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Does Leadership Style Differ between a Post-Disaster and Non-Disaster Response Project? A Study of Three Major Projects in New Zealand

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Abstract: Purpose–The leadership styles of three major infrastructure projects within New Zealand were determined and comparatively analysed to ascertain whether the leadership style employed in a post-disaster recovery project would differ significantly from a normal infrastructure project. A multifactor leadership questionnaire was administered to project leaders and personnel of the three infrastructure projects. The statistically significant differences ($p < 0.05$) in leadership styles were determined using one-way ANOVA analytical tool in STATISTICA 13. Results showed all three projects have strong transformational and transactional leadership traits. There were similarities in leadership style amongst the projects. None of the projects had a significant laissez-faire leadership style. Hence there is no significant difference in leadership style between a disaster recovery project and a normal project. Plausible reasons and implications are provided to support these findings. This study provides insight into leadership styles employed in projects in New Zealand, which could assist in the decision-making process for new and existing projects. Future studies could investigate the effect a combination of leadership styles will have on project success and staff retention. More studies are required across New Zealand to verify the generalizability of the current study findings.

Keywords: Leadership; Transformational; Transactional; Laissez-faire; Project Management; Infrastructure; Post Disaster Recovery

1. Introduction

Successful project outcomes and leadership styles are synergetic. As noted by Muller and Turner [1], the project manager's leadership style has a direct relationship to the success of a project. In a rapidly changing world, understanding leadership styles, in particular, the traits that drive successful projects, is essential and sets the foundation of a successful project [2–4].

Despite the multitude of ways that leadership has been conceptualised, it is considered the most observed and least understood phenomenon on earth [5,6]. In the construction industry, projects are often measured on three major dimensions; time, cost, and quality of the project [7]. These result-based measures are directly affected by leadership type [8–10]. This implies that leadership style may, therefore, vary depending on the type of project.

Managing reconstruction and recovery projects in the aftermath of a natural disaster has become a significant aspect of disaster management. In essence, the importance of leadership is widely acknowledged [11,12] as an essential element in a successful disaster management project. However, deciding which leadership style to employ is complex. For instance, Canton [12] suggested a more direct leadership that is reinforced by the application of emergency management organisational structures that encourage the use of hierarchy and a formal chain of command. Canton further stated

that the image of the leader that emerges is one who can rapidly assess the situation, formulate a creative solution, and act decisively to direct the activities of others using the authority inherent in the management system.

Understanding the type of leadership requirements and whether leadership style should vary between planned and unplanned projects (such as a reconstruction or recovery project) is essential in promoting successful project outcomes following natural disasters. The hypothesis that leadership within a disaster response project differs from that of a non-disaster response project is, therefore, tested in this study.

This paper presents a study on the leadership styles employed on some major infrastructure projects in New Zealand. Two of the projects are major roads of national significance. The other is a disaster recovery project.

2. Background

Leadership is defined in various forms from different research perspectives. Murphy [13] defined leaders as people whom others turn to when missions need to be upheld, breakthroughs made, and performance goals reached on time and within budget. Murphy suggested that leaders transcend the problems of the moment to reveal the possibilities of human nature through intelligence and perseverance. Plato and Aristotle had the view that leadership which encompassed guiding or directing teams where the leader must build relationships and develop faith and group goals provided the most successful outcomes [14]. Other definitions have identified basic components of the concept of leadership as [5,15]:

- leadership is a fluid and a dynamic process;
- leadership involves the influence of a group;
- leadership intervenes in personal exploration and development; and
- leadership involves goals which are synergetic to the goals of any project, the goals associated with being delivered on time, within budget, and to the specific quality.

The initial theory included four transformational leadership factors and two transactional leadership factors. Following extensive research from 1985 to 1990, the leadership theory expanded to represent nine factors comprising five transformational leadership factors, three transactional leadership factors, and one non-transactional Laissez-Faire leadership style, which is considered Passive Avoidant [16,17]. Bass [17], attempted to quantify these definitions, identifying two main types of leadership styles.

