

Achieving Career Success – Perspectives of Chartered Engineers in Sri Lanka

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Abstract: Career success is the dream of any professional in society. Engineers, as a leading group of professionals, expect the same. Many anticipate climbing their career ladder to the topmost positions. However, it is not an easy task. If the strategies followed by successful engineers are available for the reference of the new generation, it will be an excellent support for them to climb their career ladder. Similar studies are considerably less in the Sri Lankan context. Hence, this study aims to explore the strategies followed by chartered engineers in Sri Lanka to achieve career success and introduce a simple framework based on the findings. An online qualitative survey was administered via email to 4000 chartered engineers registered in the Institution of Engineers Sri Lanka. 381 responses were received. Qualitative responses were analyzed using inductive thematic analysis to achieve the objective. Major success strategies were Perseverance, Expertise, Leadership, Interpersonal Skills, Continuing Professional Development, and Ethics. Considering the first letter of the each theme, the authors introduce the framework “PELICE” for achieving career success of engineers. This study provides a rich, contextualized understanding of how engineers should achieve career success. Young engineers in Sri Lanka can adopt the strategies identified in this study to achieve professional success.

Keywords: Career Success, Engineer, Professional, Sri Lanka

1. Introduction

Engineers play a vital role in the economic development of any country. As a leading group of professionals in society, they expect their career success while contributing to the country's development. The complex nature of the engineering work environment has impacted the professional success of engineers in various magnitudes. Not every engineer can climb the career ladder to the topmost positions in their workplace for various reasons. However, the climbing should not be in an unethical way. Yet, many engineers have moved up their corporate ladder while overcoming many challenges. This study explores how Sri Lankan chartered engineers have achieved career success, according to their perspectives and introduces an easily understandable framework based on the findings of this study for the betterment of the engineering community.

2. Literature Review

Career success is the "positive psychological or work-related outcomes or achievements one has accumulated from one's work experiences" [1]. People have different viewpoints on career success. However, it is objective and subjective in nature.

Objective career success is typically measured by external, often unobtrusive, indicators of advancement or rewards, such as promotions, salary changes, the highest salary, hierarchical level, level of education, and professional honors [2]. Subjective career success has centered on an individual's perception of their career based on career satisfaction, commitment, well-being, and psychological success measures [3]. According to [4], demographic, human capital, motivational, and organizational variables explained significant variance in objective career success and satisfaction. The findings that educational level, quality, prestige, and degree type predicted

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financial success were particularly intriguing. In contrast, the only variables that adequately explained considerable amounts of the variance in job satisfaction were the motivational and organisational ones. Based on these data, it appears that the factors contributing to objective professional success are not always the same as those contributing to success, as it is subjectively understood.

There is a direct correlation between the methods of networking (also known as developing, maintaining, and utilizing contacts) and professional achievement. It was found that networking is associated with not only one's current wage and level of professional satisfaction but also with the rise of one's salary over time [5]. As satisfaction remained stable over time, no effects of networking on the development of career satisfaction were discovered [5]. Based on the findings of [6], self-confidence, effective communication skills, and academic improvement courses are acknowledged as the most crucial factors for success and professional advancement. A strong command of communication is necessary for students to achieve success in their personal lives as well as in their professional lives in the future. It was also determined that professional success does not solely depend on technical skills in the sector; rather, it depends on communication and interpersonal skills [6].

There are many studies found in the literature which were conducted focusing career success of engineers in various territories in the world. As per the study [7], collected data from engineering professionals involved in research and development determined that organizations must provide career paths that retain and motivate employees and, more importantly, find organizational and individual needs that align and restructure jobs accordingly.

According to a study conducted in South Africa focusing the employees in science and engineering companies, it was identified that self-perceptions of career success are multifaceted, including learning and development; skills, experience, and competence; career transitions and advancement; job content; contributing to a larger community; goal achievement; helping others; rewards and recognition; and work-life balance [8]. Further, it was identified that the findings highlight the need to examine or measure the factors affecting the career success

in terms of its multidimensional nature in future research endeavors.

