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Emotional intelligence and transformational leadership behaviours of construction project managers

Abstract

Purpose- Existing research has highlighted the need for influential leaders to respond to the evolving social, economic and environmental constraints on the construction industry. Studies on leadership in other sectors have shown that influential leaders tend to demonstrate a high level of emotional intelligence. Little or no research examining relationships between leadership style and emotional intelligence has been conducted specific to construction project managers. This study identified the prevalent leadership style adopted by construction project managers and investigated potential correlations between leadership style and emotional intelligence.

Method- An online questionnaire including a mix of open and closed questions was adopted to address the research objectives. The group studied comprised project managers currently working in the construction industry in New Zealand and the UK.

Findings- The research found transformational leadership style is prevalent among project managers examined in this study. Significant positive relationships were found between project managers' emotional intelligence and their likelihood of adopting a transformational leadership style.

Originality/value- The research results provide the construction industry with a benchmark against which individuals with high emotional intelligence, and so most suited to the challenges of the project management role, can be identified and trained. Recommendations including suitable methods for identifying, recruiting and training project managers, as well as secondment and mentoring options were suggested for improving leadership capabilities in the construction industry.

Keywords: Leadership, Construction project managers, Project and team management, Transformational leadership style, Emotional intelligence

1.0 Introduction

The construction industry has been identified as one of the most difficult environments to successfully lead people effectively to achieve organisational success. Despite advances in technology and management, the construction industry remains a people-reliant sector with a significant portion of costs in most projects spent on human resources (Loosemore et al. 2003). People are employed from a wide range of backgrounds and professional cultures, to work in teams to accomplish short-term project goals in varied operating environments. These goals are not necessarily compatible with other projects and the individual's objectives, making the construction industry a challenging environment in which to lead people effectively and achieve project objectives. The Chartered Institute of Building (CIOB) (2008) reported a distinct lack of influential leaders in the industry. CIOB (2008) also highlighted clear differences between qualities and capabilities required in leaders in the construction industry compared to leaders in other business sectors. Traditionally, leadership in the industry has centred on power, authority and getting individuals to perform tasks and processes required by the leader and organisation (Spatz 1999, Ofori 2008). The understanding of leadership in construction has evolved beyond task orientation, to focus on the importance of the team members' performance and project success (Spatz 1999, Ofori 2008). This newly evolved understanding encompasses teamwork built on trust, communication and co-operation, rather than focusing on actions and processes.

Prior research highlighted the importance of developing the leadership capabilities of construction project managers that goes beyond technical skills development (Toor and Ofori, 2008). According to Ogulana (2011), construction project success depends on a number of factors that include the competencies of the project leaders, their personalities, characteristics, skills and leadership styles, amongst others. The construction project manager often faces an environment unique to the industry with project challenges, social-political, environmental and legal pressures while providing leadership to manage the people-side of the project and organisation (Muir, 2005). The lack of influential leaders and the prevalence of low productivity within the construction industry when compared to other sectors, suggests the need for better understanding of what is required by the industry in terms of leadership to achieve optimal project and organisational success (CIOB 2008). Various management malfeasances and project failures in the sector have emphasised the need for practical and

effective leaders to manage projects and team members effectively, in order to achieve improvement, growth and future success in the construction industry (Ofori 2008).

Existing research in psychology suggests that to successfully manage a diverse group of people such as those identified within the construction industry, higher levels of emotional intelligence (EI) are required (Gardenswartz, Cherbosque, & Rowe, 2010). A high level of EI is necessary to facilitate good leadership qualities, which in turn improves performance within different organisational contexts (Goleman et al. 2013, Megerian and Sosik 1997). Correlations between the effective leadership behaviours and EI have been documented in literature (Cherniss 2001; Gardner and Stough 2002). For instance, Butler and Chinowsky (2006) found that senior executive leaders in construction who have high EI are likely to engage in transformational leadership (TL) behaviours, which contribute significantly to project and organisation success. A plethora of previous empirical research and publications provides a compelling case for the importance of EI for leadership in a business environment such as the construction industry (Lopes et al. 2006; Seal et al. 2006). Existing research have provided evidence of the relationship between EI and leadership style adopted by project managers in different industry sectors (Barbuto and Burbach 2006, Gardner and Stough 2002). Although, these studies focused on project managers, the results cannot be fully applied to the construction sector because of primary focus on technical skills, restrictions posed by of the standards of performance, and project deliverables (Toor and Ofori, 2008). To date, there have been little relating studies specifically to EI and TL behaviours of project managers within the construction industry. Although the industry is implementing measures of EI to a certain degree, this is mainly at the recruitment stage and the potentials of EI have not been fully utilised in leadership improvement (Davis 2007). Accordingly, this study (i) investigates the prevalent leadership style adopted by construction project managers, and (ii) examines the relationships between the different leadership styles adopted and emotional intelligence, with a view to provide recommendations to enhance leadership qualities, as well as improve interpersonal relations and project performance in the construction industry.

2.0 Leadership and Emotional Intelligence

2.1 Leadership Styles and Construction Industry

Different categorisation of leadership styles in different contexts have been explored in literature. Within the construction field, Several researchers have categorised leadership styles into different categories such as democratic and authoritarian (Tannenbaum and Schmidt 1958), directive, coaching, supportive, and delegating (Hersey et al. 2001), supportive and structuring (Handy 1993), task and relationship oriented (Fiedler and Chemers 1967) and transactional, transformational, and laissez faire styles (Avolio 2010). Moreover, many authors have focussed on the different leadership styles and its relationship on project performance, process and success. Rowlinson et al. (1993) found that project managers in Hong Kong tend to use supportive and directive leadership styles in pre- and post-contract stages of the work. Ogunlana et al. (2002) established the relationship-oriented leadership style more important than task-oriented style for construction project managers in Thailand. Li-Ren Yang et al (2011) found that transformational and transactional leaders may improve team communication, collaboration, and cohesiveness in the Taiwanese construction industry. Likewise, Chan and Chan (2005) found significant correlation between leadership effectiveness, transformational leadership factors and transactional leadership characteristics. Chan and Chan (2005) recommended that construction professionals should use transformational leadership traits in their interactions with employees to improve employee performance and satisfaction. Currently, there is no consensus in existing literature regarding an optimal leadership style for all managerial situations and project contexts due to the fast changing nature of the construction industry and country-specific cultural differences (Toor and Ofori 2008).