2.1. Transformational and Transactional Leadership

According to Flynn [18], transformational and transactional leadership were first identified in 1970 and characterised, two of the most prominent types of leadership seen in modern groups and organisations. Transactional leadership refers to a leadership style in which the leader exchanges rewards for subordinate effort [19] while a transformational leadership encourages the subordinates to aspire to higher ideals and therefore a higher performance for the sake of the organisation. Laissez-faire or passive avoidance leadership is a leadership style considered in this study that denotes a situation where decisions are not readily made.

Downton first distinguished transformational leadership from transactional leadership in 1973. His distinction of the leadership styles aimed to account for the differences among revolutionary, rebellious, reform, and ordinary leaders. However, Downton's conceptualisation was not popular until Burns' [5] seminal work on political leaders appeared in 1978. According to Burns [5], political transactional leaders motivated associates by exchanging rewards for services rendered. An example is a construction project wherein employees' motivation to work is interlinked with production; that is, the more motivated an employee is, the higher the chance they will have of increasing production. Blake and Mouton's [20] study further this theory by proposing a Managerial Grid, using behavioural

dimensions as well, which included "concern for people" and "concern for production" as the two dimensions of assessing leadership behaviours. Over the years, leadership theory has evolved, and research has centred around discussions on which leadership style produces better project outcomes: autocratic versus democratic leadership, directive versus participative decision making, task versus relationship focus, and initiation versus consideration behaviour (Bass, 17).

2.1.1. Leadership Styles in the Construction Industry: Global Perspective

Larsson et al. [21] stated that a construction project is a complex sequence of activities, both planned and unplanned, that is performed by a group to meet objectives traditionally assessed in terms of budget, schedule, and quality. Without strong leadership driving employee commitment, these complex projects with multiple activities may not be performed to a standard that permits for successful project outcomes. A successful project will be one that coordinates these numerous activities effectively. Therefore, the project manager plays crucial roles, often setting the ground rules and fostering the collective approach that strongly influences project performance. The research reported in Larsson et al. [21] explores the degrees in which leadership styles affect project outcome, and specific leadership styles are appropriate in specific types of situations. It demonstrated that leadership style is a critical success factor that influences project performance [22] and several insights on the suitability of specific leadership styles in specific types of situations.

That said, choosing the leadership style to employ for a particular project can be an issue considering the crucial part it plays in the success of any project. A brief review of literature in different jurisdictions suggests different perspectives on the effect of leadership styles on project success. For example, in Hong Kong, Ng and Walker [23] explored national cultural issues that affect leadership style in a Confucian cultural context. The authors found that team members are key project stakeholders and vital to the success of projects. However, this is achievable where leaders can build team members' trust and confidence. The meditating role of leadership in integrated project collaboration was also expounded in Zhang et al. [24], taking data from China. Oyaya [25] examined the influence of leadership style on the performance of housing construction projects in Westlands Sub-county in Nairobi, Kenya. In this study, team commitment and organisational culture were moderators to the influence of leadership style on construction projects performance.

While transformational and transactional leadership styles are prominent in the construction industry, there is yet to be a consensus on which of the two styles is considered better suited for project success. For instance, Liphadzi et al. [26] studied the relationship between leadership styles and project success in the South Africa construction industry, wherein they found a positive relationship between transactional leadership and project success. On the other hand, Limsila & Ogunlana [27] found that transformational leadership style had a positive association with work performance and organisational commitment of subordinates more than the transactional style. The authors studied the perception of about 156 workers in construction projects in Thailand. On the other hand, Drouin et al., [28] argued for a balance in leadership styles comprising both vertical and horizontal (within project teams) leadership. They showed that while Canadian and Australian projects experienced more of autocratic and democratic leadership traits, Scandinavian projects observed democratic leadership. However, the authors validated in their study that a balanced approach is necessary for project delivery.

2.1.2. Leadership in Post Disaster Projects

While leadership type and the success of a planned construction project is well understood, leadership type required following a natural disaster is much less understood. Globally, studies associated with a post-disaster response is much less represented in literature. Often these projects require a complex sequence of unplanned activities driven by stringent timescales. More generally, to understand leadership in crisis and disaster, any theory must address three key components of this type of leadership: it is field-based [29], context-driven [30], and socially-close [31]. Wheeler et al. [32] described the perceptions of Red Cross workers regarding their leaders in the context of disaster

emergency response as collaborative, which dictated their commitment to the success of the project. This type of collaborative approach is also detailed in Waugh and Sreib's [33] study into Hurricane Katrina's disaster response and explained that collaboration has always been a necessary skill of leaders because of the reliance on voluntarism and community involvement.