Studies on the career success of diverse groups of engineers in society have been conducted by [9]. It was highlighted that, although studies have revealed the importance of extrinsic and intrinsic social capital to the career success of civil engineers, the causal relationship between social capital has not been thoroughly investigated. Given the comparability of results between extrinsic career success, career satisfaction, employment satisfaction, and life satisfaction, however, the network and professional linkages also contribute to the promotion and intrinsic success of civil engineers. In contrast, the mentor is the most significant predictor of intrinsic career success.

Engineers' career success also depends on their technical knowledge and expertise in their field of practice. Studies have shown that strategic industry involvement, the delivery of case-based learning, and student exposure to multiple engineering disciplines are essential from the undergraduate level to develop this expertise [10]. It has also been identified that communication, networking and leadership skills are essential for engineers to achieve professional success [11].

A gender disparity can be observed in the engineering profession; it is usually male-dominated in the world [12]. Identifying the factors affecting the career success of women engineers has become an emerging field of study in the world since women engineers have to encounter numerous difficulties in the professional world [13]. According to studies, women engineers are goal-oriented and employ career strategies such as proactive self-promotion and networking. In addition, these women engineers require social support from their supervisors, coworkers, and spouses, enabling them to successfully manage their careers [13], [14].

Nowadays, career success is flourishing in scholarly literature, never more than before. The bibliometric analysis of the past publications in the field of career success proves the above and has identified that the majority of past studies were focused on "Career Success" and the rest of the studies were focused on "Career & Gender, Objective, and Subjective Career Success, Emotional Intelligence, Job Satisfaction, Higher Education, Employability, and Career Development" [6]. It has been

determined that it is the responsibility of the employer to ensure that their staff members have opportunities to further their careers [15]. Considering that organization learning practices have a substantial correlation to career success, employers should consider the need to cultivate an environment conducive to the learning and development of their staff members [15].

Studies have further identified that happiness has a positive correlation with the career success of professionals. There is a positive correlation between happiness and factors such as job autonomy, job satisfaction, job performance, socially responsible behavior, social support, popularity, and money. Happy people get better ratings from their co-workers and superiors and have a lower risk of quitting their jobs due to factors such as becoming chronically absent or experiencing burnout [16].

The research literature on the career success of engineers is not an under-explored area in the international context. However, such significant studies are not much available in the Sri Lankan context, creating a void in the empirical and theoretical scholarly literature. As a result of the absence of such findings on the professional or career success and employment requirements of engineers specific to the setting of Sri Lanka, young engineers are left at a disadvantage. This is because they do not have any reference sources to consult or framework to receive direction on how to shape their professional lives into success stories at a younger age [17]. Hence, this research was conducted to fill the existing vacuum in empirical knowledge relevant to the career success of engineers with the expectation of disseminating the findings to the greater society.

3. Methodology

The qualitative approach is the most appropriate method to explore such context-specific areas under investigation [18]. Hence, the qualitative survey method was employed to collect the data [19]. Chartered engineers are the most suitable group of engineers to inquire about career success as they already have a significant achievement in their professional life by being qualified to work as chartered engineers in the country. Based on that argument, around 4000 email addresses were extracted from the publicly available directory of chartered engineers on the IESL website in 2020. A self-administered open-ended online

question as a Google form was emailed to those 4000 chartered engineers. The open-ended question was accompanied by a few other questions to collect their demographic information. The open ended question sent as the qualitative survey to the chartered engineers was “How did you become a professionally successful engineer in Sri Lanka? (Secrets of your professional success).

A flexible data analysis method called the inductive version of the thematic analysis method was employed to analyze a large amount of participant-generated textual data [20], [21]. All the textual responses were uploaded to NVIVO qualitative data analysis software. As the first step of the analysis, responses were read several times to familiarize with the data. Then, the open coding process was started to create themes relevant to the responses, and they were grouped into major themes with the support of NVIVO. The inductive approach lets the researchers immerse in the data in a fresh mind with lesser influence from the extant literature while identifying themes [21]. Major themes revealed during this study were discussed among the research team to enhance the rigor of the study.

4. Results & Discussion

Approximately 381 participant-generated textual data were received as the responses for the online administered questionnaire. Hence, the response rate was 9.5%. Engineers who responded to this questionnaire are named 'respondents' hereafter in this text. Furthermore, each response was given a number based on the order of responding to the online survey.

