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Leadership in project management: an application in the construction industry

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LEADERSHIP IN PROJECT MANAGEMENT:
AN APPLICATION IN THE CONSTRUCTION INDUSTRY

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ABSTRACT

A highly structured survey was developed, broken down into three sections, with the objective of validating the concepts of leadership in project management, how they are applied in the construction field, and how the background of each participant influenced their perceptions of leadership. All the participants are professionals in the constructing industry, whether they are project managers, project engineers or superintendents.

The majority of the participants were males and project engineers with 5 to 10 years' worth of experience in the construction industry. According to the participants, the three most important skills that a leader should have are controlling team performance, communication and understand the characteristics and requirements of a project. The three most important attributes that a leader should have are problem-solver, motivator and negotiator.

The majority of the participants agreed that leadership is essential for project success, that a project manager should exhibit leadership traits to be promoted, that he should exhibit emotional intelligence including but not limited to self-awareness and self-control in order to motivate the team members, communicate clearly with them, be a role-model and an inspiration to them, be a mentor, support the team members and be mature enough to be able to delegate power and responsibilities over to the team members when the need arises.

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CHAPTER 1:

INTRODUCTION

The identification of practices that result in increased competitive advantage has been of utmost importance amongst companies who wish to rapidly respond to market needs (Yang et al., 2011, p.258). This has caused a shift from the conventional way of doing business to a project-oriented approach to gain competitive advantage (Medina & Medina, 2014, p.1459).

The determination of elements that lead to project success is currently a major discussion topic among the project management community. The role of the project manager and the influence it has on project success is a focus point to a lot of research. But a vast amount of literature has ignored the impact of a project manager and his leadership style on project success (Turner & Muller, 2005).

This dissertation will address the importance and key role of leadership in project management, particularly in the construction field. The objectives of the dissertation are to provide a clear understanding of leadership in project management, determine the most important leadership skills that project managers on construction sites should have, discuss how those leadership skills make a project team more dynamic and effective in order to achieve project success and increase project value.

The dissertation includes four major chapters besides the introduction, and they are as follows:

- Literature Review; in which, relevant literature to the dissertation will be presented and important leadership factors will be identified and summarized. In that first chapter, a close look will be taken upon the definitions of leadership, leaders, project management project managers, project success and construction. Also, different leadership theories such as trait theories, behavioral theories and contingency theories will be summarized and used as a basis for the research to follow.
- Methodology; in which, the process of gathering relevant data to the dissertation is explained. A questionnaire was developed and sent out to 107 people working in the construction industry, with the objective of validating the concepts of leadership in project management, how they are applied in the construction field, and how the background of each participant influenced their perceptions of what leadership is. The questionnaire yielded a response rate of 78.5% which is more than acceptable. A few follow-up interviews were made to clear up some answers given in the questionnaire, and an interview with the CEO of Matta et Associes was conducted for the sole purpose of verifying and strengthening the data obtained in the questionnaire.

- Results and Analysis; in which, the results of the questionnaire are analyzed. The participants are asked to rank what is in their opinion the most important skills and attributes. Communication, understanding characteristics and requirements of a project, problem-solving and motivating are essential elements in these lists. Also, the majority of the participants agreed that leadership is essential for project success, that he should exhibit emotional intelligence, communicate clearly with them and be a role-model and an inspiration to them among other things. The complete analysis of the results is found in chapter 4, while the detailed results are in appendix B.
- Conclusion and Recommendations for Future Research; in which, a summary of the findings is given, stressing the importance of emotional intelligence, leadership sharing and finding a balance between technical and human skills among other things. The limitation of the data obtained in this research is explained, such as the small sample of the participants and the groups they belong to. Based on these limitations, recommendations for future research is given.

CHAPTER 2:
LITERATURE REVIEW

The purpose of this section of the dissertation is to present literature relevant to the subject being studied; literature that will define and support elements that are closely related to project success, and which will highlight the important relationship between leadership and project management. The research analysis is supported with strong and relevant references from highly-regarded leadership and project management authors.

2.1: Project Management Defined

In order to convert an organization's vision into executable objectives and finally reach the company's goals, project-based management is used to improve performance and successfully solve problems (Turner, 2008). Project Management is considered a field associated with change, complexity, high risks and fast-paced projects (Atkinson, 2006), but it is also defined by the Project Management Institute as "the application of knowledge, skills, tools and techniques to project activities to meet the project requirements" (PMI, 2015c).

So, to put it in other terms, project management can be defined as a set of methods, theories and techniques which evolved to be used to manage the complexities of a project (Verzuh, 2011). But, unfortunately, in spite of advances in the project management discipline, the general consensus suggests that many projects still fail (Williams, 2005).

2.2: Project Success & The Project Manager

The end result of a project, whether it is a successful outcome or a shortfall, is highly dependable and accredited to the particular steps and decisions that the project manager decided to take. The success factors of each project are obviously measured differently.

Within some of the analyzed literature, the term project success is differentiated from the term project management success. Project success is measured against the overall objectives of the project, while project management success is measured against traditional performance criteria such as completing a project within time, cost, meeting the scope of the project and the quality (Cooke-Davies, 2002).

For the purpose of this dissertation, project success will be referred to as a combination of both definitions, and this is supported by Turner and Muller (2005), who explain how throughout literature history, the definition of success has evolved from a focus on implementation, to effective planning and hand-over of a project, and finally to stakeholder-dependent success and interaction.

In the most recent literatures on project success, Turner, Muller and Dulewicz (2010) proposed the following critical factors to define project success:

- End-user satisfaction with the project.
- Suppliers' satisfaction with the project.
- Project team's satisfaction with the final result.
- Other Stakeholders' satisfaction with the project.
- Meeting the project's overall performance (functionality, budget and timing).
- Meeting user requirements.
- Meeting the project's purpose.
- Client satisfaction with project's results.
- Obtaining a reoccurring business with the client.
- Meeting the respondent's self-defined success factors.

A project manager is "the person assigned by the performing organization to lead the team that is responsible for achieving the project objectives" (PMI, 2015c). He is also the person in charge of managing the project on a daily basis and "must be competent in dealing with the six aspects of a project: scope, schedule, finance, risk, quality and resources" (APM, 2015d).

So, although it is generally defined and believed that the effectiveness of an organization relied on the project manager's technical competencies, some findings suggest that a frequent cause of problems in projects is the project manager's lack of leadership (Zimmerer and Yasi, 1998). Even though these findings date back to 1998, the effect of the project manager's personality traits and leadership style have unfortunately not been thoroughly explored and linked to project success (Yang et al., 2011).

In the recent past, subject matter expertise was considered the most important skill in project management. Nowadays, it's an even distribution between subject matter expertise, PM tools and techniques, and project leadership. In the near future, project leadership is expected to be considered the most important skill needed (Richman, 2006).

2.3: Leaders & Leadership

So, as was established in the previous section of this dissertation, to date, there has been few published literatures on the analysis of leadership skills required by engineers. And this is unfortunate, as new challenges arise and a changing business environment beg for any industry, especially construction, for a change in how leadership is perceived. To start the discussion on leadership, the following terms should be defined:

- Leaders: They are people who recognize the need for change and implement it, establish direction, align people, motivate and inspire people, give power instead of hoarding power, communicate a vision of where the organization is headed, build teams and share decision making process, mentor and coach subordinates and finally, demonstrate a high degree of integrity (Skipper and Bell, 2006).
- Leadership: It is the process of influencing others to understand and agree about what needs to be done, how it can be done effectively, and it is the process of facilitating individual and collective efforts to accomplish stated objectives (Yukl, 2002).

To put the distinction between leaders and leadership in simpler terms, "leaders do the right things and leadership is about influencing people to follow one's lead" (Skipper and Bell, 2006).

2.4: Leadership Theories

Many scholars have been searching for the ultimate leadership profile and the most effective leadership style (Sosik and Jung, 2010). As a result, many leadership theories exist. Over the last seventy years, six main schools of leadership have emerged, and they are:

- The trait school.
- The behavioral (or style) school.
- The contingency school.
- The visionary and charismatic school.
- The emotional intelligence school.
- The competency school.

According to Tuner and Muller (2005), all the leadership schools that have emerged in the past seventy years, are derived from general management literature. For the purpose of this dissertation, the first three leadership school of thoughts will be reviewed.

2.4.1: Trait Theories

Trait theories attempt to determine the personal characteristics that great leaders share, characteristics which differentiated leaders from non-leaders (Armandi et al., 2003). These are traits that someone can learn over time with enough practice. Tuner, Muller and Dulewicz (2010) have identified the most important traits a leader must have, among them:

- Trustworthiness: The project leader must have the ability to inspire people through trust.
- Passion and Motivation: The project leader must give it all to accomplish the proposed objectives.
- Self-confidence: When the project leader has self-confidence, it leads to the whole team have confidence in him and in themselves.
- Calmness: The project leader must stay calm under pressure when a situation calls for it.
- Friendliness: The project team must be able to communicate with the project leader without any restriction.
- Ability to listen: The project leader must be able to listen and understand all points of views which increases the chances of success.
- Ability to delegate: The project leader must understand that he/she cannot do it all by themselves.
- Human Understanding: The project leader must understand the values and needs of his/her team.
- Adaptability and Flexibility: The project leader must be adaptable and flexible to change.

2.4.2: Behavioral Theories:

Trait theories are not useful as a tool as it only highlights the distinction between leaders and non-leaders as stated previously. The behavioral/style theories on the other hand, can be used as a tool since it focuses on what leaders actually do. Perhaps the most popular way to understand behavioral leadership is Blake and McCanse's leadership grid (Blake and McCanse, 1991), which can be summarized as follows:

- Authority Compliance Management: Leadership behavior focuses highly on tasks and not people.
- Country Club Management: Leadership behavior focuses highly on people and not tasks.
- Team Management: Leadership behavior focuses highly both on people and on tasks.
- "Middle-of-the-road" Management: Leadership behavior balances focus on people and tasks.
- Impoverished Management: Leadership behavior lacks focus on both people and tasks.

Blake and McCanse (1991) argue that the ideal leadership style is categorized within the dimension called team management which highly focuses on both people and tasks.

2.4.3: Contingency Theories

According to the contingency school of thought, leadership is a process which involves three main aspects: the leader, the team and the situation (House, 1971). Different theories exist within the contingency school, but all are similar in the sense that it boils down to the fact that effective leadership depends on the situation. It is the leader's responsibility to match the situation with the appropriate leadership style.

The contingency school adopts four leadership style (House, 1971) and they are:

- Achievement-oriented: Leader are supportive but assign demanding tasks and expect maximum effort from the team.
- Directive: In addition to assigning demanding tasks, the leader also instructs the team on how to do them.
- Participative: The leader involves the team in the decision-making process.
- Supportive: The leader cares about the team's well-being and satisfaction, he develops and maintain work relationships.

As can be seen, there are a lot of similarities between the behavioral school and the contingency school, the main difference being that the leader adapts his leadership style to the situation at hand.

2.5: Construction

A very simple and yet important definition of the construction business is given by Skipper and Bell (2006): "Construction is a people business where you are hired for your technical skills, fired for your lack of people skills, and promoted for your management skills".

Based on this definition, the importance of leadership in the construction business is emphasized.

CHAPTER 3:
METHODOLOGY

3.1: Overview

In this part, the methodology followed during the dissertation will be laid out. The dissertation is comprised of four major steps, which are as follows:

- The first step consists of collecting information in order to identify and summarize major themes from the literature found. This was done in the previous chapter of the dissertation.
- The second step consists of conducting a questionnaire, in which a list of important and relevant factors in successful leadership in the construction field are identified. Interviews will follow the surveys, if needed, to clarify some points and to verify the survey results.
- The third step consists of analyzing the results obtained from the survey and the interviews, in order to determine the most significant factors and how they apply in the construction industry.
- The fourth step consists of concluding the dissertation by summarizing the findings and giving suggestions for further research.

3.2: Literature Review

The literature review is the first step in this dissertation. The intent is to collect enough information to formulate a hypothesis applicable in the real world, more specifically in the construction industry. The data summarized in the literature review is second-hand information from academic books and journals. To locate and identify these resources needed for the topic of the dissertation, access to electronic databases was needed. The researchgate website (https://www.researchgate.net/home) was used as a primary source of literature, and google (https://www.google.com) was used as a secondary source for additional information. Several key words were used in the search including, but not limited to: leadership, leader, team, project success, construction and project management. The search was limited to articles in the English language. The chosen articles, which can be found in the references section of the dissertation, were limited by a restriction on date of publication. If the articles were older than 10 to 15 years, they were discarded, unless the article dealt with a theory or an issue still applicable and relevant today. In addition, several textbooks and notes from the lectures taken during the MBA program at Neapolis University were used as resources.

3.3: Survey and Interviews

A questionnaire/survey is a set of questions that focus on the topic under study, and it is given to suitable study subjects, which have a knowledge about the topic being studied, in order to provide answers. The survey will be designed and tailored to receive input from people in the construction business concerning leadership and leadership skills. The questionnaire will be formed from a majority of closed questions and few open questions. These questions will be centered around the importance of leadership, the kinds of leadership skills people should pursue and the most commonly used skills in the construction field.