2.2 Leadership Continuum and Emotional Intelligence

Empirical research relating to the concept of leadership has focused on what makes a successful leader, and how to identify suitable individuals to carry out this crucial role. Clark (2004) described a leadership continuum with three main styles, ranging from transformational (TL), through transactional (TRL) to laissez faire leadership (LFL). The way in which individuals behave and interact as leaders can be been categorised into three main leadership styles; transformational, transactional and laissez-faire (Clark 2004, Bass

and Riggio 2006). Positioned on the far left of the continuum, transformational leadership (TL) is concerned with participation and involvement from other team members. As found by Bass and Riggio (2006), the TL style provides followers with a heightened sense of relevancy, commitment and involvement. TL has been shown to produce better outcomes in organisational settings when compared to other styles (Barling 2014). Team cohesion, commitment, individual progression, and project success are among the beneficial outcomes identified by empirical studies conducted in the workplace (Gumusluoglu and Ilsev 2009, Kissi et al. 2013). These benefits have been found at all levels of organisational hierarchical structures (Yammarino et al. 2008). A transformational leader provides positive expectations and focuses on care and development of the team, as well as inspiring, empowering and stimulating team members to exceed usual levels of performance (Brown and Moshavi 2005). The TL style is implemented through relationships and social interactions (Humphrey 2002).. Positioned at the centre of the continuum, the transactional leadership (TRL) style focuses on exchange and business. TRL is a traditional management style where positional power is exercised over the follower through exchanges or bargains (Bass and Riggio 2006). This leadership approach creates a fear of making mistakes amongst followers, stifling their development and likelihood of taking an innovative and creative approach at work (Bass and Riggio 2006). The final style depicted to the far right of the continuum is laissez faire leadership (LFL), an absent or hands-off approach where followers are left to work independently, with little guidance (Bass and Riggio 2006). This style of leadership is generally seen as the least desirable on the continuum (Bass and Stogdill 1990).

The concepts of Transformational leadership (TL) and Emotional Intelligence (EI) share an emotional component and are often discussed in conjunction with one another. EI is as an array of non-cognitive capabilities, competencies, and skills that influence one's ability to succeed in coping with environmental demands and pressures (Bar-On 1997). Previous studies have attempted to correlate effective leadership with EI, suggesting that high levels of EI are necessary to facilitate a TL style (Goleman et al 2013; Megerian and Sosik 1997). Moreover, Ashkanasy et al., (2000) highlighted that leaders adopting TL style could influence emotions amongst followers, suggesting the presence of emotional intelligence. McColl et al.(2002) ascertained that TL had a direct effect on followers emotion in terms of a positive effect on frustration and optimism acting as a mediator between TL and performance. Palmer (1998) found correlations between EI and a number of TL components,

presenting EI as a factor accountable for effective leadership. Similar studies have found that transformational leaders are often be equipped with the emotional skills required to enhance a follower's performance beyond their own expectations through inspirational motivation (Brown and Moshavi 2005, Humphrey 2002). The transformational leader's EI is perceived as a driver, acting to deliver the change through inspiration, motivation and support offered to others (Brown and Moshavi 2005, Küpers and Weibler 2006).

In summary, the leadership styles discussed above represent leadership as a complex process with many varying factors between individuals, organisations and team situations. The review of leadership styles validates the importance of focusing specifically on leaders in the project based context of the construction industry, rather than generalising project management roles across multiple industries where different team environments, group dynamics and population demographics are encountered. The conceptual framework developed to address the research objectives posed this study is discussed next.

3.0 Conceptual Framework and Hypothesis

A conceptual framework was developed to examine the relationships between the construction project managers' leadership styles and their corresponding emotional intelligence. Figure 1 provides a visual representation of the framework. The derivations and definitions of constructs and measurement items for EI and the different leadership styles are discussed next.

Figure 1. Conceptual Framework for EI and TL

3.1 Emotional Intelligence (EI)

Individuals with high levels of EI when facing a challenge are able to understand emotions to assist with cognition of decision making and as a result, are able to resolve problems internally and also externally in the relationships with others (Bar-On, Tranel, Denburg, & Bechara, 2004; Head, 2002). Four elements of the Wong and Law Emotional Intelligence Scale (WLEIS) (Wong and Law 2002) self-reported questionnaire were implemented to ascertain the respondents' EI. Self-emotional appraisal (SEA) is the ability of an individual to understand and express their own emotions. Others emotional appraisal (OEA) occurs when the individual is able to identify and understand the emotions of those around them.

Regulation of emotions (ROE) is the ability of the individual to regulate and control their own emotions. Use of emotions (UOE) occurs when the individual is able to constructively use their emotions to achieve direction or results.

3.1 Emotional Intelligence (EI)

The leadership continuum used in the study incorporated variables identified in the earlier work of Bass and colleagues (Bass 1985, Bass and Avolio 1995). The three main leadership styles and their constructs are discussed below.

Transformational Leadership Style

- Intellectual stimulation (IS) is encouraging followers to be creative by challenging the status quo and exploring new and innovative ways of doing things. This leader is open to different approaches and avoids criticising followers, so allowing their confidence in looking at old problems in new ways to grow (Bass and Riggio 2006).
- Individualised consideration (IC) describes the emotional and instrumental support and encouragement offered to team members through a mentoring relationship. The leaders who provide IC are good listeners. They foster open communication, and respect and care about followers' desires and needs (Bass and Stogdill 1990).
- Inspired motivation (IM) describes a leader's inspiration, enthusiasm and optimism. IM includes the provision of meaning and challenge to followers to align and include them in the development and attainment of goals (Bass and Riggio 2006).
- Idealised influence attributes (IIA) and behaviours (IIB) are the attributes and behaviours that enable the leader to gain trust, respect and admiration from their individual followers and make him/her a role model within a group. The follower then starts to adopt the leader's beliefs and internalise their ideals.

Transactional Leadership (TRL)

- Contingent reward (CR) is the positive reinforcement of followers in the attainment of goals and objectives through assistance, expressed satisfaction or recognition. Examples include

positive feedback, pay rises, promotion or inclusion in the leader's group of preferred followers (Hartog et al. 1997).

- Management by exception - active (MBEA) is where the leader sets out the minimum standards expected from followers, along with the consequent punishment if these standards are not achieved. This involves monitoring and correction of failures or mistakes through negative reinforcement (Barling 2014).