The demographic information of the respondents is as follows. Figure 1 below shows the engineering discipline-wise distribution of respondents.

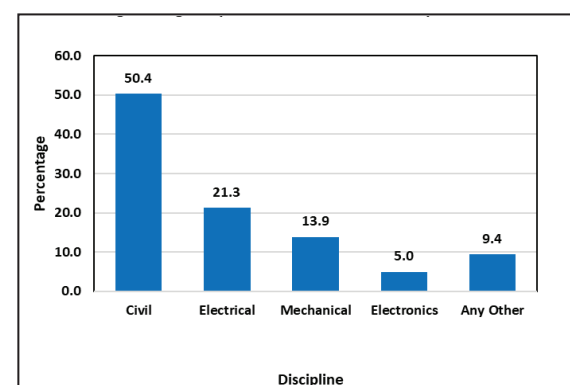


Figure 1 - Discipline wise Distribution

Approximately 50% of the respondents were civil engineering graduates, and the rest belonged to electrical, mechanical, electronics, and other engineering disciplines.

Respondents were employed in various employment sectors in the country. It is demonstrated in the Figure 3 below. Approximately half of the respondents were employed in the state sector of the country. 32.8% respondents were the employees of private sector firms. It is nice to see 9.2% of respondents have become entrepreneurial engineers.

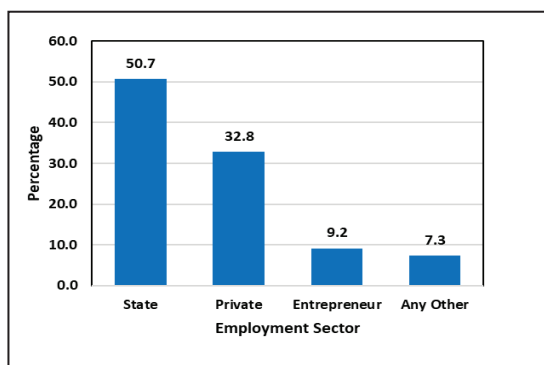


Figure 2 - Employment Sector Wise Distribution

Most respondents' Industrial experience was more than 10 years, as depicted in Figure 3.

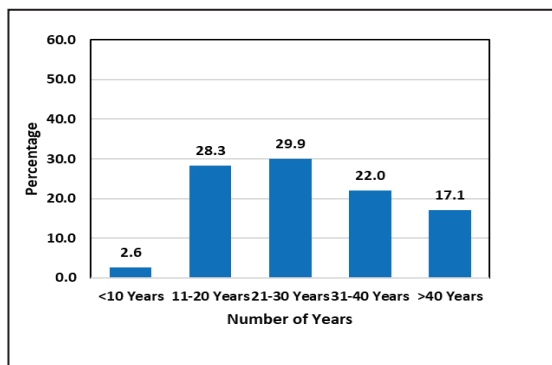


Figure 3 - Industrial Experience

It can be noted when looking at the respondents' demographic information, that majority of them are experienced engineers in the Sri Lankan industrial sector.

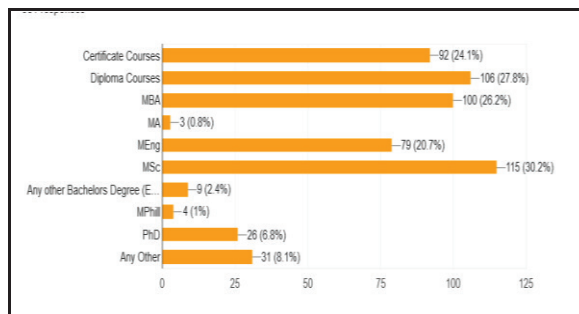


Figure 4 - Other Educational Qualifications

Besides the first degree in engineering, all respondents have accomplished various educational qualifications. 30.2% have followed an MSc, and 20.7% have followed an MEng as their post-graduate courses. A considerable number of respondents have completed MBAs as well, targeting their career success. All the respondents have not terminated their educational journey after their first degree in engineering.