The survey will be sent via e-mail to ex-colleagues of the researcher at Matta Et Associes, a major construction firm in Lebanon, to the project managers of the organization, and other people the researcher knows at different construction companies, mainly CCC and Abniah, which are major players in the construction business in the Arab countries.

It is expected to have several people who will not reply to the questionnaire and some people who will not answer all the questions or even less than half of the questions. These responses will be redacted from the data to maintain authenticity and accuracy of the survey results.

The response rate of the survey will be verified and deemed acceptable according to a previous research on survey result analysis. Sheehan (2001) states the following criteria:

- Surveys via mail: A 50% response rate is considered adequate; a 60% response rate is considered good and a 70% response rate is considered very good.
- Surveys via phone: An 80% response rate is considered good.
- Surveys via e-mail or online methods: A 30% response rate is considered average; a 45% response rate is considered good and a 60% response rate is considered very good.
- Surveys via classroom paper: A response rate higher than 50% is considered good.
- Face-to-face Surveys: A response rate higher than 80% is considered good.

The survey will be sent attached to a cover letter, which will explain that the survey is part of a dissertation for the completion of the researcher's MBA program at Neapolis University and it will also explain why these specific people were chosen, since they have the knowledge and expertise to give a balanced input into the subject being studied.

The interviews will be conducted face-to-face or via phone, depending on whether the researcher will be able to travel to Lebanon or stay in Cyprus. The mandatory interview will be with the chairperson of Matta Et Associes, since his input will be important as to what he looks for in his employees. And additional interviews will be conducted if needed to clarify some issues during the survey process.

3.4: Survey Result Analysis

A common survey process includes defining the survey objectives, develop the survey, collect the data and finally analyze the data. The first two steps were done in the previous sections. In this third major step, the results of the surveys and the interviews will be laid out and analyzed to reach a consensus on what makes leadership so important and how it affects the construction industry. The survey was sent to 107 people working in the construction industry. Out of these 107, 84 people responded and participated in the questionnaire. This translates to saying that the questionnaire had a 78.5% response rate. According to the criteria defined by Sheehan (2001), this is well above 60% for an e-mail survey, so the response rate is considered very good.

3.5: Conclusion and Recommendations

In the final step of the dissertation, conclusions are drawn and suggestions are provided to assist researches in doing further research in the leadership field, or the conclusions could also benefit civil engineers who wish to become successful leaders in the construction industry based on what their peers have stated.

CHAPTER 4:
RESULTS AND ANALYSIS

4.1: Section A- Personal Information

In the first section of the questionnaire, the participants were asked to answer three questions related to their personal background which are relevant to the study being undertaken. The results were as follows:

- The majority of the participants were male, which was to be expected since the construction industry is dominated by the male gender. The results are shown below in chart 1.
- The majority of the participants have been working in the construction industry for five to ten years, followed by those who worked for ten to fifteen years. The people who belong to these two groups are the main participants which the questionnaire targeted, because they have been in the industry long enough to give their opinion on leadership in project management. The results are shown below in chart 2.
- The majority of the participants are project engineers. The reason for this result is that project engineers have worked with several project managers, and are able to identify what is in their opinion the criteria which makes a leader. The results are shown below in chart 3.

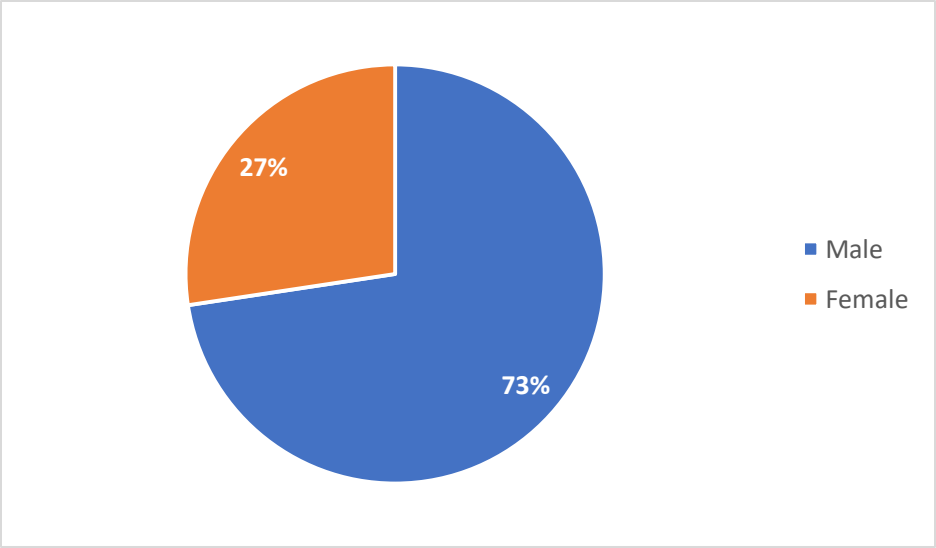

Chart 1: Participants' Gender

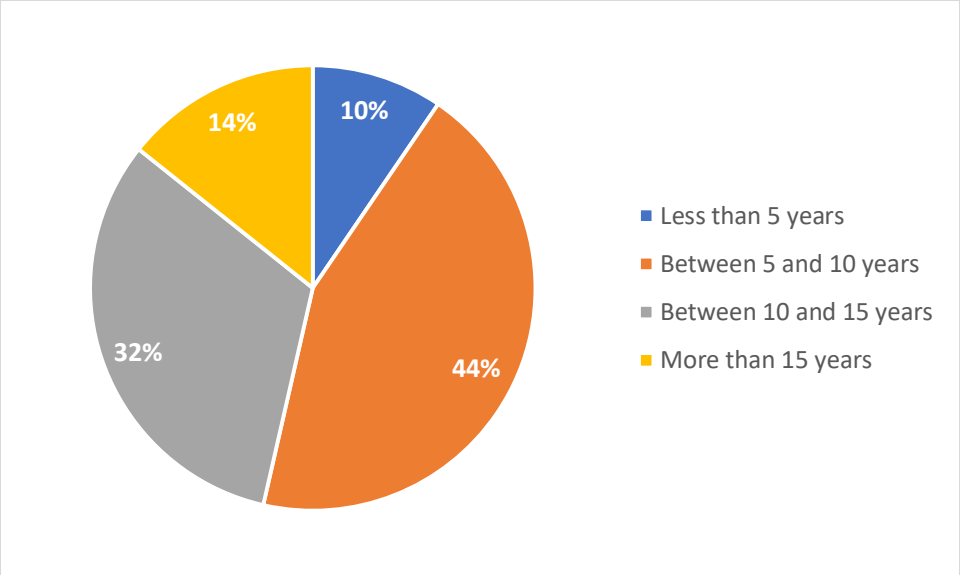

Chart 2: Participants' Number of Years in the Construction Industry

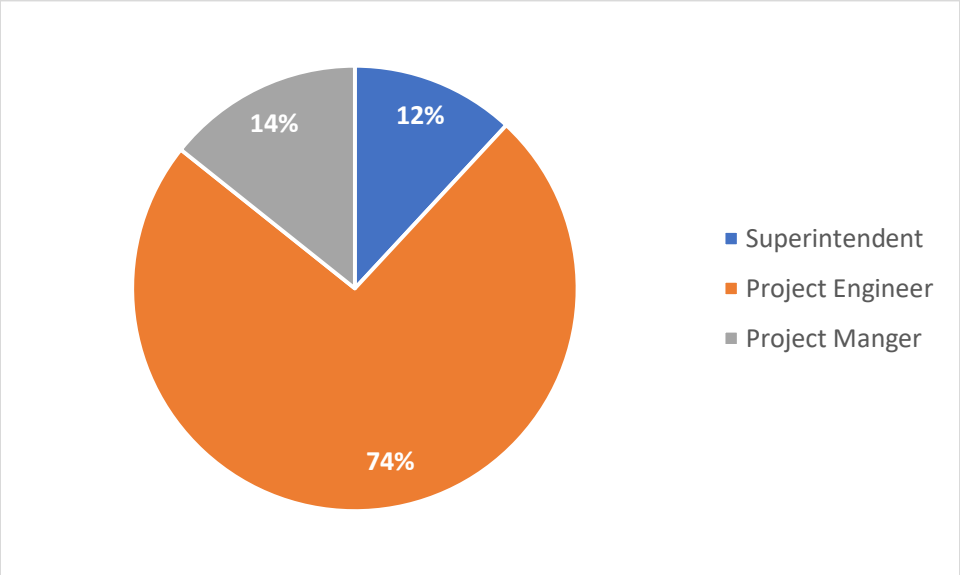

Chart 3: Participants' Role on Construction Projects

4.2: Section B- Rankings

In this section of the questionnaire, the participants were asked to rank the skills and attributes that a leader should have. Questions 4 and 5 are comprised of a list of eight skills and eight attributes respectively. The aim of this section is to identify the top 3 skills and attributes according to the rankings given by the participants, and whether the participants' backgrounds influence these rankings. The results were as follows:

4.2.1- Ranking of Skills:

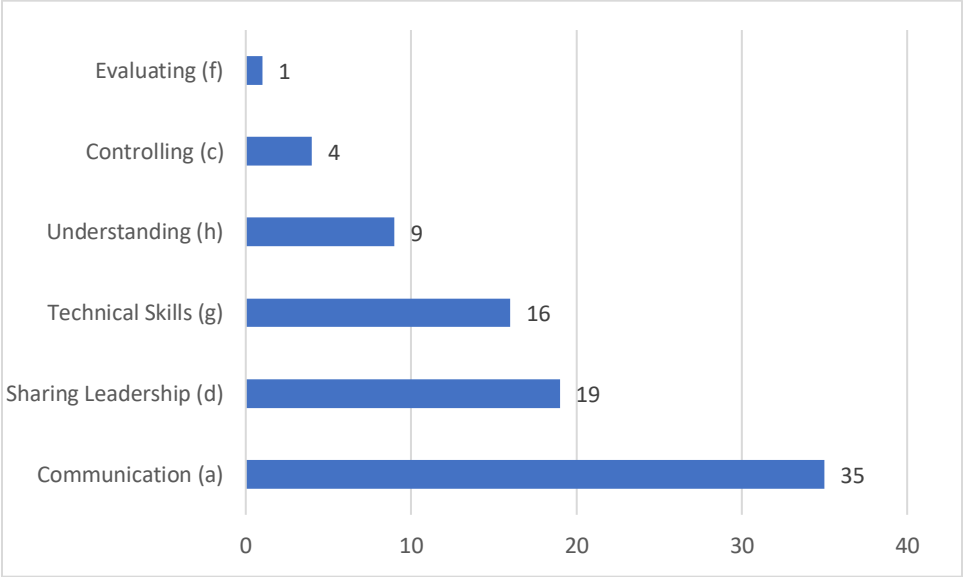

Chart 4: Frequency of Skills Ranked as #1

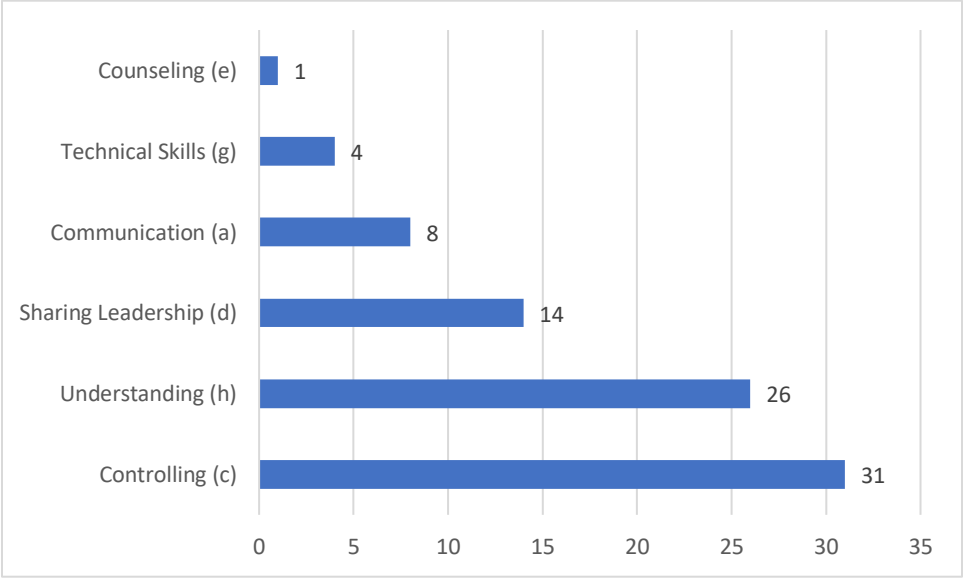

Chart 5: Frequency of Skills Ranked as #2

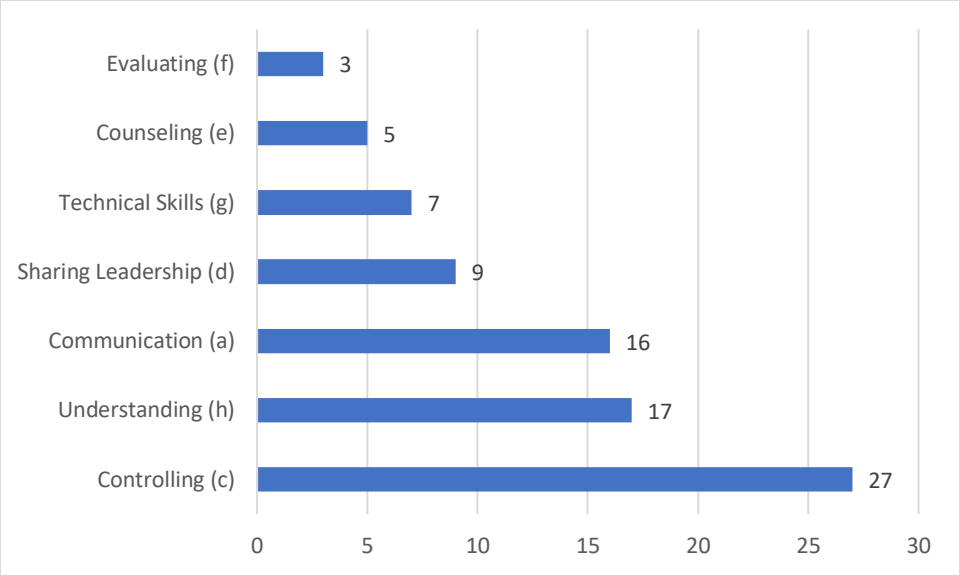

Chart 6: Frequency of Skills Ranked as #3

As can be seen on charts 4 to 6, Communication is ranked first by most participants, and Controlling Project Team Performance is rank second and third. In order to get a clearer picture of what is going on, let's add the frequencies that make up the top 3 skills. The results are shown in chart 7 below.