Passive Avoidant Leadership (PAL)

- Management by exception - passive (MBEP) describes a lack of involvement from the leader unless a follower's failures become chronic or serious. MBEP only takes action when it is evident that failures have occurred, and is generally perceived as being less effective and desirable than the active form (Bass and Riggio 2006).

- Laissez Faire Leadership (LFL) describes the passive avoidance management by exception style. This leader lets the follower/group to find the answers to questions themselves, as the leader has no real authority. Often, the follower seeks answers from others when making the final decisions.

Overall, the study sought to examine the relationships between EI and different leadership style adopted by project managers operating within the construction industry. In order to do achieve this objective, the following hypothesis was proposed:

H₁: There is a significant relationship between EI and the different leadership styles adopted by construction project managers (TL, TRL and PAL).

4.0 Research Method

An online questionnaire was used to collect data to address the research objectives and test the hypothesis posed in this study. The study population comprised PMs (project managers) registered as members of the Royal Institution of Chartered Surveyors (RICS) and currently working in the construction industry in New Zealand and UK. RICS is an international organisation for professionals working in valuation, management and development of land, real estate, construction and infrastructure. Main selection criteria focus on respondents who have successfully managed and completed medium to large-sized constructed projects in the

last three years. An exact description of the population frame is not possible because RICS was unable to provide information relating to the number of PMs for each country. Email invites were randomly sent to respondents in the two sample frames used in this study, which comprised of PMs registered with RICS operating in the UK and New Zealand.

4.1 Leadership and EI Assessments

The leadership data were gathered by administering a self-reported multifactor leadership questionnaire (MLQ Form 5X), which incorporates all constructs of the leadership continuum (Bass and Avolio, 1997). The MLQ Form 5X analyses leadership traits in three main categories: transformation, transactional, and laissez-faire and nine subareas. To obtain the EI score, the Emotional Intelligence Scale (WEIS) (Wong and Law, 2002) was selected as the method to obtain the EI scores because it breaks down the scores into four key components (SEA, OEA, ROE and UOE) and 16 subareas measured on a seven point Likert scale. WEIS relates to potential for performance and not actual performance itself and provides other measures by which to determine the validity of the individual scores. Both questionnaires have undergone rigorous scrutiny and ethical consideration in previous studies (Bass and Riggio 2006, Kirkbride 2006)Both questionnaires were combined to collect the data in this study. The questionnaire comprised three main sections: demographics, leadership and emotional intelligence. The questionnaire was designed so as to reduce response bias as far as practicable by guaranteeing anonymity to prevent socially desirable answers. A pilot test was undertaken to examine the efficacy of the questionnaire in a construction-based environment. All feedback from the pilot study was taken into consideration and the questionnaire amended as necessary. A total of 73 completed questionnaires were received (New Zealand; 39 and UK; 34) and processed for data analysis.

4.2 Data Analysis

Data analysis was undertaken in IBM Statistical Package for Social Sciences (SPSS version 23). The data obtained were analysed for normality using the Shapiro-Wilk's test ($p < .05$) (Razali and Wah, 2011; Shapiro and Wilk, 1964), alongside a visual inspection of the histograms, normal Q-Q plots and box plots. Homogeneity of variance was tested using Lavene's test for equality in variance of means (1960). This also allowed the most prevalent leadership style to be identified for each country, along with any significant variances between the two samples. Harman's one-factor test was used to address the issue of common

method variance in the dataset, where answers given to the objective self-report questions are either under- or over-exaggerated. Validity and reliability were analysed using Cronbach's Alpha (α). This was applied to measure internal consistency, based on the inter-item correlation of the 52 components of EI, TL, TRL and PAL. The results obtained for NZ and the UK were compared using *t*-tests to identify any significant difference between the two samples. The relationship between EI and leadership style was examined by computing Pearson's product-moment correlation coefficient (*r*). This was used to measure the degree of linear correlation (dependence) between the EI constructs and each of the TL styles. To further investigate the relationship, multiple regression analysis was undertaken for each of the three leadership styles (TL, TRL & PAL), to ascertain how effective the EI constructs were in predicting leadership style. Qualitative responses were analysed using thematic and text analysis to identify reoccurring themes in the views and opinions of respondents. The qualitative data was also categorised using the original constructs contained in the conceptual framework.

5.0 Research Results

The analysis of the collected data was undertaken to address the research objectives. A total of 73 questionnaires were received. One response was removed due to a series of missing answers. The data was screened and checked for missing data, error and reliability. Shapiro-Wilk's test ($p < .05$) alongside a visual inspection of the histograms, normal Q-Q plots and box plots indicated that the data scores were approximately normally distributed. The results of the Harman's one-factor test showed low possibility of common method variance. The Cronbach's alpha (α) showed high internal reliability ($\alpha > .90$ and standardised $\alpha > .90$). The research results are presented in the following subsections.

5.1 Respondent Characteristics

The majority of respondents were male (93%), with only five females (7%). Fifty-three percent of respondents were from NZ and 47% from the UK. Their years of experience within the construction industry ranged from two up to a maximum of 44 years, with an average of 22 years. The total number of years respondents had worked in the position of project manager (PM) ranged from less than one year and up to 35 years, with an average of 13 years. PMs had variety of backgrounds, including quantity surveyor (26%), building surveyor (17%), and site manager (14%). The highest level of construction based

qualification held was at the master's level in science, arts and law (17%). The majority of respondents, however, held a construction based BSc or BA (51%), and 32% had no construction based qualification at all. Most respondents were not undertaking any construction related training at the time they completed the questionnaire (76%). Overall, their profiles showed that respondents had significant experience as project managers in the construction industry, and so were able to provide reliable information related to the study's focus.

5.2 Prevalent Leadership Style Adopted by Construction Project Managers

The questionnaires were analysed to reveal the most prevalent leadership style adopted by construction project managers. Levene's test for equality and variance of means was carried out and the results summarised in Table 1 demonstrate equality of variance between the independent NZ and UK samples (homogeneity of variance $p > .05$) for all leadership styles and EI constructs. A *t*-test was also carried out between the constructs to see if any of the differences were significant. Of all of the variables and constructs tested, none were of significance ($p > .05$). Any differences between the results for NZ and the UK were minor and of no statistical significance.