There are some studies undertaken in New Zealand on leadership in the construction industry and on post-disaster projects. Of particular interest is the study by Walker et al. [7] that assessed the organisational structure of the Stronger Christchurch Infrastructure Rebuild Team (SCIRT) Alliance. The study aimed to understand how managing the perceived legitimacy of an organisation can lead to the process of gaining the engagement and support of the multiple stakeholders in a post-disaster reconstruction project. The study found that time, cost, and quality as the three key performance indicators (KPI) that are the backbone to a project's success take on significant new dimensions within the post-disaster recovery project. These KPI's, along with heightened stakeholder involvement and fragility in post-disaster reconstruction projects, differ from regular project management. Walker et al. highlighted the need for strong internal leadership and leadership that was both collaborative and nurturing.

Walker et al. [7] maintained that post-disaster recovery projects are unlike traditional construction projects and what deems a project success is heightened along with increased stakeholder scrutiny and management. Thus, there is a need for a transformational leadership approach where collaborative work was required to succeed in a demanding environment. These findings acknowledge the need for certain leadership styles and specific traits to successfully transition from disaster recovery to rebuild and to determine at what stage a disaster recovery project moves from the required transactional leadership. Walker et al. suggest that transformational leadership promotes more effective and efficient projects that not only delivers on the three pillars of project success (time, quality, and cost) but can also be deemed successful by all stakeholders in very fragile and emotionally charged environments.

Understanding the type of leadership requirements and whether leadership should vary between planned and unplanned projects is essential in promoting successful project outcomes following natural disasters. The current study presented in this paper hinges on Walker et al.'s [7] study, and compares the leadership styles within a post-disaster recovery project and two regular projects in New Zealand. The findings of this study will provide answers to the following questions:

1. Do leadership styles differ amongst projects with varying characteristics?
2. What leadership style is common amongst major infrastructure projects in New Zealand?
3. Does the leadership style of a post-disaster recovery project vary from that of a non-disaster based (normal) project?

3. Methodology

Data Collection and Analysis

To achieve the objectives set above, three New Zealand infrastructure projects representing distinct differences in both procurement models and delivery were investigated. These projects represent ongoing projects during the research investigation. These projects are coded as Project A, B, and C for this study. While Project B is a Post-disaster recovery project, Projects A and C are routine projects. The characteristics of the projects are shown in Table 1:

Table 1. Project characteristics.

Projects	Cost	Nature of the Project	Procurement Model	Staff Strength
Project A	$850 million	Major Road project	Public-Private Partnership (PPP)	450
Project B	$2 billion	Post-disaster recovery project	Pure Alliance	1700
Project C	$409 million	Major Road project	Design and Construct	350

Project A is one of the New Zealand government's projects that aims to provide access for emergency vehicles and supplies to get to the needed locations when required at the shortest amount of time. The 27 km motorway project is worth $850 million and delivered as a Public-Private Partnership (PPP). This involved an extended tender process and early contractor involvement. It is privately funded and set to open in 2020. Approximately 170 professional staff and up to 450 people are working full time on the project.

Project B represents a post-recovery disaster response project following a recent earthquake experienced in New Zealand. This project was set up by the New Zealand government to restore the road and rail networks damage by the 7.8 magnitude earthquake. The recovery project was procured under a pure alliance model that includes early contractor involvement and overlapping phases. It is estimated to be $2 billion worth of work and has approximately 1700 people working full time.

Project C is part of a wider expressway project, connecting two major cities in New Zealand. It involves 15 km of a four-lane expressway, 3million m^3 of earthworks, and permanent protection of a sacred lagoon. It aimed at reducing traffic congestion and improving safety within the townships. This $409 million project is delivered as a Design and Construct project; involving a traditional delivery model and an extended pre-implementation stage. This project is funded by the New Zealand government, and its long-term goal is to ensure an easier and more efficient transportation system (for people and freight) towards the economic growth and productivity of the region.