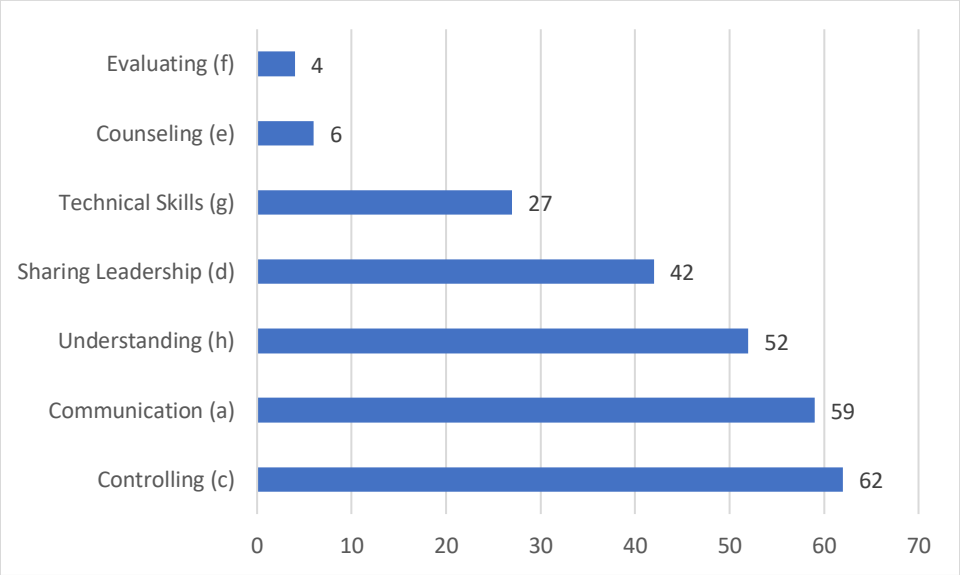

Chart 7: Total Frequencies of the Top 3 Skills

Chart 7 shows that, according to the participants, controlling project team performance, communication and understanding the needs and characteristics of a project are the three most important skills that a leader should have on a construction project. But what the charts don't show is the difference in opinion between the different "demographics". For example, out of the 23 females, 21 ranked communication as the number 1 skill while only 14 out of the 61 males ranked it first. Another example is that ten superintendents out of ten ranked technical skills as number 1, while only 6 out of the rest of 74 participants ranked it first. So, it is safe to say that the personal background of the respondents does influence the rankings of a leader's skills, what comes first is in a way subjective.

To prove this observation a little further, a regression analysis was conducted using the ISP software. The information received from the questionnaire was quantified in order to do the regression analysis. For example, males and females were quantified as 0 and 1 respectively. The same system was used for other criteria. The dependent variable was selected as the ranks while the independent variables were gender, number of years in the industry and role on construction projects. The results obtained using a 95% confidence interval were as follows:

Independent Variable	Coefficient	Standard Error	t-stat	P-value	0.05 Significance?
Constant: a	99.1925	1.7007	58.32392284	0.0000	Y
Gender	1.2829	0.3145	4.078539431	0.0001	Y
Years	-0.2775	0.1760	-1.576637297	0.1188	N
Role	0.2916	0.2647	1.101611172	0.2739	N

Table 1: Results of the Regression Analysis

The results show that gender indeed does influence the rankings. The p-value tests the null hypothesis. A low p-value ($p < 0.05$) indicates that we can reject the null hypothesis. In other words, an independent variable that has a low p-value is likely to be a meaningful addition to the regression model because a change in the independent variable implies a change in the dependent variable. According to the results, the number of years in the industry and the role on a construction project does not influence the results. But it is the researcher's opinion that if more data was available, all three criteria would test positive on a regression analysis for influencing the results of the rankings. More on this at the end of the chapter, in the limitations of the research section.

4.2.2- Ranking of Attributes:

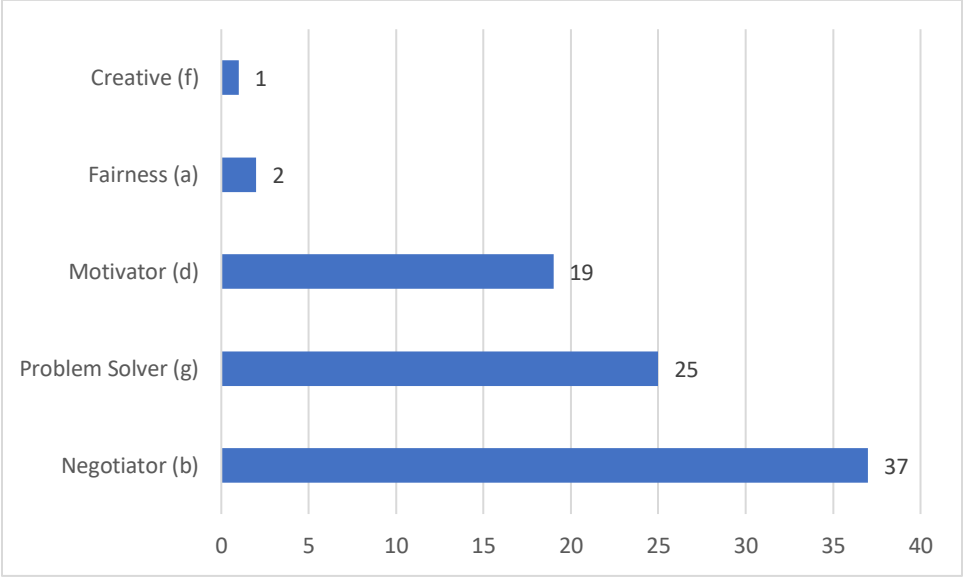

Chart 8: Frequency of Attributes Ranked as #1

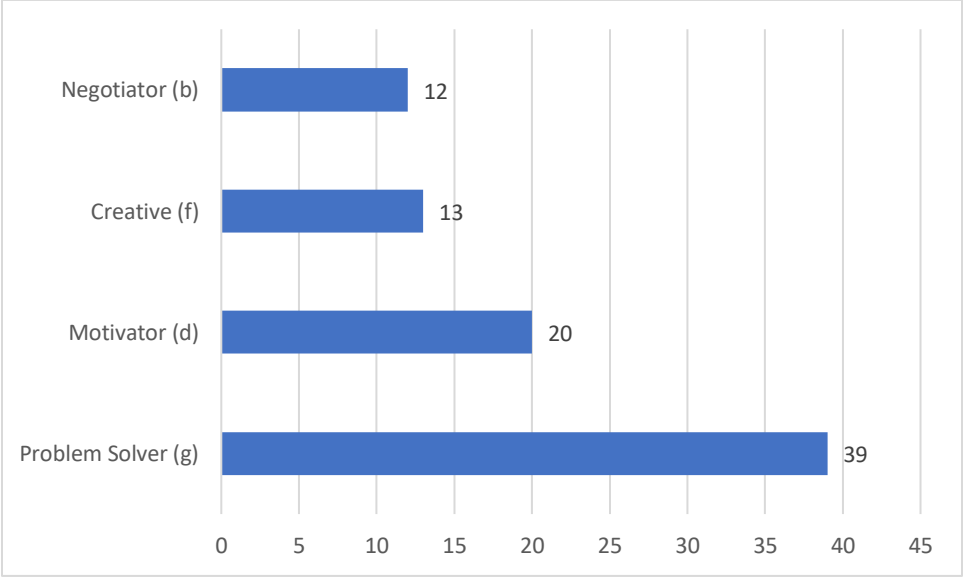

Chart 9: Frequency of Attributes Ranked as #2

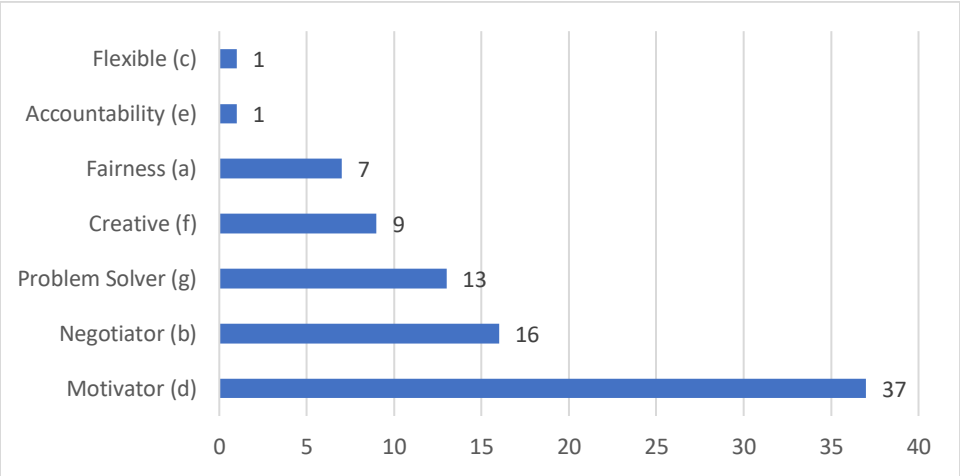

Chart 10: Frequency of Attributes Ranked as #3

From the charts above, the results show that negotiator is ranked first, with problem solver and motivator in second and third place respectively. So, according to the participants, a leader should have the ability to resolve conflict, monitor progress on all fronts and keep all involved parties (stakeholders) happy. It is clear that there is a parallel between the attributes and the skills that were ranked in the previous question. There is a strong desire for communication coupled with team and project orientation, while classic skills that used to hold importance in the past such as organization, planning etc. are not so strongly prominent anymore.

But as was the case with the previous questions, it is important to note that personal background influences the rankings. For example, 19 out of 23 females ranked motivator as the most important attribute while none of the males ranked it first. And while most males ranked negotiator as the most important attribute, less than 5% of the females included negotiator as an essential attribute. The chart below summarizes the frequencies that make up the top 3 attributes. We can conclude that being a problem solver, a motivator and a negotiator are the three most important attributes according to the participants.

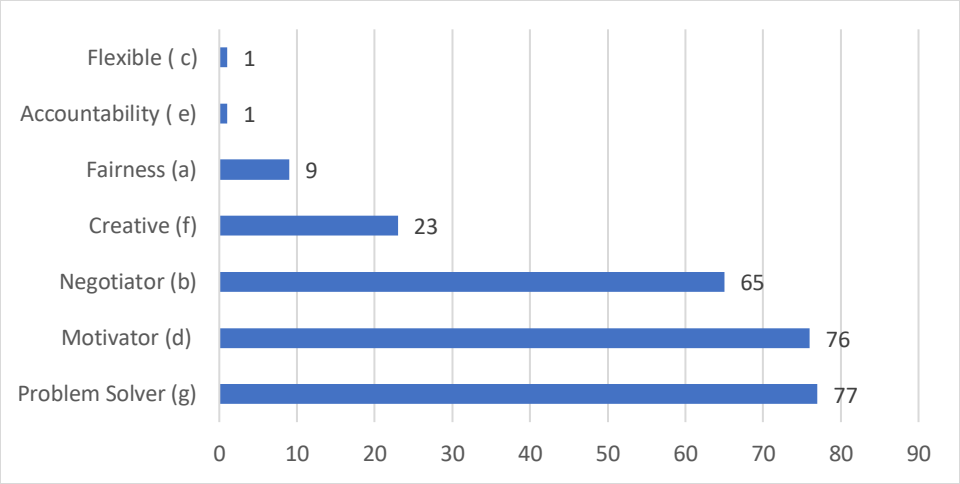

Chart 11: Total Frequencies of the Top 3 Attributes

4.3: Section C- Statements

In the last section of the questionnaire, participants were asked to read a series of statements and to state whether they agree, partially agree, disagree or have no on opinion on the statement. The list is comprised of 23 statements numbered from 6 to 2 8. The statements which were agreed with by the majority of the participants (at least 80 to 85%), are grouped all together in one chart (chart 12). The rest of the statements will be studied individually.