The results summarised in Table 2 indicate that the TL leadership style was most frequently employed across both groups, followed by TRL and then the PAL style, which obtained the lowest score. The mean scores for the UK and NZ groups were compared against the three leadership categories, TL, TRL and PAL, as well as the four constructs of EI (UOE, ROE, OEA and SEA). The scores for TL were marginally higher than for the other leadership styles for both groups. NZ had a mean score of 95 for TL, compared to a mean score of 90 for the UK participants. Analysis of these scores revealed that 53 of the PMs could be categorised as having a TL leadership style. A rudimentary comparison was made between NZ and UK participants for similarities and patterns in the four variables contained within the EI construct. The leadership style of each participant was decided based on the highest score between the three main leadership styles. Despite the TL scores for NZ PMs being slightly higher for both TL and TRL, none of these results were considered to be a statistically significant, with variance of means of 0.072 and 0.066 respectively. The findings show that the TL style was the most popular leadership style adopted by PMs in both New Zealand and the UK.

Table 1. Comparison of Group Statistics

Table 2. Equality of Variance and Means (NZ and UK)

The analysis of the qualitative data provided further findings on the prevalent leadership style adopted by construction PMs. Responses were categorised and linked to the constructs of TL, TRL and PAL. Individual responses were categorised according to the main construct interpreted in the response: ideal influence attributes or behaviours (IIA/B), inspired motivation (IM), intellectual stimulation (IS), individualised consideration (IC), contingent reward (CR), management by exception active (MBEA), management by exception passive (MBEP), or laissez faire leadership (LFL). An additional category named 'other' was included for responses which did not clearly fit any of the categories. A summary of the numbers for each category (Table 3) shows the constructs associated with the TL style (II, IM, IS, IC & CR) were the most favoured ways of achieving the best performance.

Table 3. Summarised Categorisation of Leadership Responses

The individualised consideration (IC) construct most often fitted explanations offered by PMs for how they were best able to achieve results from their team (24 of 58 responses received). The respondents clearly felt that consideration of team members is a requirement for achieving improved performance, reflecting recognition among PMs of the need to listen to and consider the needs and opinions of team members to foster trust and security. One respondent explained the importance of listening in developing an understanding of followers and providing them with a sense of trust in the leadership and their relevancy to the team. Within the IC category, acknowledgement, praise and encouragement were identified as important factors in improved performance, and the avoidance of blame was described as a way to enable a positive work environment.

Eleven responses were categorised under the inspirational motivation (IM) construct. These PMs inspired their team members through a sense of ownership of the project and a shared vision of project outcomes, while fully supporting them in this endeavour. Idealised influence attributes (IIA) and behaviours (IIB) were identified in nine of the responses, where PMs felt that '*setting an example for the rest of the team to follow*' and '*leading by example*' could facilitate improved team performance. It is clear that these PMs viewed their own actions and attitudes as an important and consequential ingredient in the performance of their project

team. The intellectual stimulation (IS) construct was identified in the responses of six PMs, who reflected on the need to provide tasks which challenge and engage team members so that they remain focused on the desired outcome and project goal or vision.

The comments of these respondents succinctly covered all the salient points of TL and it is apparent that the PMs understood the best ways to engage, encourage, relate to and motivate their teams. The combined results explain TL in terms of a conscious choice based on knowledge, ethics and cognition.

5.3 Relationships between PM Leadership Styles and Emotional Intelligence (EI)

Pearson's correlation analysis was used to investigate whether there was a significant relationship between the construction project managers' EI and their adopted leadership styles. This process tested the following hypotheses by comparing the four main constructs of each of the leadership styles:

H_0 : There is no significant relationship between EI and the different leadership styles

H_1 : There is a significant relationship between EI and the different leadership styles

The results presented in Table 4 show moderately positive correlations (statistical significance $p \leq .01$) in relation to TL for all four EI constructs. For the two other leadership styles (TRL and PAL), three of the four variables (ROE, OEA and SEA) were significant ($p \leq .01$), while UOE was only significant at the 0.05 level ($p \leq .05$). For PAL, only OEA showed a moderately negative correlation of any statistical significance ($p \leq .01$). No statistically significant relationships were found between this leadership style and the UOE or ROE constructs.

Table 4. Pearson's Correlation for TL and EI Constructs

Multiple regression analysis was carried out to further examine the relationships between the four constructs of EI and the different leadership styles. The results presented in 4.0 Research Method

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higher for both TL and TRL, none of these results were considered to be a statistically significant, with variance of means of 0.072 and 0.066 respectively. The findings show that the TL style was the most popular leadership style adopted by PMs in both New Zealand and the UK.

Table 1. Comparison of Group Statistics

The analysis of the qualitative data provided further findings on the prevalent leadership style adopted by construction PMs. Responses were categorised and linked to the constructs of TL, TRL and PAL. Individual responses were categorised according to the main construct interpreted in the response: ideal influence attributes or behaviours (IIA/B), inspired motivation (IM), intellectual stimulation (IS), individualised consideration (IC), contingent reward (CR), management by exception active (MBEA), management by exception passive (MBEP), or laissez faire leadership (LFL). An additional category named 'other' was included for responses which did not clearly fit any of the categories. A summary of the numbers for each category (Table 3) shows the constructs associated with the TL style (II, IM, IS, IC & CR) were the most favoured ways of achieving the best performance.

Table 3. Summarised Categorisation of Leadership Responses

The individualised consideration (IC) construct most often fitted explanations offered by PMs for how they were best able to achieve results from their team (24 of 58 responses received). The respondents clearly felt that consideration of team members is a requirement for achieving improved performance, reflecting recognition among PMs of the need to listen to and consider the needs and opinions of team members to foster trust and security. One respondent explained the importance of listening in developing an understanding of followers and providing them with a sense of trust in the leadership and their relevancy to the team. Within the IC category, acknowledgement, praise and encouragement were identified as important factors in improved performance, and the avoidance of blame was described as a way to enable a positive work environment.

Eleven responses were categorised under the inspirational motivation (IM) construct. These PMs inspired their team members through a sense of ownership of the project and a shared

vision of project outcomes, while fully supporting them in this endeavour. Idealised influence attributes (IIA) and behaviours (IIB) were identified in nine of the responses, where PMs felt that '*setting an example for the rest of the team to follow*' and '*leading by example*' could facilitate improved team performance. It is clear that these PMs viewed their own actions and attitudes as an important and consequential ingredient in the performance of their project team. The intellectual stimulation (IS) construct was identified in the responses of six PMs, who reflected on the need to provide tasks which challenge and engage team members so that they remain focused on the desired outcome and project goal or vision.

