It is also recommended that this study be done for project managers in the aviation industry on a bigger sample to confirm the results.

The majority of respondents play the role of project engineer. No surveys were received from directors, line directors or system engineers. It is recommended that the research be repeated with more respondents in these roles in order to also confirm the findings for these roles.

The majority of respondents are involved in projects with 5 - 9 team members. It is recommended that the study be repeated with larger project groups in order to confirm the findings as most projects in the aviation industry consist of larger groups.

Most respondents had completed less than five projects in the aviation industry. The duration of a large aviation project is approximately 2 - 4 years. Thus having completed less than five projects does not necessarily indicate lack of experience. A project manager who has completed five projects has between 10 - 20 years of experience, but this will also depend on the duration and size of the project. It is recommended that the study be repeated with respondents who have completed more projects in the aviation industry in order to obtain more accurate findings.

The majority of respondents had less than five years of experience in the aviation industry. It is recommended that research is done with project managers with more project experience in the aviation industry.

It is recommended that the respondents be given more time to complete the questionnaire in order to increase the response rate.

In order to increase Cronbach's alpha value, it is recommended that the questions that were omitted during the analysis of the data be updated or omitted before the questionnaire is sent out to possible respondents. These questions could have been misinterpreted or misunderstood by the respondents. These questions could also be re-phrased to reduce or remove confusion or misinterpretation of these questions.

Possible future research that flows from this research is:

- Research could be done to differentiate EQ perceptions between men and women in the aviation industry.

- The findings could be used to develop aviation industry specific EQ improvement courses for project managers.

- Development of an EQ measurement tool for project managers in the aviation industry.

- Research could be done on the relevance of EQ for project managers in different industries.

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