4.3.1- Agreed Statements by Majority:

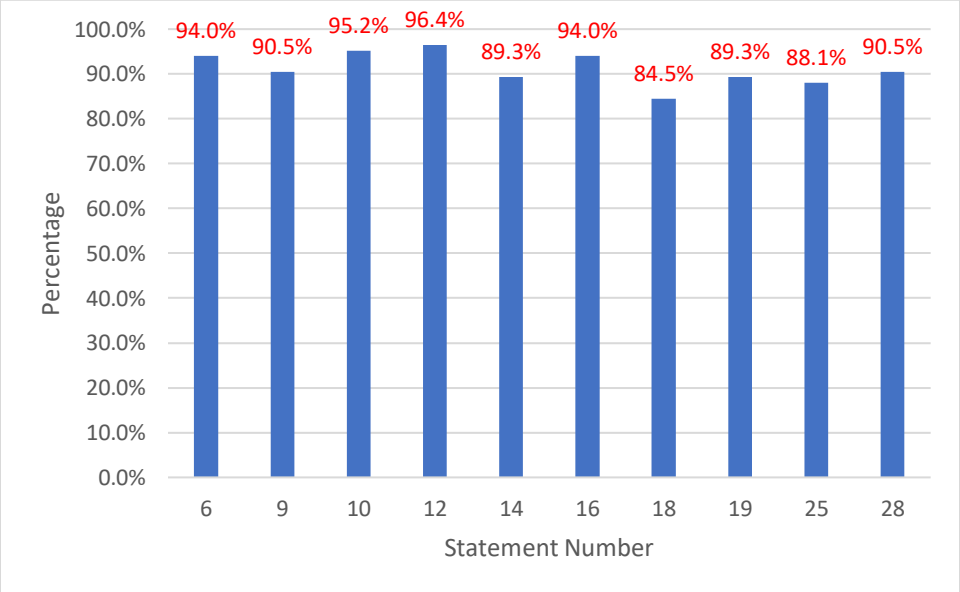

Chart 12: Results for Statements where Majority Agreed

The majority of the participants agreed with the following statements:

- *Statement 6:* According to the results, 94% of the participants agreed that leadership is necessary and it is a key factor for the successful completion of projects.
- *Statement 9:* The connection between leadership and career advancement is in question here. 90.5% of the participants agreed that it is important to demonstrate leadership capability in order to be promoted to a leadership position.
- *Statement 10:* This statement links leadership capability to job satisfaction of team members. 95.2% of the participants agreed that they are satisfied when they work for a project manager who demonstrates leadership capabilities.
- *Statement 12:* Motivation of the team members is essential in project management. This statement, among others, was developed to validate that motivation to be self-critical improves performance and in turn increases the chances of successful delivery of the project. 96.4% agreed that a leader should encourage team members to be self-critical.
- *Statement 14:* This statement also deals with an aspect of motivation. Modern management techniques stress that psychological motivation is more important to most individuals than tangible rewards. 89.3% of the participants agreed that a leader should encourage the team members to feel positive when a goal is achieved. Statements 12 and 14 reinforce the fact that one of the most important attributes a leader should have is being a motivator, as was chosen by the participants in the rankings questions.
- *Statement 16:* 94% of the participants agreed that a leader communicates in an easy and simple way to understand. This applies not only to the construction industry. A leader should be able to communicate clearly the objectives and his expectations to the team members. Miscommunication can drive even the simplest projects into failure.
- *Statement 18:* The focal point to be validated by this statement is if creativity should be applied by a leader to solve problems which arise during a project. While creativity may be limited in the construction field due to an established know-how, it is essential for a leader to be able to solve problems creatively. 84.5% of the participants agreed with this statement.
- *Statement 19:* Teamwork and team transformation are important factors in modern management. When a manager gets the team members involved in the decision-making process, the individuals become more motivated to give their best. 89.3% of the participants agreed that a leader should accept suggestions from team members to implement change.
- *Statement 25:* It is never easy for someone right off from university to get into any kind of industry with no prior experience. Fresh-graduates always look for a mentor in their first years. 88.1% of the participants agreed that a leader should be a mentor.
- *Statement 28:* The last statement of the questionnaire deals with motivation. And once again, 90.5% of the participants agreed that a leader should make the team members enthusiastic about new assignments.

4.3.2- Statements with Mixed Answers:

- *Statement 7:* The debate on whether a leader should have some kind of leadership training translates even to the construction industry. There is a disagreement between the participants whether formal training is required for project managers in order to be successful leaders. Almost half of the participants argue that leadership skills are gained through experience or that some people are natural born leaders, thus no formal training is required. The other half argue that formal training is required in order to deal with project complexity. The results are shown below in chart 13.

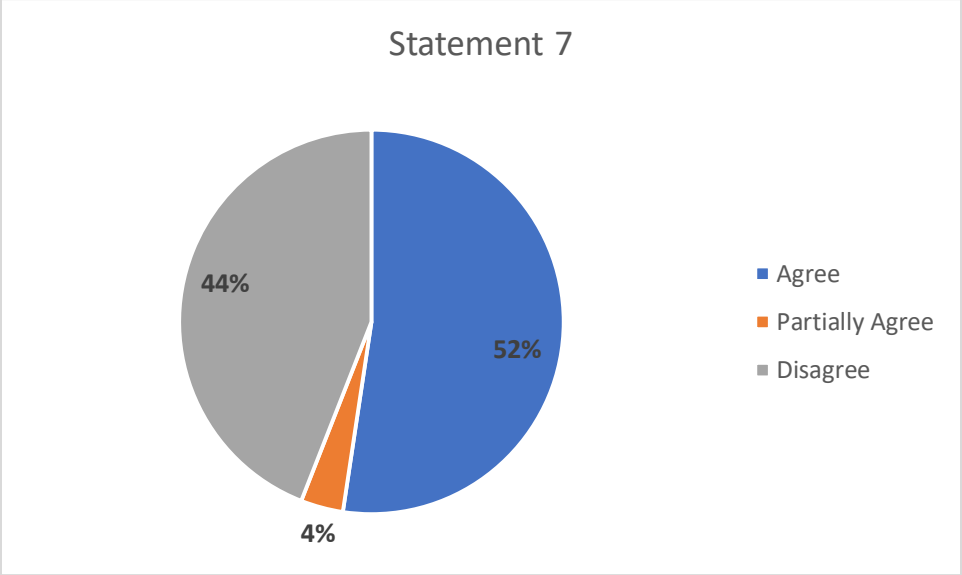

Chart 13: Results for Statement 7

- *Statement 8:* The purpose of this statement is to determine whether there is a link between high level leadership skills and successful project managers. Leadership skills do help without doubt project managers run a project easily and smoothly, but it is believed that it is not a guarantee for project success on its own as other factors play a role in it. 77% of the participants agree that successful project manager have high level leadership skills while 12% partially agree and 10% disagree. The results are shown below in chart 14.

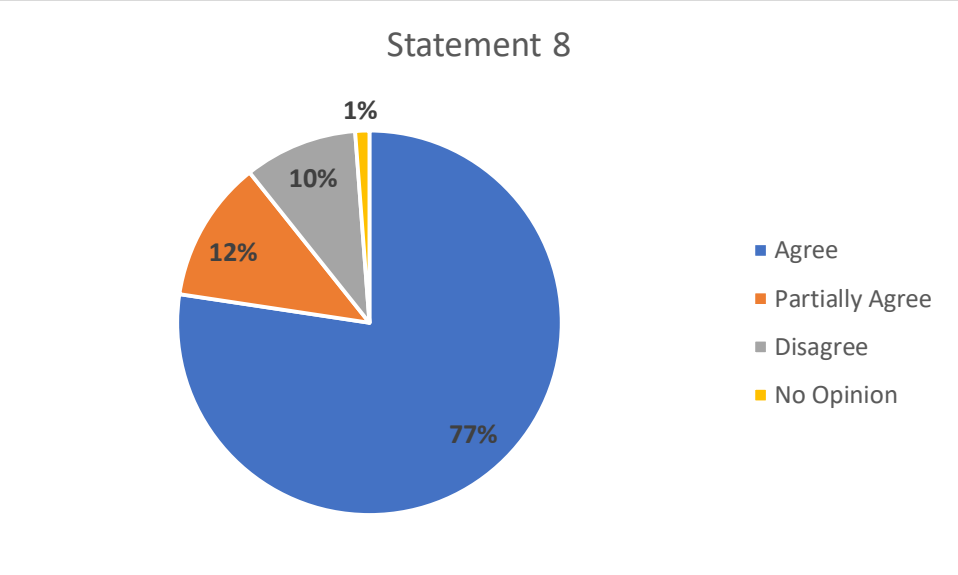

Chart 14: Results for Statement 8

- *Statement 11:* While sharing leadership was an important skill that a leader should have according to the participants (had the 4th most number of votes in total in question 4), it doesn't translate to that statement accordingly. 44% of the participants agree that team members should participate in the decision-making progress, 20% partially agree and a large number of 36% disagree.
  A follow-up was made to identify the reason for this level of disagreement with the statement. The participants stated that time is an important factor in the construction process with huge penalties on delays. So, they considered that if every decision is run by the team members, and if the project manager takes the input of the team members on every single issue, there will be huge delays. However, this does not mean that leaders should make all decisions alone. Participants suggested that, for some key decisions, which can affect the whole project, the team members should give their input and participate in the decision-making process. The results are shown below in chart 15.

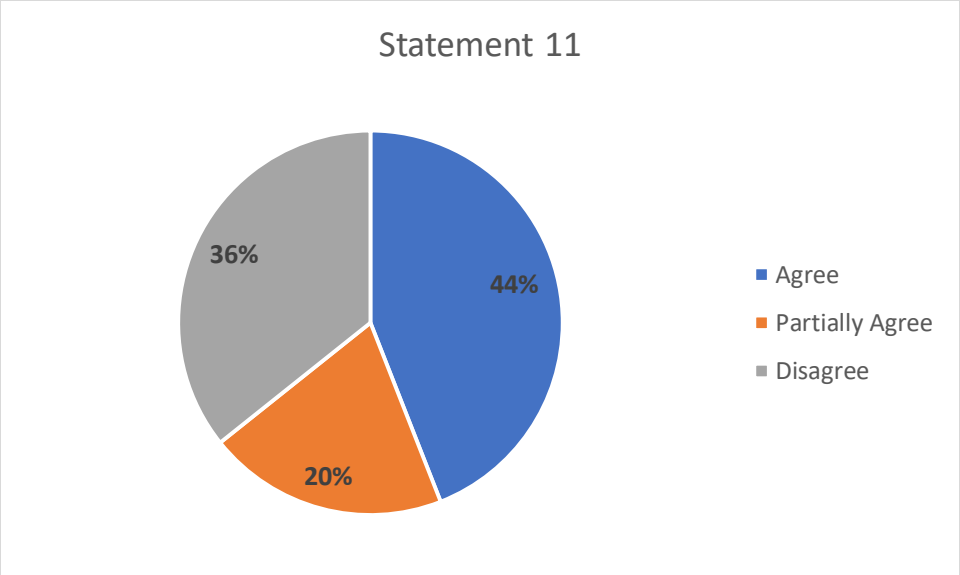

Chart 15: Results for Statement 11

- *Statement 13:* As was the case with statement 11, the participants felt that a leader shouldn't give total control to team members. So, when asked whether they agree that a leader should urge team members to define the goals of the group in order to achieve the goals of the project, 42% agreed, 19% partially agreed and 39% disagreed. The results are closely similar in both statements 11 and 13 and can be seen below in chart 16.