The comments of these respondents succinctly covered all the salient points of TL and it is apparent that the PMs understood the best ways to engage, encourage, relate to and motivate their teams. The combined results explain TL in terms of a conscious choice based on knowledge, ethics and cognition.

show that EI was a significant predictor of TL ($r^2 = 0.570$). The results indicate that EI was also a predictor for the TRL style ($r^2 = 0.48$), but not for the PAL style where there was a low level of prediction in relation to EI constructs ($r^2 = 0.33$). Each of the constructs of EI were then analysed individually to assess to what extent they could explain and predict the different leadership styles (see Table 5). For the TL style, while there was disparity between the four main EI constructs, UOE and OEA were found to be significant predictors of TL, at $p < 0.05$. There was a lack of significant consistency between the four main EI constructs for TRL. OEA was found to be the only significant predictor of TRL ($p < 0.05$), with UOE not reaching statistical significance. Along with SAE, ROE showed no significance as a predictor. Lastly, the constructs were found to have little or no significance ($p < .05$) in predicting the PAL style. The beta standardised coefficients (β) were negative for three of the EI constructs: UOE, OEA and SEA. The only positive β was for ROE ($\beta = 0.07$, $t = 0.57$, $p = 0.57$). Overall, the results showed that the EI can be used as a predictor of TL despite the disparity between the EI constructs. While the results for TRL also indicate lack of consistency between the EI constructs, EI was also found to predict TRL style. As a result, hypothesis H_0 was rejected and H_1 accepted.

Table 5. EI Constructs as a Predictor of TL, TRL, and PAL

The analysis of the qualitative data for the questions on the relationships and impacts between emotional intelligence (EI) and the different leadership styles showed that the majority of respondents considered EI to be a relevant factor in leadership, specifically in the context of the construction industry. The 54 responses were analysed and categorised according to the four EI constructs set out in the conceptual framework. Each response was marked as ROE, UOE, SEA, OEA or other to represent the main construct found in the response. A summary of the numbers for each category is shown in Table 6.

Table 6. Summary Categorisation of EI Responses

Regulation of emotions (ROE) was most common construct in relation to the relevance of emotions in the industry. The majority of the respondents believed both positive and negative emotions were critical to the leadership role. These assertions could be interpreted as somewhat transactional in relation to the exchange of rewards in return for positive behaviour, and negative consequences in return for negative behaviour or poor performance. In addition, some respondents expressed the need to contain and conceal emotions from the rest of the project team. Many of the respondents explained that this regulation was necessary to being professional leaders in the industry. Most of the explanations provided account for the need to regulate emotions to enable positive and considered interactions with team members and avoid detrimental interactions. Others' emotional appraisal (OEA) was also expressed as a relevant EI factor (20%). Many of the comments given indicate that the PMs felt it was important to be able to identify others' feelings and emotions to understand and empathise with members of the project team. Self-emotional appraisal (SEA) was expressed as a relevant leadership factor in 12 responses, reflecting recognition by PMs of the need to identify and understand their own emotions. The respondents described the value of SEA in knowing if they were under stress, and acknowledging that personal stress could prevent them from being able to fully engage and achieve results in a construction project environment. Five responses were categorised under use of emotions (UOE). While not providing details, PMs touched on using emotion to encourage and align other members of the team to the desired direction or success: *'It can be positive in pulling people along with you rather than insensitive pushing people along'*. The analysis of qualitative data on EI showed that regulation of emotions (ROE) was expressed as the most relevant factor in enabling a leader to interact with followers in a positive and effective way.

6.0 Discussion and Recommendations

The quantitative results showed TL to be the prevalent leadership style among construction PMs in both New Zealand and the UK. The qualitative analysis further demonstrated that project managers understood and acknowledged the relevance of the EI components underlying transformational leadership. Accordingly, it is proposed that the demands of the project manager leadership role, which involve communicating with people from different backgrounds on a variety of levels, attract individuals with high levels of emotional intelligence and those who naturally employ the transformational leadership style. While the percentage of transformational leaders identified was proportionally higher than the percentage of transactional leaders, our results signal an opportunity for the industry to encourage those in the transactional leadership category to improve and work towards the transformational leadership end of the continuum.

The results provide evidence to support a link between the emotional intelligence and consequent leadership style of construction project managers. Pearson's correlation analysis confirmed moderate levels of correlation for all four of the EI constructs ($p \leq .01$) against transformational leadership. As a direct result, the H_1 hypothesis is accepted and the null hypothesis is rejected. The correlation analysis for this study also showed that moving from left to right along the leadership continuum, the significance of some EI constructs appeared to diminish. Only the ROE, OEA and SEA constructs of EI were significant for the PMs identified as transactional leaders. For leaders at the passive avoidant leadership style end of the leadership continuum, only the OEA construct of emotional intelligence was evident.

Put simply, construction project managers demonstrating the full range of emotional intelligence abilities are more likely to be transformational leaders. These abilities include being able to identify others' emotions (OEA), their own emotions (SEA), regulate their own emotions (ROE) and use emotions effectively (UOE) in a team environment. Significantly, the main difference between PMs exhibiting the preferred transformational leadership style and the transactional leaders in this study was their ability to use their emotions effectively (UOE). Ability to appraise others' emotions was the only significant element of emotional intelligence seen for the passive avoidant leadership style. It can therefore be concluded that the wider the range of EI in a PM, the closer they will be to the TL end of the continuum.

Transformational leaders in construction were shown to have higher emotional intelligence in appraising self and others' emotions. As transformational leaders, they were able to control and understand their own emotions and thereby manage relationships better. Self-awareness in these PMs helped them to recognise the impacts of their emotions on their own and other team members' performance. Self-management and regulation of emotions were also suggested as important in remaining flexible and acting in a positive way. Further, awareness of others' emotions, such as happiness or worry, was important to understanding their team members' concerns, motives and goals. The social and relationship management skills enabled through others' emotional appraisal, regulation of emotions, self-emotional appraisal and use of emotions were therefore found to be essential to providing effective transformational leadership to improve project, team and individual outcomes. Review of the collective qualitative data indicated that project managers believed they must engage with the project team, while at the same time acting as a role model and source of inspiration. There was general agreement in the responses given that being supportive while facilitating an environment of trust, honesty and openness was essential to actualising optimum performance from the team toward the project goals.