The survey was carried out using the Multifactor Leadership Questionnaire (MLQ) developed by Bruce J. Avolio and Bernard M. Bass in 1995 [34]. This questionnaire is popularly known and has been used by authors to provide a reliable means of measuring various aspects of transformational, transactional leadership and Laissez-Faire leadership styles in organisations [27,35–37].

The questionnaire consists of a 5-point Likert scale of 0–4 (0 = Not at all; 1 = Once in a while; 2 = Sometimes; 3 = Fairly often; 4 = Frequently, if not always). A Likert scale is a rating scale used in questionnaire surveys that define the score given to a variable by the respondent [38]. Forty-five (45) statements in the questionnaire describe the leadership traits of a manager and categorise these traits into 12 leadership outcome scales (see Table 2). These twelve subscales of leadership consist of five transformational, three transactional, one laissez-faire, and three outcome scales [34]:

Table 2. Leadership style Subscales used in the Multifactor Leadership Questionnaire [34].

Leadership Styles	Subscales
Transformational	Idealized Influence (Attributed) (IIA)
	Idealised Influence (Behaviour) (IIB)
	Inspirational Motivation (IM)
	Intellectual Stimulation (IS)
	Individualised Consideration (IC)
Transactional	Contingent Reward (CR)
	Management by Exception (Active) (MBEA)
	Management by Exception (Passive) (MBEP)
Laissez-faire	
Outcome Scales	
	Extra Effort (EE)
	Effectiveness (EF)
	Satisfaction (SAT)

As explained by Rowold [34], Idealized Influence (Attributed) (IIA) represents the charisma of the leader that creates an emotional tie by the followers. Idealized Influence (Behaviour) (IIB) is a collective sense of mission and values and actions towards that vision that motivates followers. Inspirational Motivation (IM) is the positive attitude of the leader towards the future that motivates the followers. For Intellectual Stimulation (IS), the leader challenges the assumptions of followers' beliefs, their analysis of problems and solutions they generate. Individualized Consideration (IC) represents a

situation where the leader considers the individual needs of followers and develops their individual strengths. These are the subscales of the transformational leadership style.

For the transactional leadership subscales, Contingent Reward (CR) denotes a situation wherein the leader focuses on clearly defined tasks while providing followers with rewards on the fulfilment of these tasks. In a Management by Exception (Active) (MBEA), the leader watches and searches actively for deviations from rules and standards; and takes corrective actions. Management by Exception (Passive) (MBEP) is when intervening only occurs after the errors have been detected or if standards have not been met.

Laissez-Faire Leadership (LF) represents non-leadership or absence of leadership by the leader. The three outcome scales (Extra Effort (EE), Effectiveness (EFF), and Satisfaction (SAT) denote the followers' relationship with their leaders.

MLQ is used for identifying leadership factor scales, based on colleagues' ratings of leaders, correlated positively with a specific objective and subjective criteria of effectiveness and associate commitment to the leader or project [34].

The questionnaire was administered to the personnel and project leaders of the three case study infrastructure projects. The personnel consists of workers, line managers, and supervisors reporting to the project leaders. Questionnaire surveys are commonly used in project management leadership studies [39].

4. Findings

A total of 138 responses were received (76 from Project A, 28 from Project B, and 34 from Project C). The data collected was processed and analysed using the STATISTICA 13 [40]. To ensure the reliability of the questionnaire, a reliability test was run using the Cronbach Alpha test. Alpha is commonly reported for the development of scales intended to measure attitudes and other affective constructs [41]. As required, the data analysed is assumed to be reliable if the Cronbach Alpha is > 0.7 signifying high internal consistency [42]. For the dataset reported in this paper, a Cronbach Alpha score of 0.938 was obtained. Hence the data is regarded as fit for the analysis carried out.

The mean rating score of these factors determined the leadership style of the project leader and is used to test the hypothesis of this study. The findings are presented in the next section.