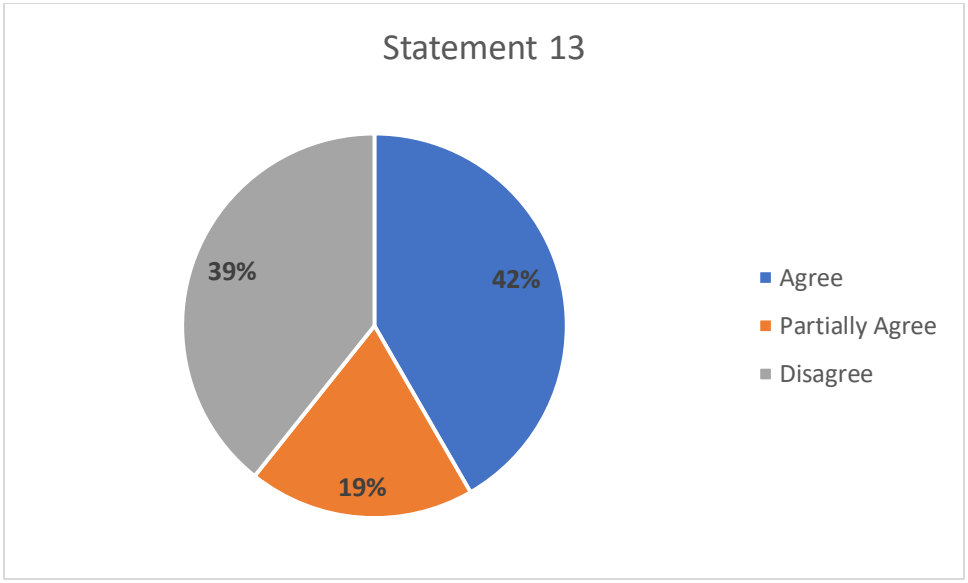

Chart 16: Results for Statement 13

- *Statement 15:* The opposite was stated here. The participants were asked if a leader should decide in detail what should be done and how it should be done. 80% disagreed with that statement. The "old" management style which can be described as a dictatorship doesn't work anymore. Team members need the freedom to weigh in when they feel it is necessary. The results are shown below in chart 17.

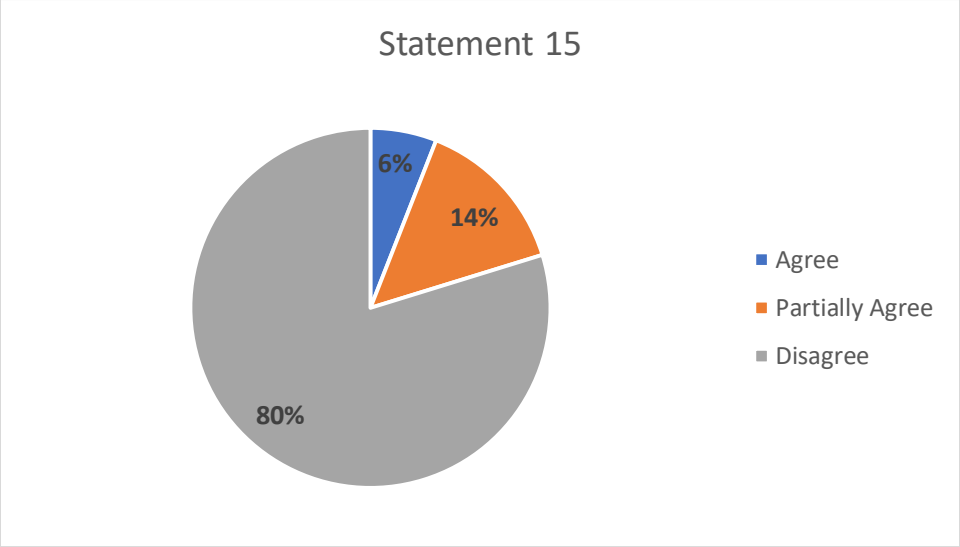

Chart 17: Results for Statement 15

- *Statement 17:* Participants are asked whether a leader should back up the team members in their actions and their decisions or not. Surprisingly, 47% agreed only, while 36% partially agreed and 17% disagreed. The participants believe that the support of the leader is appreciated, but the leader should not "babysit" the team members and let them to a certain degree take responsibility for their actions, decisions and therefore their mistakes. The results are shown below in chart 18.

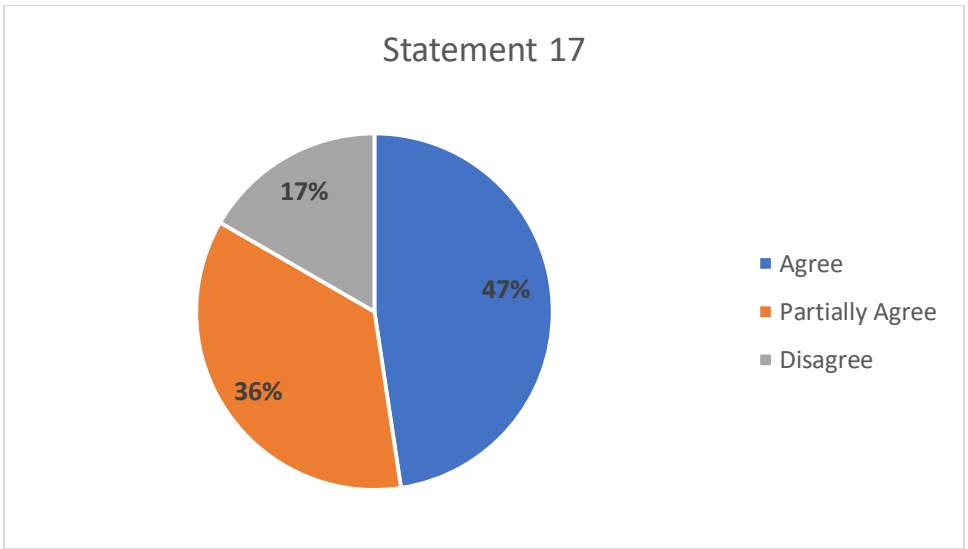

Chart 18: Results for Statement 17

- *Statement 20:* This statement takes us back to motivation. Participants are asked whether a leader should push the team members for greater effort, the key word being push. As expected, the majority disagreed or partially agreed with this statement. A leader should motivate the team member for greater effort and not push them. The results are shown below in chart 19.

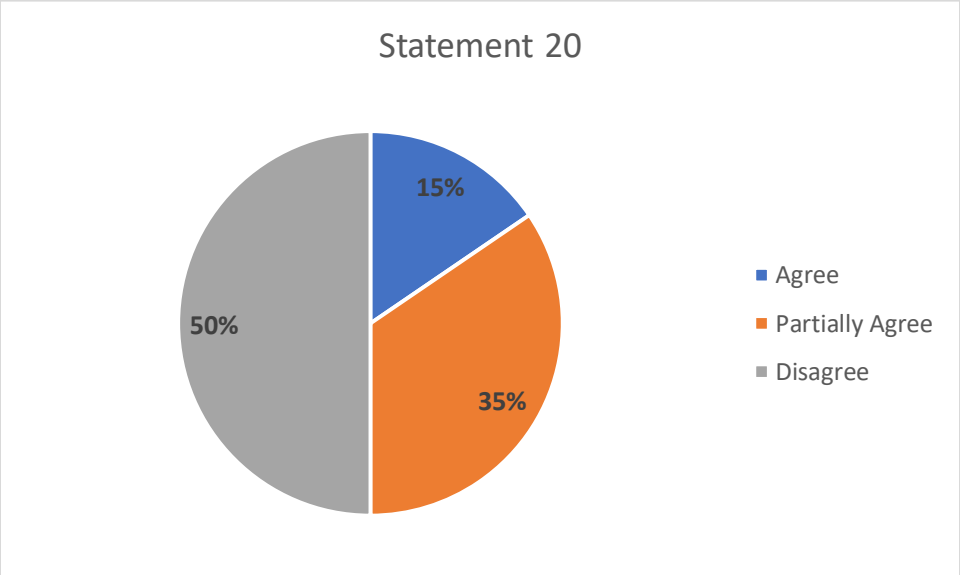

Chart 19: Results for statement 20

- *Statement 21:* It is a common perception that a leader should be friendly and easily approachable. According to the contestants, they partially agree with this statement, as they believe that boundaries should exist. Respecting the hierarchy is a must. Results are shown below in chart 20.

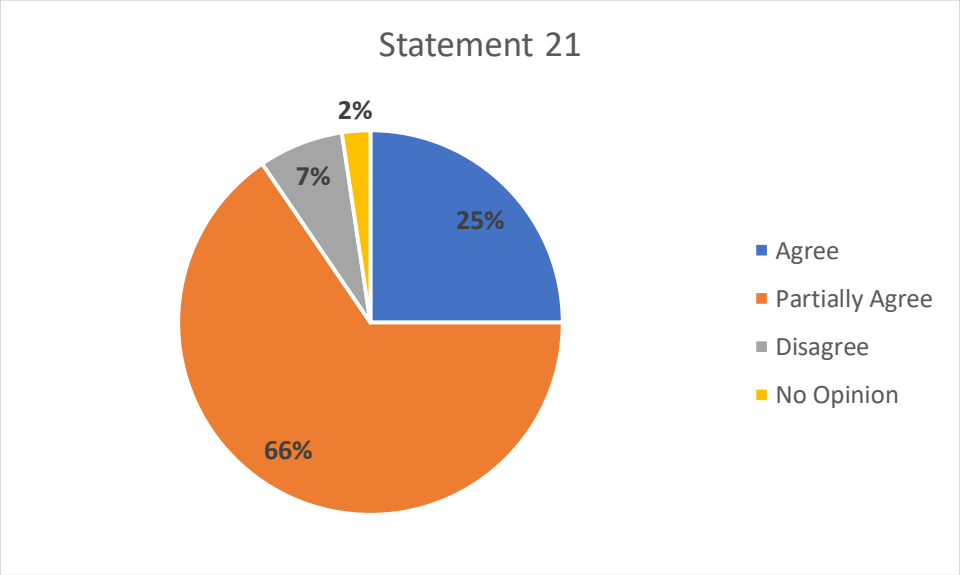

Chart 20: Results for statement 21

- *Statement 22:* The focal point of this statement is whether a leader should be satisfied with agreed-upon standards for good work or not. Most participants partially agreed with this statement or even disagreed as they believe a leader should always motivate the team member to keep giving more and as much as possible for better success. The results are shown below in chart 21.

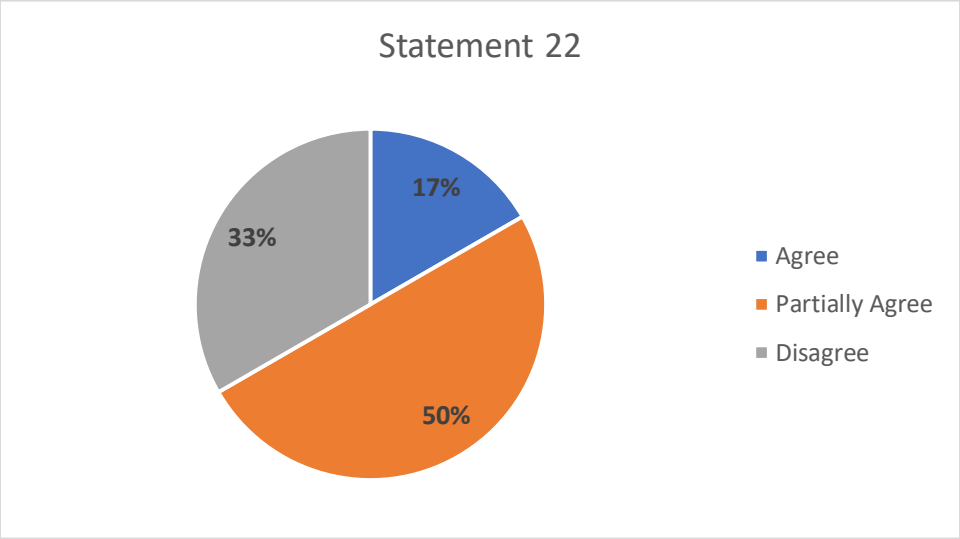

Chart 21: Results for Statement 22

- *Statement 23:* The focal point of this statement, as was in the previous statement, is motivation. Creativity is added in the mix here as participants are asked if a leader should be content to let team members do their job the same way as they have always done. The majority disagreed with this statement and believe that a leader should motivate the team members to think outside the box, to figure out new ways of doing the job with more efficiency. The results are shown below in chart 22.

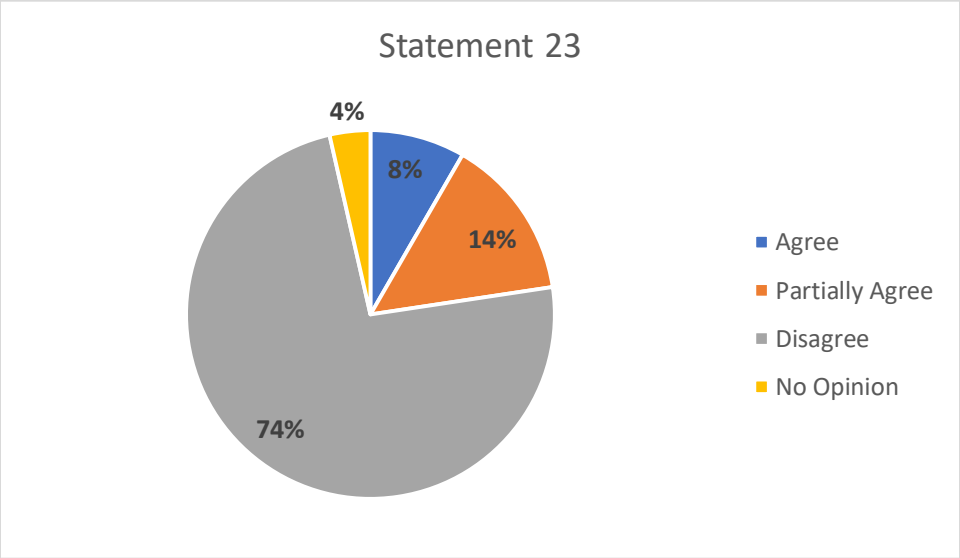

Chart 22: Results for Statement 23

- *Statement 24:* This statement reflects the sad truth about the modern business world, and not only in the construction industry. The participants are asked if a leader is a model and an inspiration for team members to follow. The key word here is "is" and not "should be". While nobody disagreed with this statement, about half of the participants partially agreed with the statement because unfortunately, not all leaders are a model and an inspiration. The results are shown below in chart 23.