Categorisation of the data by leadership construct revealed that individual consideration (IC), demonstrated through listening to team members to reach an understanding of their views and concerns, was seen as necessary to fostering trust. Encouragement, acknowledgement and praise were also identified as positive ways the PM could reward and reinforce the contribution, efforts and progress made by followers, while avoiding the negative effects on performance of blaming individuals for failures that inevitably occur within a construction team (Gardenswartz et al. 2010). Inspired motivation (IM) was another way in which PMs identified they were able to get the best from their project team. They reported providing inspiration to team members through communicating a shared vision and goals, and then giving them some degree of control and ownership on how this was to be achieved, while providing support when required. The data also indicated the importance of PMs providing idealised influence (II), by modelling suitable attributes and behaviours to team members. The actions and attitudes of leaders were seen as having a direct impact on followers' values and behaviour. The intellectual stimulation (IS) construct was also apparent in PMs' accounts of setting challenging tasks and providing individual feedback, to ensure team members

remained engaged within the construction team and in their endeavours to achieve the defined project goals.

Based on the findings of this study, it is recommended that executive leaders in construction organisations encourage tailored emotional intelligence training of construction project managers to support a TL style. Alternatively, project managers could be individually coached by a trained mentor at specific intervals to encourage emotional intelligence and improve transformational leadership, with specific reference to the challenges encountered by project managers. Also, secondments to provide exposure to new processes or environments could be implemented to further development in a working based environment rather than training sessions. Lastly, psychometric testing should be used during the recruitment process to identify potential PMs with the most suitable qualities, especially those with good self-emotional appraisal and the ability to use emotions effectively. This would identify leaders best able to provide an environment conducive to a happy, healthy workforce which can achieve improved project outcomes.

7.0 Conclusion

The study examined the prevalent leadership style, to investigate the relationship between emotional intelligence and the different leadership styles adopted by construction project managers in New Zealand and the UK. The study found that transformational leadership style is frequently employed across both sample frames. Significant positive relationships were found between project managers' emotional intelligence and the likelihood that they would employ a transformational leadership style to achieve effective team and project management. The emotional intelligence constructs; use of emotions and self-management were especially relevant to improve the performance of project managers adopting the TL style. Social skills and relationship management through emotional appraisal of others are essential to project managers to manage interactions to improved team working environment. The findings of this study are not without limitations, including the subjective nature of participants' self-measurement of their own emotional intelligence and leadership style. Similarly, the assessments of leadership capabilities were possibly subject to informant bias due to participants' desire to provide desirable answers. Steps were taken to reduce the possibility of social desirability bias. Harman's one factor test was conducted to ensure the constructs were not significantly affected by common method variance. It is important to note

that the findings relate to the sampled respondents only, because the respondents do not exactly mirror the population from which they are drawn, which raises questions about the generalization of the results. Care must be taken when applying the recommendations from this study in different countries and cultural backgrounds.

Despite these limitations, the research findings have the potential to assist with the identification and selection of people who would not only excel in project management, but would also be more likely to get the best performance from their construction teams. This improved performance could include financial performance, organisational commitment, job satisfaction, safety culture and innovation. Encouraging transformational leaders in the construction industry will help to foster collaborative working relationships, encourage a team approach to problem solving and a willingness to seek cost-effective and innovative solutions for the benefit of the individual, team, client and the industry as a whole.

8.0 References

- Ashkanasy, N.M. and Tse, B. (2000), "Transformational leadership as management of emotion: A conceptual review."
- Avolio, B.J. (2010), *Full range leadership development* translated by Anonymous Sage.
- Barbuto, J.E. and Burbach, M.E. (2006), "The emotional intelligence of transformational leaders: A field study of elected officials", *The Journal of social psychology*, Vol. 146, No. 1, pp. 51-64.
- Barling, J. (2014), *The science of leadership: Lessons from research for organizational leaders* translated by Anonymous Oxford University Press, USA.
- Bar-On, R. (1997), "The emotional intelligence inventory (EQ-I): Technical manual", *Toronto, Canada: Multi-Health Systems*, .
- Bar-On, R., Tranel, D., Denburg, N.L. and Bechara, A. (2004), "Emotional and social intelligence", *Social neuroscience: key readings*, Vol. 223.
- Bass, B.M. (1985), *Leadership and performance beyond expectations* translated by Anonymous Collier Macmillan.
- Bass, B.M. and Avolio, B.J. (1997), *Full range leadership development: Manual for the Multifactor Leadership Questionnaire* translated by Anonymous Mind Garden Palo Alto, CA.
- Bass, B.M. and Riggio, R.E. (2006), *Transformational leadership, 2* translated by Anonymous Aufl., Mahwah.

- Bass, B.M. and Stogdill, R.M. (1990), *Bass & Stogdill's handbook of leadership: Theory, research, and managerial applications* translated by Anonymous Simon and Schuster.
- Bass, B. and Avolio, B. (1995), "MLQ Multifactor Leadership Questionnaire Sampler Set: Technical Report, Leader Form, and Scoring Key for MLQ Form 5x-Short. Redwood City", *CA: Mind Garden*, .
- Brown, F.W. and Moshavi, D. (2005), "Transformational leadership and emotional intelligence: A potential pathway for an increased understanding of interpersonal influence", *Journal of Organizational Behavior*, Vol. 26, No. 7, pp. 867-871.
- Butler, C.J. and Chinowsky, P.S. (2006) "Emotional intelligence and leadership behavior in construction executives." *Journal of Management in Engineering*, Vol. 22, No.3, pp. 119-125.
- Chan, A.T. and Chan, E.H. (2005), "Impact of perceived leadership styles on work outcomes: Case of building professionals", *Journal of Construction Engineering and Management*, Vol. 131, No. 4, pp. 413-422.
- Cherniss, C. (2001), "Emotional intelligence and organizational effectiveness", *The emotionally intelligent workplace: How to select for, measure, and improve emotional intelligence in individuals, groups, and organizations*, , pp. 27-44.
- CIOB. (2008). *Leadership in the Construction Industry*.
- Clark, D. (2004), "The art and science of leadership", *Retrieved Aug*, Vol. 1, pp. 2011.
- Clark, M. and Randal, J. (2004), "A first course in applied statistics".
- Davis, N. (2007), *Construction sector productivity* translated by Anonymous Martin Jenkins.
- Fiedler, F.E. and Chemers, M.M. (1967), "A theory of leadership effectiveness".
- Gardenswartz, L., Cherbosque, J. and Rowe, A. (2010), "Emotional intelligence and diversity: A model for differences in the workplace", *Journal of Psychological Issues in Organizational Culture*, Vol. 1, No. 1, pp. 74-84.
- Gardner, L. and Stough, C. (2002), "Examining the relationship between leadership and emotional intelligence in senior level managers", *Leadership & organization development journal*, Vol. 23, No. 2, pp. 68-78.
- Goleman, D., Boyatzis, R. and McKee, A. (2013), *Primal leadership: Unleashing the power of emotional intelligence* translated by Anonymous Harvard Business Press.
- Gumusluoglu, L. and Ilsev, A. (2009), "Transformational leadership, creativity, and organizational innovation", *Journal of business research*, Vol. 62, No. 4, pp. 461-473.