Inductive thematic analysis of the responses revealed the emergence of six strategies the respondents followed to achieve career or professional success. They are perseverance, engineering expertise, interpersonal skills, leadership & team working, continuing professional development (CPD), and adhering to ethics as listed in Table 1. The following subsections discuss the findings relevant to the above significant themes. As supporting evidence, a few selected responses received from the chartered engineers for the open ended question of this study are included below in italic form. No changes and modifications were done to them by the authors, to preserve their authenticity.

Table 1 - Major Success Strategies & their Sub-themes

Major Themes	Sub-themes
Perseverance	Hard-working, Dedication, Accepting challenges, Time management.
Expertise	Technical knowledge, work experience, practical experience, Problem-solving
Interpersonal Skills	Communication, workplace relationships, networking, volunteering
Leadership & Team Work	Leadership, decision-making, teamwork, listening, responsibility, delegation
CPD	Continuous learning, obtaining qualifications
Ethics	Following ethics, being honest

4.1 Perseverance

The majority of respondents have identified perseverance as a major strategy they have followed in their professional life to achieve career success. The work environment for engineers and their duties are, most of the time, complicated and not straightforward [22]. Hence, they have to work hard, dedicate themselves to their duties, accept challenges, and manage the available time for work persistently.

"Success in any field requires dedication and hard work with a clear commitment to serving your employer when employed." (Respondent #39)

Perseverance is a quality that every professional should have. Simply it is not the quality of giving up. It is persistence and tenacity, the effort required to keep doing something till the end, even if it's hard. It is not only limited to the engineering fraternity. As per the above respondent, any engineer should have dedication, hard work, and commitment to serve the employer to achieve career success.

"It is mainly the dedication to my work. Perseverance to achieve the objectives is essential in engineers' work as often, and one might fail in the first or second attempt." (Respondent #85)

Most of the time, professional engineers must step out from their comfort zones and engage with crucial duties in their work environment [23]. Normally, few engineering graduates are unwilling to do a hard job to learn and get the experience of such complex work. Some expect easy ways of doing things. However, employers are looking for hard-working and dedicated engineering graduates as they are the ones who can handle complex engineering operations in the engineering fraternity successfully [17].

"I took challenges in the given job and fully completed them to the entire satisfaction of my superiors". (Respondent #100)

Accepting and completing challenges is very important to create a positive image in the superior's mind. Engineers may come across numerous hurdles when working on a challenging task. However, the experience they gained by overcoming these challenges makes them stronger than before in engineering decision-making. According to [24], the knowledge associated with experience and perseverance is far greater than that gleaned from textbooks and theories. The ability to

create a positive image and perception in superiors' minds regarding him or her by demonstrating perseverance to work can significantly support the fast career progression of any engineer.

4.2 Expertise

Since the majority of the respondents were practicing engineering, they have identified that having technical expertise relevant to their fields of practice is significant to achieve career success. As knowledge workers, the more knowledge they gain will create more opportunities to perform in the industrial sector while developing a competitive advantage for such professionals [11].

"Exposing to all kinds of Industrial Electrical Engineering work in Sri Lanka and Abroad has assisted me in coming to this level." (Respondent #126)

Engineering expertise is not always knowing the theories and equations. Practical exposure to engineering applications is also essential for any engineer to accurately make technical decisions [25]. The above narrative emphasizes that the requirement is based on their experience.

"From day one in the job, I focused on gaining theoretical and practical knowledge in all things I came across in daily work. (Respondent #200)

According to the above narrative evidence, having both theoretical and practical knowledge is significant in achieving career success as an engineer. Society primarily seeks help from expert engineers to solve complex engineering problems. This enhances an engineer's market value and gives them more opportunities to become financially stable through consultancy. Hence, they can perform as engineering entrepreneurs in the country with expertise and knowledge [26].

"I learn deep into the subject area, not limiting it only to common knowledge known to most or all. I always learn the areas which are not touched by others." (Respondent #40)

Having a unique expert knowledge in engineering is crucial to serving the country as an expert engineer, which in turn pays back with an excellent financial gain. According to [24], the enthusiasm to become an engineering expert is a self-fulfilling prophesy. Because, as such, an engineer gains a reputation, as a willing and able engineer regardless of the task,



the more skills and concepts they learn and the more valuable they will be in the workplace. Hence, becoming an engineering expert is one way of accomplishing career success in the Sri Lankan context.