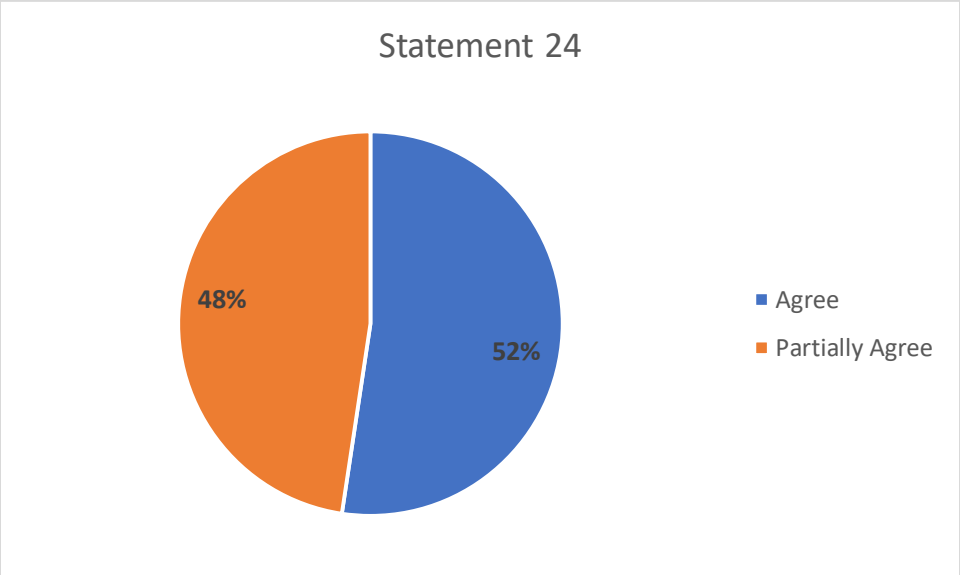

Chart 23: Results for Statement 24

- *Statement 26:* A process, no matter what it is, should never be static. There is always room for improvement. Participants are asked if a leader should not change anything if everything is going well. Creativity comes into the mix here too. There is always something to be done whether it is to reduce costs or reduce time needed to complete the project. The results are shown below in chart 24.

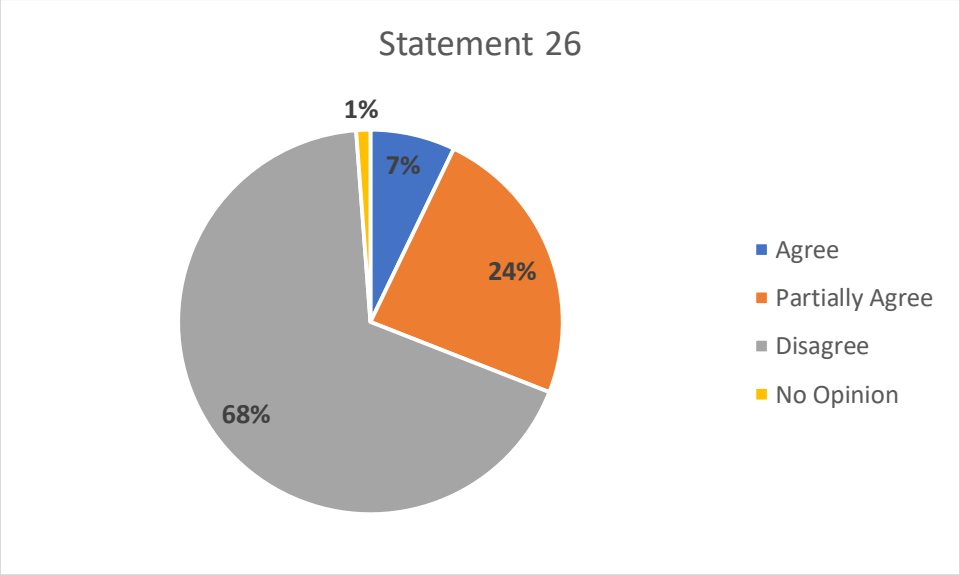

Chart 24: Results for Statement 26

- *Statement 27:* While a leader should be caring and motivate the team members, participants mostly partially agreed and disagreed with the fact that a leader should give personal attention to team members who seem and feel neglected. The reason for this is the same reason given for statement 17. People generally don't like to feel like someone is babysitting them. The results are shown below in chart 25.

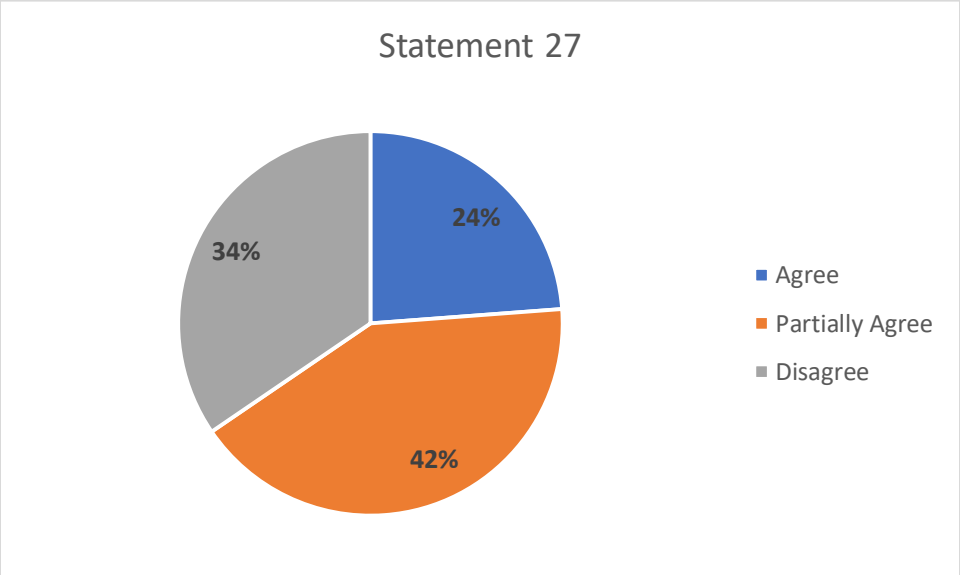

Chart 25: Results for Statement 27

4.4: Interview

The questions of the survey were set up in a random order, formulated in order to validate the factors that helps achieve project success, as was seen in the literature review. While most of the answers were as expected, some answers required a follow-up in order to justify them. The objective of this section is to help highlight the factors that makes a project manager a successful leader and help achieve project success. At this stage, an interview was conducted with the CEO of "Matta et Associes", a leader in the construction industry in Lebanon. To validate the results obtained, the following questions were asked:

- "Do you believe that special leadership skills and attributes are used by project managers as key leadership factors? And do they increase project success in your opinion?"
- "What is in your opinion the most important skills a leader should have?"
- "What is in your opinion the most important attributes a leader should have?"
- "Is emotional intelligence an important factor of being a leader?"
- "Should a leader exercise his or her leadership to help transform teams?"
- "What is in your opinion a non-traditional way of developing leadership skills?"

The interviewee believes that special leadership skills and attributes such as communication, controlling project team performance, understanding the needs and characteristics of a project and team members, motivation, loyalty, negotiation, problem-solving, creativity are all key leadership factors that increase project success. The interviewee stressed that inspiration is a very important trait a leader should have. He should be able to motivate and inspire team members to successfully deliver a project, to deliver one areas such as strategy, financial management, human resources management etc. And in order to be relied upon, trusted and looked at as a role-model, a leader should exhibit emotional intelligence and team transformation and care. No one would respect a leader that breaks under pressure, or loses his temper at any mistake made. As for a non-traditional way to develop leadership skills, the interviewee commented that getting out of one's comfort zone is a great way of testing one's abilities, learn from mistakes and develop enough skills in creativity, emotional intelligence, self-motivation and motivation of others etc. A leader should not shy away from a challenge but face it up front.

CHAPTER 5:
CONCLUSION AND RECOMMENDATIONS

There are multiple and various concepts and theories on leadership as was seen in the literature review chapter, in which the most important ones are presented. These concepts highlight important criteria on how a project manager can move from the traditional definition of a "boss" to being a leader, to generate better performance and a more professional and effective working environment for the team members. Leaders are no longer classified in the traditional meaning of management, but rather they become individuals with unique characteristics.

As an effective leader, a project manager should ensure to inspire team work and team transformation, to lead by motivating and being creative. Additionally, the project manager should be a good negotiator, and must be willing to share his leadership by delegating tasks and sharing authority with team members among other things when the situation calls for it. To put it simply, effective project managers must create a balance between leadership tools, project knowledge and technical know-how. Success or failure of a project is highly dependable on the actions and behaviors of the leader. So yes, key leadership factors such as skills and attributes are a must for any project manager in order to increase the success of a project, create a well-performing work environment and finally be an inspiration to the team members.

All these key leadership factors are not possible without self-awareness, self-control, motivation, and attributes which are all derived from emotional intelligence. As the project manager becomes more aware and more in control of his actions, which without a doubt affect the whole outcome of the project, and tends to become a leader, he or she can increase effort, increase team member loyalty, improve relations amongst the team member, and minimize unnecessary costs.

Another important factor is that the leader should understand the characteristics of a project. This means that he or she should be able to assess the culture of the company and apply it to the objectives of the project. In other words, by doing so, a leader should be able to determine whether the project will be quality-driven, cost-driven or time-driven, and find the balance between these three main constraints.

No matter the road chosen by a leader, the end goal is to achieve effective leadership in project management to finally reach project success by overcoming all the obstacles and challenges. As was seen, project management demands leaders with high levels of different but interrelated skills in order to deal with anything thrown his or her way.

Today, the field of project management continues to expand and continues to become a very essential requirement. This dissertation does not present a magic formula for becoming an effective leader, but it offers valuable empirical information based on previous literature and based on the results of a questionnaire distributed among professionals in the construction industry. In other words, the dissertation reinforces the critical factors that are necessary to successfully deliver a complex project.

It is important to remember that this study, and therefore the dissertation, is not without its limitations. The study was conducted using a non-probability sampling technique, and was conducted based on results from people in the construction industry in Lebanon only and not in any other industry or other country, therefore the results should not be generalized to every business industry worldwide. So, since other professional bodies were excluded from this study, there is a large volume of information left unexplored.

The sampling technique used in the study yielded a very good response rate. However, the sub-populations such as superintendents and female gender, were very small. These small sub-populations did not affect the results of the regression analysis; therefore a few expected results did not happen. They could also potentially provide inaccurate representation of the preferred leader skills and attributes. Further studies would benefit by having a larger sample size for these sub-populations, and allow more time for responses to be collected. As was seen in chapter 4, the results for leader skills and attributes were mainly based on weighted averages. The same technique was also used for analyzing the level of agreement with each statement in section C of the questionnaire. So, the use of more advanced statistical analysis, such as analysis of variances, co-variances, and a deeper multiple regression analysis with a larger sample of participants would benefit further research immensely.

APPENDIX A:
QUESTIONNAIRE

Dear friends and colleagues,

I have had the privilege and the opportunity of working with each and every one of you in a way or the other. At any given opportunity, we have discussed what works and what doesn't on the construction site and discussed what in our humble opinion were some ways of improving the construction process.

Today, you are invited to take part in a research study that aims to establish mainly the relationship between leadership and project management practices. The research is being conducted by myself, Anthony Matta, with the help of my advisor Dr. Dario Pontiggia, as part of a thesis project for the Masters in Business Administration program that I have enrolled in at Neapolis University, Pafos, in Cyprus.

If you agree to participate in this research study, you will have to complete a set of 28 questions which make up the survey; The questions are related to the topic described above with very few questions that may seem unrelated to the topic at hand, but might prove useful to establish further correlations during the study. The questionnaire should take between 15 and 20 minutes to complete.

Finally, it is important to note that there is no risk in taking part of the research study. Your answers will remain anonymous, so no individual participant will not be identified and no attempt will be made to ascertain your identities. The only information that will be mentioned in my thesis dissertation will be in the form of a summary, numbers and graphs. And while I would prefer that all questions in the survey are answered for higher accuracy, feel free to not answer a particular question if you do not wish to. If you have any questions or in need of any clarification, please feel free to contact me at: a.matta@nup.ac.cy.