- Hartog, D.N., Muijen, J.J. and Koopman, P.L. (1997), "Transactional versus transformational leadership: An analysis of the MLQ", *Journal of Occupational and Organizational Psychology*, Vol. 70, No. 1, pp. 19-34.
- Head, C. (2002), "The relationship between emotional intelligence and symptoms of anxiety and depression", *Unpublished senior thesis, Yale University*, .
- Hersey, P., Blanchard, K. and Johnson, D. (2001), "Management of school behaviour: leading human resources".
- Humphrey, R.H. (2002), "The many faces of emotional leadership", *The Leadership Quarterly*, Vol. 13, No. 5, pp. 493-504.
- Kirkbride, P. (2006), "Developing transformational leaders: the full range leadership model in action", *Industrial and Commercial Training*, Vol. 38, No. 1, pp. 23-32.
- Kissi, J., Dainty, A. and Tuuli, M. (2013), "Examining the role of transformational leadership of portfolio managers in project performance", *International Journal of Project Management*, Vol. 31, No. 4, pp. 485-497.
- Küpers, W. and Weibler, J. (2006), "How emotional is transformational leadership really? Some suggestions for a necessary extension", *Leadership & Organization Development Journal*, Vol. 27, No. 5, pp. 368-383.
- Loosemore, M., Dainty, A. and Lingard, H. (2003), *Human resource management in construction projects: strategic and operational approaches* translated by Anonymous Taylor & Francis.
- McCull-Kennedy, J.R. and Anderson, R.D. (2002), "Impact of leadership style and emotions on subordinate performance", *The Leadership Quarterly*, Vol. 13, No. 5, pp. 545-559.
- Megerian, L.E. and Sosik, J.J. (1997), "An affair of the heart: Emotional intelligence and transformational leadership", *Journal of Leadership studies*, Vol. 3, No. 3, pp. 31-48.
- Ofori, G. (2008), "Leadership for future construction industry: Agenda for authentic leadership", *International Journal of Project Management*, Vol. 26, No. 6, pp. 620-630.
- Ogunlana, S., Siddiqui, Z., Yisa, S. and Olomolaiye, P. (2002), "Factors and procedures used in matching project managers to construction projects in Bangkok", *International Journal of Project Management*, Vol. 20, No. 5, pp. 385-400.
- Palmer, J.A. (1998), "JM Cooper (ed.), DS Hutchinson (assoc. ed.): Plato: Complete Works: edited with introduction and notes. Pp. xxx 1808. Indianapolis, and Cambridge: Hackett Publishing, 1997. ISBN: 0-87220-349-2.", *The Classical Review (New Series)*, Vol. 48, No. 02, pp. 482-482.
- Razali, N.M. and Wah, Y.B. (2011), "Power comparisons of shapiro-wilk, kolmogorov-smirnov, lilliefors and anderson-darling tests", *Journal of statistical modeling and analytics*, Vol. 2, No. 1, pp. 21-33.

- Rowlinson, S., Ho, T.K. and Po-Hung, Y. (1993), "Leadership style of construction managers in Hong Kong", *Construction Management and Economics*, Vol. 11, No. 6, pp. 455-465.
- Seal, C.R., Boyatzis, R.E. and Bailey, J.R. (2006), "Fostering emotional and social intelligence in organizations", *Organization Management Journal*, Vol. 3, No. 3, pp. 190-209.
- Shapiro, S. and Wilk, M. (1964), "Tests for the exponential and uniform distributions", *Unpublished manuscript*, .
- Spatz, D.M. (1999), "Leadership in the construction industry", *Practice Periodical on Structural Design and Construction*, Vol. 4, No. 2, pp. 64-68.
- Tannenbaum, R. and Schmidt, W.H. (1973), *How to choose a leadership pattern* translated by Anonymous Harvard Business Review Boston, MA.
- Tannenbaum, R. and Schmidt, W.H. (1958), *How to choose a leadership pattern* translated by Anonymous Institute of industrial relations USA.
- Toor, S. and Ofori, G. (2008) Leadership for future construction industry: Agenda for authentic leadership, *International Journal of Project Management*, Vo. 26, No. 6, pp. 620-630, ISSN 0263-7863, <http://dx.doi.org/10.1016/j.ijproman.2007.09.010>.
- Wong, C.S. and Law, K.S. (2002), "The effects of leader and follower emotional intelligence on performance and attitude: An exploratory study", *The Leadership Quarterly*, Vol. 13, No. 3, pp. 243-274.
- Yammarino, F.J., Dionne, S.D., Schriesheim, C.A. and Dansereau, F. (2008), "Authentic leadership and positive organizational behavior: A meso, multi-level perspective", *The Leadership Quarterly*, Vol. 19, No. 6, pp. 693-707.
- Yang, L., Huang, C. and Wu, K. (2011), "The association among project manager's leadership style, teamwork and project success", *International Journal of Project Management*, Vol. 29, No. 3, pp. 258-267.