4.1. Leadership Styles per Project

The mean rating score for the three project leaders was calculated based on personnel's perception of their project leaders' leadership style and the project leaders' perception of their leadership styles. The findings (Table 3) showed that overall, all the projects are managed using mostly the transformational leadership style (Project A = 2.86; Project B = 2.63; Project C = 2.12), followed by the transactional leadership style (Project A = 2.17; Project B = 1.87; Project C = 1.68). This finding supports past works that stipulate the preference of transformational leadership style over others for project delivery [43–45]. The projects scored least for a Laissez-faire amongst all the leadership styles tested. Specifically, Project A scored highest for employing Laissez-faire leadership; followed by Project C and Project B (Project A = 1.46; Project B = 1.23; Project C = 1.38). These results also support past works suggesting no significant relationship between Laissez-faire leadership style and project success [26].

Project B scored highest for the outcome scales of EE, EFF, and SAT, followed by Project A and Project C (Project B = 3.25; Project A = 2.97; Project C = 2.55). This signifies that there is a closer and more effective relationship between the project leaders and the personnel in project B than the other two projects.

Table 3. Multifactor Leadership Questionnaire (MLQ) ratings on Leadership styles employed in the three projects.

Leadership Style	MLQ Subscale	Mean Rating Score		
		Project A	**Project B**	**Project C**
Transformational	Idealized Influence (Attributed) (IIA)	2.96	2.89	2.34
	Idealized Influence (Behaviour) (IIB)	2.41	2.09	1.95
	Inspirational Motivation (IM)	3.01	3.23	2.22
	Intellectual Stimulation (IS)	2.49	2.10	1.64
	Individualized Consideration (IC)	2.53	2.84	2.47
	Total Mean	**2.68**	**2.63**	**2.12**
Transactional	Contingent Reward (CR)	2.51	2.54	2.17
	Management by Exception (Active) (MEA)	1.97	1.35	1.37
	Management by Exception (Passive) (MEP)	2.03	1.71	1.51
	Total Mean	**2.17**	**1.87**	**1.68**
Laissez-Faire	Laissez-Faire (LFL)	1.46	1.23	1.38
Relationship between project leader and personnel		2.91	3.39	2.20
	Effectiveness (EFF)	2.96	3.10	2.73
	Satisfaction (SAT)	3.05	3.27	2.72
	Total Mean	**2.97**	**3.25**	**2.55**

4.1.1. Project A

Generally, Project A scored highest in transformational and transactional leadership (m = 2.68; 2.17 respectively), followed by Project B (m = 2.63; 1.87). Project C scored the lowest out of the three projects for both transformational (m = 2.12) and transactional (m = 1.68). However, for Laissez-faire, the Project A project scored the highest with a mean score = 1.46, followed by Project C (m = 1.38) with Project B showing the least Laissez-faire leadership overall (m = 1.23).

For transformational leadership subscales, Project A scored highest for Inspirational Motivation (m = 3.01), closely followed by Idealized Influence (Attributed) with mean score = 2.96. Next in line were Individualized Consideration (m = 2.53) and Intellectual Stimulation (m = 2.49). The least was Idealized Influence (Behavior) with a mean score = 2.41. This indicates that the project leader has a greater influence on the workers through motivation and charisma that creates an emotional tie by the workers (34) than other subscales of transformational leadership.

For transactional leadership subscales, Contingent Reward (CR) was rated as the highest leadership subscale used by the project leader (m = 2.51) followed by Management by Exception (Passive) (m = 2.03). The least used leadership subscale was Management by Exception (Active) (m = 1.97). This finding suggests that the leader for project A provides clearly defined tasks for the workers and rewards on the fulfilment of these tasks.

Regarding the Outcome scales, Project A scored highest for Satisfaction (m = 3.05), followed by Effectiveness (m = 2.96) and Extra Effort (m = 2.91). These results indicate that the workers perceived a reasonable level of satisfaction and are willing to put in the extra effort required for the success of the project. These traits denote a positive relationship between the project leader and his workers.

4.1.2. Project B

Similar to Project A, for transformational leadership subscales, Project B scored highest for Inspirational Motivation (m = 3.23), followed by Idealized Influence (Attributed) with mean score = 2.89. Close in line were Individualized Consideration (m = 2.84) and Intellectual Stimulation (m = 2.10). The least was Idealized Influence (Behavior) with a mean score = 2.09.