Thank you for your help in completing my dissertation,

Anthony Matta.

Leadership in Project Management:

Questionnaire

Section A: Personal Information

Please answer the following questions related to your personal background relevant to the study being undertaken.

1. Please state your gender:
    a. Male
    b. Female

2. Please state how many years you have been working in the construction industry:
    a. Less than 5 years
    b. Between 5 and 10 years
    c. Between 10 and 15 years
    d. More than 15 years

3. Please state your role on construction projects:
    a. Superintendent
    b. Project Engineer
    c. Project Manager

Section B: Rankings

Please read the following lists and rank the skills and attributes as you see fit. Keep in mind that number 1 will be considered as the most important in the ranking system.

4. The following list is comprised of the most common skills a leader should have in order to deliver a project successfully. Please go through the list and rank the skills based on what you believe to be the order of importance:
    a. Communication
    b. Planning
    c. Controlling Project Team Performance
    d. Sharing Leadership
    e. Counseling
    f. Evaluating
    g. Technical Skills
    h. Understanding the Needs and Characteristics of a Project

5. The following list is comprised of the most common attributes a leader should exhibit in order to deliver a project successfully. Please go through the list and rank the attributes based on what you believe to be the order importance:
    a. Fairness
    b. Negotiator
    c. Flexible
    d. Motivator
    e. Accountability
    f. Creative
    g. Problem Solver
    h. Loyal

Section C: Statements

This section is comprised of statements. Please read them, evaluate them and either agree, partially agree or disagree with the statements. If you have no opinion on the statement, that option is also viable.

6. Leadership is essential and necessary for the successful completion of projects.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

7. It is important for the project manager to have formal leadership training in order to be considered a leader.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

8. Successful project managers have high level leadership skills.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

9. It is important to demonstrate leadership capability in order to be promoted to a leadership position.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

10. I feel extremely satisfied when working for a project manager who demonstrates leadership capabilities.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

11. Team members should participate in the decision-making process.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

12. A leader encourages the team members to be self-critical to improve performance.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

13. A leader urges team members to define the goals of the group in order to achieve the goals of the project.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

14. A leader encourages the team members to feel positive when a goal is achieved.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

15. A leader decides in detail what should be done and how it should be done.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

16. A leader communicates in an easy and simple way to understand.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

17. A leader backs up the team members in their actions and their decisions.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

18. A leader offers new approaches to problem-solving.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

19. A leader accepts suggestions from team members to implement change.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

20. A leader pushes the team members for greater effort.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

21. A leader is friendly and is easily approachable.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

22. A leader is satisfied when team members meet the agreed-upon standards for good work.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

23. A leader is content to let the team members to do their job the same way as they have always done it.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

24. A leader is a model and an inspiration for team members to follow.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

25. A leader acts as a mentor to fresh-graduates.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

26. A leader does not try to change things if all is going well.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

27. A leader gives personal attention to team member who seem and feel neglected.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

28. A leader makes the team members enthusiastic about new assignments.
    a. I agree with this statement
    b. I partially agree with this statement
    c. I disagree with this statement
    d. I have no opinion regarding this statement

APPENDIX B:
QUESTIONNAIRE RESULTS

1. Results for Skills Ranking

Gender	Number of Years	Role	Rank #1	Rank #2	Rank #3
Female	More than 15 years	PM	Communication (a)	Controlling (c)	Sharing Leadership (d)
Female	Between 10 and 15 years	PE	Sharing Leadership (d)	Communication (a)	Controlling (c)
Female	Between 10 and 15 years	PE	Communication (a)	Understanding (h)	Sharing Leadership (d)
Female	Between 5 and 10 years	PE	Sharing Leadership (d)	Communication (a)	Sharing Leadership (d)
Female	Between 5 and 10 years	PE	Communication (a)	Sharing Leadership (d)	Counseling (e)
Female	Between 5 and 10 years	PE	Communication (a)	Sharing Leadership (d)	Controlling (c)
Female	Between 5 and 10 years	PE	Communication (a)	Sharing Leadership (d)	Controlling (c)
Female	Between 5 and 10 years	PE	Communication (a)	Sharing Leadership (d)	Controlling (c)
Female	Between 5 and 10 years	PE	Communication (a)	Sharing Leadership (d)	Controlling (c)
Female	Between 5 and 10 years	PE	Communication (a)	Sharing Leadership (d)	Counseling (e)
Female	Between 5 and 10 years	PE	Communication (a)	Sharing Leadership (d)	Counseling (e)
Female	Between 5 and 10 years	PE	Communication (a)	Sharing Leadership (d)	Counseling (e)
Female	Between 5 and 10 years	PE	Communication (a)	Sharing Leadership (d)	Technical Skills (g)
Female	Between 5 and 10 years	PE	Communication (a)	Sharing Leadership (d)	Understanding (h)
Female	Between 5 and 10 years	PE	Communication (a)	Sharing Leadership (d)	Understanding (h)
Female	Between 5 and 10 years	PE	Communication (a)	Controlling (c)	Understanding (h)
Female	Between 5 and 10 years	PE	Communication (a)	Understanding (h)	Sharing Leadership (d)
Female	Less than 5 years	PE	Communication (a)	Counseling (e)	Controlling (c)
Female	Less than 5 years	PE	Communication (a)	Controlling (c)	Sharing Leadership (d)
Female	Less than 5 years	PE	Communication (a)	Controlling (c)	Technical Skills (g)
Female	Less than 5 years	PE	Communication (a)	Understanding (h)	Counseling (e)

Female	Less than 5 years	PE	Communication (a)	Sharing Leadership (d)	Controlling (c)
Female	Less than 5 years	PE	Communication (a)	Sharing Leadership (d)	Controlling (c)
Male	More than 15 years	PM	Technical Skills (g)	Understanding (h)	Sharing Leadership (d)
Male	More than 15 years	PM	Technical Skills (g)	Controlling (c)	Sharing Leadership (d)
Male	More than 15 years	PM	Understanding (h)	Controlling (c)	Communication (a)
Male	More than 15 years	PM	Understanding (h)	Controlling (c)	Communication (a)
Male	More than 15 years	PM	Understanding (h)	Technical Skills (g)	Controlling (c)
Male	More than 15 years	PM	Communication (a)	Controlling (c)	Understanding (h)
Male	More than 15 years	PM	Communication (a)	Controlling (c)	Understanding (h)
Male	More than 15 years	PM	Communication (a)	Sharing Leadership (d)	Controlling (c)
Male	More than 15 years	PM	Controlling (c)	Understanding (h)	Communication (a)
Male	More than 15 years	PM	Sharing Leadership (d)	Communication (a)	Controlling (c)
Male	More than 15 years	PM	Sharing Leadership (d)	Communication (a)	Controlling (c)
Male	Between 10 and 15 years	SI	Technical Skills (g)	Controlling (c)	Understanding (h)
Male	Between 10 and 15 years	SI	Technical Skills (g)	Controlling (c)	Understanding (h)
Male	Between 10 and 15 years	SI	Technical Skills (g)	Controlling (c)	Understanding (h)
Male	Between 10 and 15 years	SI	Technical Skills (g)	Controlling (c)	Understanding (h)
Male	Between 10 and 15 years	SI	Technical Skills (g)	Controlling (c)	Communication (a)
Male	Between 10 and 15 years	SI	Technical Skills (g)	Controlling (c)	Communication (a)
Male	Between 10 and 15 years	SI	Technical Skills (g)	Understanding (h)	Controlling (c)
Male	Between 10 and 15 years	SI	Technical Skills (g)	Understanding (h)	Controlling (c)
Male	Between 10 and 15 years	SI	Technical Skills (g)	Understanding (h)	Controlling (c)
Male	Between 10 and 15 years	SI	Technical Skills (g)	Understanding (h)	Communication (a)
Male	Between 10 and 15 years	PE	Sharing Leadership (d)	Understanding (h)	Controlling (c)
Male	Between 10 and 15 years	PE	Sharing Leadership (d)	Understanding (h)	Controlling (c)
Male	Between 10 and 15 years	PE	Sharing Leadership (d)	Understanding (h)	Controlling (c)

Male	Between 10 and 15 years	PE	Sharing Leadership (d)	Understanding (h)	Communication (a)
Male	Between 10 and 15 years	PE	Sharing Leadership (d)	Understanding (h)	Communication (a)
Male	Between 10 and 15 years	PE	Sharing Leadership (d)	Understanding (h)	Communication (a)
Male	Between 10 and 15 years	PE	Sharing Leadership (d)	Technical Skills (g)	Controlling (c)
Male	Between 10 and 15 years	PE	Sharing Leadership (d)	Communication (a)	Understanding (h)
Male	Between 10 and 15 years	PE	Sharing Leadership (d)	Communication (a)	Understanding (h)
Male	Between 10 and 15 years	PE	Evaluating (f)	Controlling (c)	Understanding (h)
Male	Between 10 and 15 years	PE	Understanding (h)	Controlling (c)	Evaluating (f)
Male	Between 10 and 15 years	PE	Understanding (h)	Controlling (c)	Communication (a)
Male	Between 10 and 15 years	PE	Understanding (h)	Controlling (c)	Technical Skills (g)
Male	Between 10 and 15 years	PE	Understanding (h)	Communication (a)	Controlling (c)
Male	Between 10 and 15 years	PE	Communication (a)	Understanding (h)	Controlling (c)
Male	Between 5 and 10 years	PE	Sharing Leadership (d)	Understanding (h)	Controlling (c)
Male	Between 5 and 10 years	PE	Sharing Leadership (d)	Understanding (h)	Controlling (c)
Male	Between 5 and 10 years	PE	Sharing Leadership (d)	Understanding (h)	Technical Skills (g)
Male	Between 5 and 10 years	PE	Sharing Leadership (d)	Controlling (c)	Communication (a)
Male	Between 5 and 10 years	PE	Sharing Leadership (d)	Controlling (c)	Communication (a)
Male	Between 5 and 10 years	PE	Sharing Leadership (d)	Communication (a)	Controlling (c)
Male	Between 5 and 10 years	PE	Communication (a)	Controlling (c)	Understanding (h)
Male	Between 5 and 10 years	PE	Communication (a)	Controlling (c)	Understanding (h)
Male	Between 5 and 10 years	PE	Communication (a)	Controlling (c)	Understanding (h)
Male	Between 5 and 10 years	PE	Communication (a)	Controlling (c)	Technical Skills (g)
Male	Between 5 and 10 years	PE	Communication (a)	Controlling (c)	Technical Skills (g)
Male	Between 5 and 10 years	PE	Communication (a)	Controlling (c)	Evaluating (f)
Male	Between 5 and 10 years	PE	Communication (a)	Controlling (c)	Evaluating (f)
Male	Between 5 and 10 years	PE	Communication (a)	Understanding (h)	Controlling (c)
Male	Between 5 and 10 years	PE	Communication (a)	Understanding (h)	Controlling (c)
Male	Between 5 and 10 years	PE	Communication (a)	Technical Skills (g)	Understanding (h)
Male	Between 5 and 10 years	PE	Technical Skills (g)	Understanding (h)	Technical Skills (g)
Male	Between 5 and 10 years	PE	Technical Skills (g)	Understanding (h)	Controlling (c)

Male	Between 5 and 10 years	PE	Technical Skills (g)	Understanding (h)	Communication (a)
Male	Between 5 and 10 years	PE	Technical Skills (g)	Controlling (c)	Understanding (h)
Male	Between 5 and 10 years	PE	Controlling (c)	Understanding (h)	Communication (a)
Male	Between 5 and 10 years	PE	Controlling (c)	Understanding (h)	Sharing Leadership (d)
Male	Between 5 and 10 years	PE	Controlling (c)	Technical Skills (g)	Communication (a)
Male	Less than 5 years	PE	Understanding (h)	Controlling (c)	Communication (a)
Male	Less than 5 years	PE	Understanding (h)	Controlling (c)	Sharing Leadership (d)

2. <u>Results for Attributes Ranking</u>

Gender	Number of Years	Role	Rank #1	Rank #2	Rank #3
Female	More than 15 years	PM	Motivator (d)	Problem Solver (g)	Negotiator (b)
Female	Between 10 and 15 years	PE	Motivator (d)	Problem Solver (g)	Negotiator (b)
Female	Between 10 and 15 years	PE	Motivator (d)	Problem Solver (g)	Negotiator (b)
Female	Between 5 and 10 years	PE	Motivator (d)	Problem Solver (g)	Negotiator (b)
Female	Between 5 and 10 years	PE	Motivator (d)	Problem Solver (g)	Negotiator (b)
Female	Between 5 and 10 years	PE	Motivator (d)	Problem Solver (g)	Negotiator (b)
Female	Between 5 and 10 years	PE	Motivator (d)	Problem Solver (g)	Creative (f)
Female	Between 5 and 10 years	PE	Motivator (d)	Problem Solver (g)	Creative (f)
Female	Between 5 and 10 years	PE	Motivator (d)	Problem Solver (g)	Creative (f)
Female	Between 5 and 10 years	PE	Motivator (d)	Creative (f)	Problem Solver (g)
Female	Between 5 and 10 years	PE	Motivator (d)	Creative (f)	Problem Solver (g)
Female	Between 5 and 10 years	PE	Motivator (d)	Creative (f)	Problem Solver (g)
Female	Between 5 and 10 years	PE	Motivator (d)	Creative (f)	Negotiator (b)
Female	Between 5 and 10 years	PE	Motivator (d)	Negotiator (b)	Problem Solver (g)
Female	Between 5 and 10 years	PE	Creative (f)	Motivator (d)	Negotiator (b)