4.3 Interpersonal Skills

Engineers are not known for being outgoing and social. However, a successful career requires communicating with others, forming relationships, conveying findings and recommendations to clients, and selling a company's abilities to potential clients [24].

"How you speak with people, including professionals & laymen, is a matter for career success." (Respondent #85)

Communication skills are a must for engineers, and it is widely recognized that engineers can reach higher levels in their careers if they have effective communication skills [11]. It was also confirmed in the Sri Lankan context through various studies [27]. The above narrative demonstrates an experience of a chartered engineer who has recognized the importance of better communication skills for career success. Hence, the engineer should be equipped with the necessary interpersonal skills to deal with shop floor-level employees to top management of the workplace.

"English speaking is a key differentiator, and it adds much strength to survive in the corporate sector." (Respondent #20)

Having good spoken skills in English has also supported Sri Lankan engineers in attaining career success. Since most corporate sector activities in engineering-related fields are done in English, fluency in English is essential for all engineers here. English-spoken skills should be developed in engineers starting their undergraduate period, even though they face many difficulties in acquiring fluency [28].

"Engaging with the relevant stakeholders regularly and providing inputs to respective policies and strategies have helped me to develop a large network of professional colleagues who value my contributions." (Respondent #300)

It is not only communication skills that need to be developed to attain the career success of engineers. Other types of interpersonal skills, like networking, also contribute to career success. It is clearly highlighted in the above narrative by a respondent in the study. Such interpersonal skills are previously identified as

the success strategies of engineers in the literature [11], [24]. Above observation in Sri Lanka too tally with the international-level findings of the career success of engineers worldwide.

4.4 Leadership

Leadership and its related team working skills have also been identified as the essential skills required for the career success of engineers [11], [29], [30]. Sri Lankan engineers also have identified leadership and teamwork as a secret of their career success.

"Improving the leadership skills and management skills are essential." (Respondent #02)

Although engineering is a technological field of practice, it is not an individual work to perform alone in society. As highlighted in the above narrative by a respondent, leadership and management skills must be developed as engineers. Successful engineers have also identified that it is essential to demonstrate other vital aspects like decision-making, time management, and team working skills. The narrative below provides evidence to that.

"Leadership, timely decision-making, no postponing work, on-time attending, and working as a team has brought me to this level." (Respondent #353)

Leaders should provide a proper vision for their followers. Any leader should effectively utilize his/her authoritative power. The following respondent has identified that effective use of leadership responsibilities is essential to achieve the career success of engineers. With time, engineers climb the career ladder and reach more leadership-oriented positions. Irrespective of gender, engineers experience failures in their careers if they are unsuccessful in their leadership responsibilities [13].

"I used authority responsibly to achieve organizational and personal goals with a shared vision." (Respondent #229)

Hence, it can be identified that leadership and teamwork skills are also essential for Sri Lankan engineers to become professionally successful. According to [29], training programs for leadership skill development of young engineers have already commenced in other countries with the realization of the significance of leadership skills for career success.

4.5 Continuing Professional Development (CPD)

Life-long learning is one major attribute of an engineering graduate [31]. As technology is evolving rapidly, there are many more things for engineers to learn daily. Engineers understand the commitment to a lifetime of learning toward the goal of self-actualization with the need for continued professional development in all areas [29]. This study has revealed CPD as a strategy for the career success of engineers in Sri Lanka. The following narrative evidence given by a respondent clearly exemplifies that.

"I am in thirst of learning new technology always. I believe learning is a never-ending process. I could apply that knowledge I gained during the continuing learning process." (Respondent #302)

Any engineer should have a thirst for knowledge and get updated with the modern trends in their respective domains. An engineer with outdated engineering knowledge will not have a demand in the industry [24]. It can be understood that engineering expertise and CPD have a closer relationship. The more an engineer engages in CPD, the more engineering expertise can be observed. An engineer who can be considered an expert in a particular field has higher capability of doing a project or solving engineering-related problems more accurately and efficiently. Such engineers have a higher demand in the industry in both local and international context [11]. Engineers can engage in CPD in various means by attending seminars, workshops, exhibitions, & conferences, following CPD courses & online courses, and following post-graduate degrees. In line with the above requirements, most respondents have mentioned that they have followed and completed various post-graduate courses like post graduate diplomas, master's degrees in engineering-related fields, and business administration. The following narrative is a good example to show that.