Also, for transactional leadership subscales, Contingent Reward (CR) was rated as the highest leadership subscale used by the project leader (m = 2.54) followed by Management by Exception

(Passive) (m = 1.71). The least used leadership subscale was Management by Exception (Active) (m = 1.35).

Regarding the Outcome scales, Project B scored highest for Extra Effort (m = 3.05), followed by Satisfaction (m = 2.96) and Effectiveness (m = 2.91). As these findings are similar to those for Project A, it can be deduced that both project leaders exhibit akin leadership traits as well as outcomes regarding the relationship between project leaders and workers.

4.1.3. Project C

Project C scored differently from the other two projects for transformational leadership subscales; Project C scored highest for Individualized Consideration (m = 2.47), followed by Idealized Influence (Attributed) with mean score = 2.34. Next in line were Inspirational Motivation (m = 2.22) and Idealized Influence (Behavior) (m = 1.95). The least was Intellectual Stimulation with a mean score = 1.64. This result suggests that project C leader had more consideration of the individual needs of workers and their strengths than the leaders for projects A and B.

For transactional leadership subscales, Contingent Reward (CR) was rated as the highest leadership subscale used by the project leader (m = 2.17) followed by Management by Exception (Passive) (m = 1.51). The least used leadership subscale was Management by Exception (Active) (m = 1.37). This finding is similar to those for Project A and B.

Regarding the Outcome scales, Project B scored highest for Effectiveness (m = 2.73), closely followed by Satisfaction (m = 2.73) and Extra Effort (m = 2.20)–similar to the findings of projects A and B.

4.2. Analysis of Variance in Leadership Styles amongst Projects

To test that leadership style of the post-disaster recovery project (Project B) varies from designed and planned (normal) projects, an Analysis of Variance (ANOVA) was generated. Before the ANOVA, the data were tested for normality and homogeneity of variances to ensure the assumptions ANOVA were met [46]. The one-way ANOVA was used to test that there was significant variation ($p < 0.05$) in leadership styles between the three construction projects [47]. The findings are shown in Table 4. A post hoc Tukey (HDS) test for unequal N was then used to determine which projects varied statistically for the leadership style identified [48].

Table 4. ANOVA test for significant differences in leadership style amongst the three projects.

Leadership Styles	Analysis of Variance (ANOVA) Significant at $p < 0.05$							
	SS Effect	D Effect	MS Effect	SS Error	df Error	MS Error	F	P
Transformational	0.6363	2	0.3181	0.1499	11	0.0136	23.343	0.0001
Transactional	0.1031	2	0.515	0.4244	3	0.1415	0.364	0.7217
Lassiez-faire	0.0992	2	0.0496	0.3417	3	0.1139	0.435	0.6823

df = degree of freedom; SS = Sum of squares; MS = Mean Square; D = Cohen's measure of effect size; Effect = strength of association; Error = variability within groups; P = level of significance; F = significance of variance.

The Analysis of Variance results (ANOVA) results shows that there is a statistically significant (< 0.05) difference amongst the data for only transformational leadership (Table 3). The results for transactional and laissez-faire leadership styles were not statistically significant. The HDS test for transformational leadership style illustrated that Project C was statistically different from Project A (P = 0.002) and Project B (P = 0.000). However, there were no statistical differences in transformational leadership type for Project A and Project B (P = 0.998) (Table 5).

Table 5. Post hoc Tukey (HDS) Test for significant differences in transformational leadership amongst the three projects.

Leadership Styles	Unequal N HDs, Variable: Transformational Leadership Significant at $p < 0.05$		
	Project A	**Project B**	**Project C**
Project A	-	0.099795	0.002518
Project B	0.099795	-	0.000330
Project C	0.002518	0.000330	-

5. Discussion

This study intended to ascertain whether the leadership style within a disaster response project (Project B) differed significantly from that of two non-disaster response projects (Project A and Project C). The findings provided the opportunity to draw some interesting conclusions. Generally, the findings support past works that maintain the importance of understanding leadership styles to the success of project delivery [2,4,49].