Female	Between 5 and 10 years	PE	Negotiator (b)	Motivator (d)	Problem Solver (g)
Female	Between 5 and 10 years	PE	Problem Solver (g)	Motivator (d)	Fairness (a)
Female	Less than 5 years	PE	Motivator (d)	Problem Solver (g)	Fairness (a)
Female	Less than 5 years	PE	Motivator (d)	Problem Solver (g)	Negotiator (b)
Female	Less than 5 years	PE	Motivator (d)	Negotiator (b)	Creative (f)
Female	Less than 5 years	PE	Problem Solver (g)	Motivator (d)	Negotiator (b)
Female	Less than 5 years	PE	Problem Solver (g)	Motivator (d)	Negotiator (b)
Female	Less than 5 years	PE	Problem Solver (g)	Motivator (d)	Fairness (a)
Male	More than 15 years	PM	Negotiator (b)	Problem Solver (g)	Motivator (d)
Male	More than 15 years	PM	Negotiator (b)	Problem Solver (g)	Motivator (d)
Male	More than 15 years	PM	Negotiator (b)	Problem Solver (g)	Motivator (d)
Male	More than 15 years	PM	Negotiator (b)	Problem Solver (g)	Motivator (d)
Male	More than 15 years	PM	Negotiator (b)	Problem Solver (g)	Motivator (d)
Male	More than 15 years	PM	Negotiator (b)	Problem Solver (g)	Creative (f)
Male	More than 15 years	PM	Negotiator (b)	Creative (f)	Fairness (a)
Male	More than 15 years	PM	Negotiator (b)	Motivator (d)	Problem Solver (g)
Male	More than 15 years	PM	Negotiator (b)	Motivator (d)	Problem Solver (g)
Male	More than 15 years	PM	Problem Solver (g)	Negotiator (b)	Motivator (d)
Male	More than 15 years	PM	Problem Solver (g)	Negotiator (b)	Motivator (d)
Male	Between 10 and 15 years	SI	Problem Solver (g)	Creative (f)	Motivator (d)
Male	Between 10 and 15 years	SI	Problem Solver (g)	Creative (f)	Motivator (d)
Male	Between 10 and 15 years	SI	Problem Solver (g)	Creative (f)	Motivator (d)
Male	Between 10 and 15 years	SI	Problem Solver (g)	Creative (f)	Motivator (d)
Male	Between 10 and 15 years	SI	Problem Solver (g)	Creative (f)	Motivator (d)

Male	Between 10 and 15 years	SI	Problem Solver (g)	Creative (f)	Motivator (d)
Male	Between 10 and 15 years	SI	Problem Solver (g)	Motivator (d)	Fairness (a)
Male	Between 10 and 15 years	SI	Problem Solver (g)	Motivator (d)	Fairness (a)
Male	Between 10 and 15 years	SI	Fairness (a)	Problem Solver (g)	Motivator (d)
Male	Between 10 and 15 years	SI	Fairness (a)	Problem Solver (g)	Motivator (d)
Male	Between 10 and 15 years	PE	Negotiator (b)	Problem Solver (g)	Motivator (d)
Male	Between 10 and 15 years	PE	Negotiator (b)	Problem Solver (g)	Motivator (d)
Male	Between 10 and 15 years	PE	Negotiator (b)	Problem Solver (g)	Motivator (d)
Male	Between 10 and 15 years	PE	Negotiator (b)	Problem Solver (g)	Motivator (d)
Male	Between 10 and 15 years	PE	Negotiator (b)	Problem Solver (g)	Motivator (d)
Male	Between 10 and 15 years	PE	Negotiator (b)	Problem Solver (g)	Motivator (d)
Male	Between 10 and 15 years	PE	Negotiator (b)	Problem Solver (g)	Motivator (d)
Male	Between 10 and 15 years	PE	Negotiator (b)	Problem Solver (g)	Flexible (c)
Male	Between 10 and 15 years	PE	Negotiator (b)	Motivator (d)	Problem Solver (g)
Male	Between 10 and 15 years	PE	Negotiator (b)	Motivator (d)	Problem Solver (g)
Male	Between 10 and 15 years	PE	Negotiator (b)	Motivator (d)	Problem Solver (g)
Male	Between 10 and 15 years	PE	Negotiator (b)	Motivator (d)	Creative (f)
Male	Between 10 and 15 years	PE	Problem Solver (g)	Negotiator (b)	Motivator (d)
Male	Between 10 and 15 years	PE	Problem Solver (g)	Negotiator (b)	Motivator (d)
Male	Between 10 and 15 years	PE	Problem Solver (g)	Motivator (d)	Negotiator (b)
Male	Between 5 and 10 years	PE	Motivator (d)	Problem Solver (g)	Negotiator (b)
Male	Between 5 and 10 years	PE	Motivator (d)	Problem Solver (g)	Negotiator (b)
Male	Between 5 and 10 years	PE	Negotiator (b)	Problem Solver (g)	Motivator (d)
Male	Between 5 and 10 years	PE	Negotiator (b)	Problem Solver (g)	Motivator (d)

Male	Between 5 and 10 years	PE	Negotiator (b)	Problem Solver (g)	Motivator (d)
Male	Between 5 and 10 years	PE	Negotiator (b)	Problem Solver (g)	Motivator (d)
Male	Between 5 and 10 years	PE	Negotiator (b)	Problem Solver (g)	Motivator (d)
Male	Between 5 and 10 years	PE	Negotiator (b)	Problem Solver (g)	Motivator (d)
Male	Between 5 and 10 years	PE	Negotiator (b)	Problem Solver (g)	Motivator (d)
Male	Between 5 and 10 years	PE	Negotiator (b)	Problem Solver (g)	Motivator (d)
Male	Between 5 and 10 years	PE	Negotiator (b)	Problem Solver (g)	Creative (f)
Male	Between 5 and 10 years	PE	Negotiator (b)	Problem Solver (g)	Creative (f)
Male	Between 5 and 10 years	PE	Negotiator (b)	Motivator (d)	Problem Solver (g)
Male	Between 5 and 10 years	PE	Negotiator (b)	Motivator (d)	Problem Solver (g)
Male	Between 5 and 10 years	PE	Negotiator (b)	Motivator (d)	Creative (f)
Male	Between 5 and 10 years	PE	Negotiator (b)	Motivator (d)	Fairness (a)
Male	Between 5 and 10 years	PE	Problem Solver (g)	Negotiator (b)	Motivator (d)
Male	Between 5 and 10 years	PE	Problem Solver (g)	Negotiator (b)	Motivator (d)
Male	Between 5 and 10 years	PE	Problem Solver (g)	Negotiator (b)	Motivator (d)
Male	Between 5 and 10 years	PE	Problem Solver (g)	Negotiator (b)	Motivator (d)
Male	Between 5 and 10 years	PE	Problem Solver (g)	Negotiator (b)	Motivator (d)
Male	Between 5 and 10 years	PE	Problem Solver (g)	Negotiator (b)	Accountability (e)
Male	Between 5 and 10 years	PE	Problem Solver (g)	Motivator (d)	Negotiator (b)
Male	Less than 5 years	PE	Problem Solver (g)	Creative (f)	Negotiator (b)
Male	Less than 5 years	PE	Negotiator (b)	Creative (f)	Problem Solver (g)

3. Results for Section C: Statements

Statement #	Agree	Partially Agree	Disagree	No Opinion
6	79	4	1	0
7	44	3	37	0
8	65	10	8	1
9	76	6	2	0
10	80	3	1	0
11	37	17	30	0
12	81	3	0	0
13	35	16	33	0
14	75	7	1	1
15	5	12	67	0
16	79	5	0	0
17	40	30	14	0
18	71	3	9	1
19	75	8	1	0
20	13	29	42	0
21	21	55	6	2
22	14	42	28	0
23	7	12	62	3
24	44	40	0	0
25	74	6	2	2
26	6	20	57	1
27	20	35	29	0
28	76	6	1	1

APPENDIX C:
TABLES

Table 1: Participants' Gender (Related to Chart 1)

Gender of Participants	Number of Participants	Percentage
Male	61	72.6%
Female	23	27.4%

Table 2: Participants' Number of Yeats in the Construction Industry (Related to Chart 2)

Number of Years	Number of Participants	Percentage
Less than 5 years	8	9.5%
Between 5 and 10 years	37	44.0%
Between 10 and 15 years	27	32.1%
More than 15 years	12	14.3%

Table 3: Participants' Role on the Construction Project (Related to Chart 3)

Role of Participants	Number of Participants	Percentage
Superintendent	10	11.9%
Project Engineer	62	73.8%
Project Manger	12	14.3%

Table 4: Frequency of Skills Ranked as #1 (Related to Chart 4)

Skills	Count of Rank #1
Communication (a)	35
Sharing Leadership (d)	19
Technical Skills (g)	16
Understanding (h)	9
Controlling (c)	4
Evaluating (f)	1

Table 5: Frequency of Skills Ranked as #2 (Related to Chart 5)

Skills	Count of Rank #2
Controlling (c)	31
Understanding (h)	26
Sharing Leadership (d)	14
Communication (a)	8
Technical Skills (g)	4
Counseling (e)	1

Table 6: Frequency of Skills Ranked as #3 (Related to Chart 6)

Skills	Count of Rank #3
Controlling (c)	27
Understanding (h)	17
Communication (a)	16
Sharing Leadership (d)	9
Technical Skills (g)	7
Counseling (e)	5
Evaluating (f)	3

Table 7: Total Frequency of Skills in Top 3 (Related to Chart 7)

Skills	Rank #1	Rank #2	Rank #3	Total in top 3
Controlling (c)	4	31	27	62
Communication (a)	35	8	16	59
Understanding (h)	9	26	17	52
Sharing Leadership (d)	19	14	9	42
Technical Skills (g)	16	4	7	27
Counseling (e)	0	1	5	6
Evaluating (f)	1	0	3	4

Table 8: Frequency of Attributes Ranked as #1 (Related to Chart 8)

Attribute	Count of Rank #1
Negotiator (b)	37
Problem Solver (g)	25
Motivator (d)	19
Fairness (a)	2
Creative (f)	1

Table 9: Frequency of Attributes Ranked as #2 (Related to Chart 9)

Attributes	Count of Rank #2
Problem Solver (g)	39
Motivator (d)	20
Creative (f)	13
Negotiator (b)	12

Table 10: Frequency of Attributes Ranked as #3 (Related to Chart 10)

Attributes	Count of Rank #3
Motivator (d)	37
Negotiator (b)	16
Problem Solver (g)	13
Creative (f)	9
Fairness (a)	7
Accountability (e)	1
Flexible (c)	1

Table 11: Total Frequency of Attributes in Top 3 (Related to Chart 11)

Attribute	Rank #1	Rank #2	Rank #3	Total in Top 3
Problem Solver (g)	25	39	13	77
Motivator (d)	19	20	37	76
Negotiator (b)	37	12	16	65
Creative (f)	1	13	9	23
Fairness (a)	2	0	7	9
Accountability (e)	0	0	1	1
Flexible (c)	0	0	1	1

Table 12: Results in Percentage of Statements (Related to Charts 12-)

Statement #	Agree	Partially Agree	Disagree	No Opinion
6	94.0%	4.8%	1.2%	0.0%
7	52.4%	3.6%	44.0%	0.0%
8	77.4%	11.9%	9.5%	1.2%
9	90.5%	7.1%	2.4%	0.0%
10	95.2%	3.6%	1.2%	0.0%
11	44.0%	20.2%	35.7%	0.0%
12	96.4%	3.6%	0.0%	0.0%
13	41.7%	19.0%	39.3%	0.0%
14	89.3%	8.3%	1.2%	1.2%
15	6.0%	14.3%	79.8%	0.0%
16	94.0%	6.0%	0.0%	0.0%
17	47.6%	35.7%	16.7%	0.0%
18	84.5%	3.6%	10.7%	1.2%
19	89.3%	9.5%	1.2%	0.0%
20	15.5%	34.5%	50.0%	0.0%
21	25.0%	65.5%	7.1%	2.4%
22	16.7%	50.0%	33.3%	0.0%
23	8.3%	14.3%	73.8%	3.6%
24	52.4%	47.6%	0.0%	0.0%
25	88.1%	7.1%	2.4%	2.4%
26	7.1%	23.8%	67.9%	1.2%
27	23.8%	41.7%	34.5%	0.0%
28	90.5%	7.1%	1.2%	1.2%

APPENDIX D:
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