"I did two masters, one in Sri Lanka and the other one in the United Kingdom. I improved my knowledge a lot from them." (Respondent #85)

Nowadays, it can be observed that young engineers have a passion for pursuing their higher studies in various fields at local and foreign universities. It is an excellent trend to observe among young engineers in the country. This study also revealed that most respondents had completed various post-graduate courses. It

is clear from the above evidence that engaging with CPD is essential for the career and professional success of engineers in the country.

4.6 Ethics

Engineers cannot work in the industry, neglecting ethics. Actually, they can work without ethics. But the consequences harm both the engineer and society in those unethical activities [11]. There is a lot of evidence in various contexts to demonstrate the harmful consequences of such unethical actions of engineers, which finally ruin the entire professional lives of those engineers. For example, the Kansas City Hotel Walkway collapse incident can be cited.

"No bribe giving or taking policy. Always act in accordance with ethical code of practices." (Respondent #120)

The respondent who stated the above narrative is working on the policy of not accepting or giving bribes. Furthermore, the above engineer has highlighted that they work according to the ethical code of practice. Sri Lankan engineers are bound to work according to the code of ethics introduced by The Institution of Engineers Sri Lanka and the Engineering Council of Sri Lanka [32], [33]. It has been found in Sri Lanka that ethical engineers have a higher reputation and recognition than unethical professionals [34].

"I worked quite hard with honesty and sincerity." (Respondent #324)

Many respondents have mentioned that they all work, prioritising honesty and sincerity. Honesty is a major concern in the code of ethics for engineers. The dishonest activities of engineers do not create benefits for the employer and society.

"I am acting honestly to serve employer, customers, suppliers, and all the other stakeholders with accountability." (Respondent #371)

Engineers are professionals who have responsible positions in the industry. They deal with a variety of people in society, professionally. An honest and ethical person receives broad recognition that supports them to succeed in their profession. A respondent has mentioned the above as a secret of his career success in Sri Lanka. A similar outcome was found in the study conducted on the career success of structural engineers in the

Philippines [35]. Hence, adhering to ethics can also be considered a strategy for accomplishing the career success of Sri Lankan engineers.

By considering the first letter of each theme, authors wish to introduce a framework for achieving the career success of engineers. The framework is named as "PELICE". Any early career engineer in the Sri Lankan context can follow the "PELICE" framework to achieve his or her career success as it is based on the perspectives of over 380 chartered engineers in Sri Lanka.

Finally, it was noticed that no single study in the literature contains all the six strategies identified in this study as a framework to follow up. However, there are several studies done previously in other countries which discuss some of the strategies identified in this study [24], [29], [35]. It can be recommended that all young engineers in the country properly understand these strategies while adopting the "PELICE" framework positively if they want to accomplish career success from the younger ages of their professional lives. Even though this study was conducted as a qualitative survey, findings are still valid for any engineer in Sri Lanka who expects career and professional success. The findings of this study will enrich the empirical research literature on career success of engineers working in Sri Lanka.

5. Conclusions

This qualitative type study has revealed six strategies for career success, as perceived by senior chartered engineers in Sri Lanka. They are Perseverance, Expertise, Leadership, Interpersonal Skills, Continuing Professional Development (CPD), and Ethics. These six strategies form a framework for achieving career success called "PELICE". This set of strategies will be highly beneficial for budding engineers in Sri Lanka as they can adopt it in their professional practice targeting their career/professional success in this competitive work environment. In this study, job satisfaction of the respondents was not investigated. Not having a proper idea about respondents' job satisfaction can be considered a significant limitation of this study. Since job satisfaction is one of the criteria for career success, future studies should be conducted to explore the job satisfaction of engineers working in the country and its relationship

with the "PELICE" framework of career success.

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