For question 1 of this study, we found significant differences between Project C and the other two projects (A and B). However, no significant difference was found between Projects A and B. The similarities in leadership style between Projects A and B could be as a result of the nature of the projects. The large size, scale, and working terrain of both projects may have provided a challenging but rewarding environment that allowed employees to grow through the complexity of work and gain experience. Also, this similarity can be related to the higher seismic requirements and complexities of the projects' location (Zone 3 by NZ codes). This is unlike Project C, which is smaller in size, less complex and less similar to the other two projects. The uniqueness of Project C may account for its generally lower score on leadership subscales. This could be as a result of the challenges connected to the project.

For question 2, the findings of this study show that the post-disaster recovery project (Project B) had more of a transformational than a transactional leadership style. This is in support of a recent study [50], which noted that transformational leadership is most appropriate during a time of crisis. It has also been suggested that having a transformational leader may be beneficial to project success regardless of the emergency nature of the project [50,51]. It is worth mentioning that at the time of writing this paper, Project B project has moved on to the second phase of the project. This means the project has transitioned from a disaster recovery project. A further study may be required to ascertain whether there will be a change in leadership style.

Question 3 of this study was addressed by analysing the leadership style employed by each project's project manager. It was noted that all three projects employed transformational leadership over the other two leadership styles. It can be deduced that all three projects have an effective leadership style as transformational leadership is considered the most effective style of leadership in organisations [3,16]. This result is also supported by the low score of all three projects in Laissez-faire leadership style. In particular, Project B scored the lowest for this leadership style. This result could be explained by the high level of complexity associated with a post-disaster project or the need to ensure the successful delivery of the project that may have necessitated some form of micromanagement.

However, it is worth mentioning that transactional leadership style was also evident amongst the three projects. In particular, the Contingent Reward (CR) was the highest-rated transactional subscale tested of all three projects. This finding is supported by that of Goodwin et al., [51] who observed that the high correlation between transformational and transactional leadership ratings might be due to the item arrangement of the contingent reward in the MQL questionnaire. Another plausible reason is the fact that all three projects are likely to be competing for a similar pool of personnel with the industry.

Finally, the results showed that the post-disaster recovery project (Project B) received the highest mean rating from the personnel for the outcome scales–Satisfaction (SAT), Extra Effort (EE), and

Effectiveness (EFF) amongst the three projects investigated. This suggests that Project B personnel are gaining higher satisfaction and effectiveness of their leaders, and are willing to put in the extra effort as a result of the demonstrated leadership of their managers. This may be due to the "call to arms" response nature of a disaster management project, coupled with the comradery built around the need to work as a group to get the job done as soon as possible.

It is worth mentioning that the focus of this paper is the leadership style employed by project managers and the perception of the leadership style by their project team members. The reliability test carried out showed that though subjective, the data obtained was fit for this study. As such, interpretation of results should be read in accordingly.

6. Conclusions

This study examined the leadership styles of three projects in New Zealand to ascertain whether the leadership style employed in a post-disaster recovery project would differ significantly from a normal project. The findings showed that this was not the case because similarities in leadership style were found amongst the projects. It was also determined that the three projects employed mainly a transformational leadership style. None of the projects was found to have a significant laissez-faire leadership style. Thus, we conclude that there is no significant difference in leadership style between a disaster management project and a non-disaster management project.

This study contributes to the body of knowledge on transformational leadership style being the major influencer of attitudes and assumptions of team members in a manner that creates a common mentality for the achievement of organisational goals. The study finds that transformational leadership assist in the decision-making process for new and existing projects. It also showed that for post-disaster projects, a transformational leadership style is required to foster comradery amongst team members. The study findings provide useful insight into the understanding of leadership in construction organisation in New Zealand. Literature around this subject area is thin in New Zealand, and thus, the work carried out here could serve as a resource for future studies. Future studies could investigate the effect that a combination of leadership styles will have on project success and staff retention. It would be interesting to establish empirically whether the leadership style employed within a project should change as the project progresses.

Finally, the generalisation of the findings is limited by the sample size used in the current study. Data from three case studies were used for this research but are considered fairly representative of the New Zealand construction industry. More empirical studies are encouraged across New Zealand projects to verify the current findings.

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