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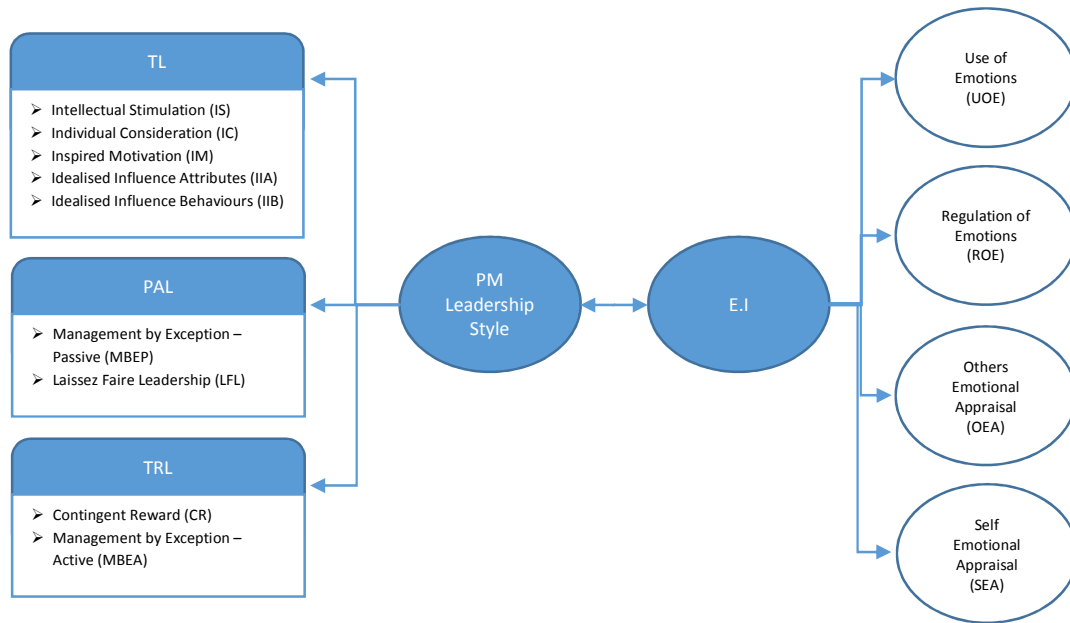


Figure 1. Conceptual Framework for EI and TL

Table 1. Comparison of Group Statistics

	Location	N	Mean	Std. Deviation
TL	NZ	37	95.06	10.34
	UK	34	90.48	10.75
TRL	NZ	37	34.41	7.61
	UK	34	31.17	7.03
PAL	NZ	37	15.15	4.81
	UK	34	15.56	4.57
UOE	NZ	37	20.05	2
	UK	34	20.02	2.46
ROE	NZ	37	20.68	2.58
	UK	34	20.07	2.78
OEA	NZ	37	18.06	3.04
	UK	34	17.52	3.24
SEA	NZ	37	20.73	3.06
	UK	34	19.87	3.09

Table 2. Equality of Variance and Means (NZ and UK)

		Levene's Test		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Differences	Std. Error Difference	Interval of the	
									Lower	Upper
TL	Equal variances assumed	.207	.651	1.831	69	.071	4.58267	2.50332	-.41132	9.57666
	Equal variances not assumed			1.828	67.952	.072	4.58267	2.50745	-.42093	9.58628
TRL	Equal variances assumed	.374	.543	1.863	69	.067	3.24775	1.74345	-.23035	6.72584
	Equal variances not assumed			1.869	68.998	.066	3.24775	1.73746	-.21839	6.71388
PAL	Equal variances assumed	.065	.800	-.363	69	.717	-.40567	1.11611	-2.63226	1.82092
	Equal variances not assumed			-.364	68.925	.717	-.40567	1.11359	-2.62727	1.81593
UOE	Equal variances assumed	1.415	.238	.048	69	.962	.02544	.53081	-1.03350	1.08437
	Equal variances not assumed			.048	63.788	.962	.02544	.53542	-1.04426	1.09514
ROE	Equal variances assumed	.686	.410	.968	69	.336	.61606	.63634	-.65341	1.88552
	Equal variances not assumed			.965	67.328	.338	.61606	.63831	-.65790	1.89001
OEA	Equal variances assumed	.173	.679	.729	69	.469	.54346	.74555	-.94388	2.03079
	Equal variances not assumed			.727	67.519	.470	.54346	.74755	-.94846	2.03537
SEA	Equal variances assumed	.131	.718	1.174	69	.245	.85718	.73038	-.59990	2.31426
	Equal variances not assumed			1.173	68.410	.245	.85718	.73061	-.60056	2.31492

Table 3. Summarised Categorisation of Leadership Responses

	(IIA/IIB) Idealised Influence	(IM) Inspired Motivation	(IS) Intellectual Stimulation	(IC) Individualised Consideration	(CR) Contingent Reward	(MBEA) Management by Exception Active	(MBEP) Management by Exception Passive	(LFL) Laissez Faire Leadership	Other
No. of Responses	9	11	6	24	1	0	0	1	16
Percentage of responses	13.2%	16.2%	8.8%	35.3%	1.5%	0%	0%	1.5%	23.5%

Table 4. Pearson's Correlation for TL and EI Constructs

		UOE	ROE	OEA	SEA	TL
UOE	Pearson	1	.431"	.348"	.342"	.420"
	Correlation Sg. (2-tailed)		0	0.002	0.002	0
ROE	Pearson	.431"	1	.349"		.292"
	Correlation Sg. (2-tailed)	0		0.002		0.01
OEA	Pearson	.348"	.349"	1	.626"	.497"
	Correlation Sg. (2-tailed)	0.002	0.002		0	0
SEA	Pearson	.342"	0.199	.626"	1	.406"
	Correlation Sg. (2-tailed)	0.002	0.083	0		0
TL	Pearson	.420"	.292"	.497"	.406"	1
	Correlation Sg. (2-tailed)	0	0.01	0	0	

Table 5. EI Constructs as a Predictor of TL, TRL, and PAL

		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
TL	(Constant)	38.202	10.958		3.468	0.001
	UOE	1.179	0.534	0.248	2.208	0.03
	ROE	0.202	0.449	0.05	0.45	0.654
	OEA	1.116	0.447	0.326	2.499	0.015
	SEA	0.381	0.449	0.107	0.87	0.4
TRL	(Constant)	2.186	8.149		0.268	0.789
	UOE	0.170	0.397	0.051	0.427	0.671
	ROE	0.566	0.334	0.201	1.694	0.095
	OEA	0.723	0.332	0.303	2.177	0.033
	SEA	0.151	0.334	0.061	0.452	0.653
PAL	(Constant)	27.960	6.562		4.261	0.000
	UOE	-0.160	0.320	-0.064	-0.499	0.620
	ROE	0.153	0.269	0.073	0.570	0.570
	OEA	-0.419	0.267	-0.234	-1.568	0.121
	SEA	-0.226	0.269	-0.122	-0.839	0.404

Table 6. Summary Categorisation of EI Responses

	UOE	ROE	OEA	SEA	Other
No. of Responses	5	20	15	12	13
Percentage of responses	7.7%	30.8%	23.1%	18.4%	20%