

Engineers' Satisfaction and Dissatisfaction in Construction Projects in Kuwait

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Abstract: *The satisfaction of engineers is an essential part of every construction project, as they oversee and control the gears of project success by converting clients' ideas into sensible premises. The objective of this study is to determine the level of satisfaction among field engineers in the construction sector in Kuwait, while identifying the satisfiers and dissatisfiers that influence their job attitudes. Furthermore, it is necessary to address the variation of dissatisfaction throughout the project lifecycle. To achieve these objectives, a random sample of engineers has been selected to contribute to this study through the completion of a survey. The factors of motivation and hygiene have been identified and categorized based on Herzberg's Theory. Further considerations have been given to additional factors in light of research in the same domain and the advice of construction experts. The findings indicate that Herzberg's theory lacks comprehensive validation. Site engineers in Kuwait identified various factors that influence job content and job context. Additionally, they were found to experience lower satisfaction levels as the project approaches its completion. This study addresses the knowledge gap of the elements that influence the satisfaction and dissatisfaction of engineers in Kuwait, which can be valuable for construction industry professionals.*

Keywords: Satisfaction, Dissatisfaction, Herzberg's theory, Motivation and Hygiene Factors, Engineers, Construction Project Lifecycle.

1. Introduction

Construction is a Latin term that denotes the act of combining elements, and it encompasses both the artistic and scientific aspects of creating objects, systems, or organizations. It refers to a contractual collaboration between various entities to transform a conceptual idea into a tangible structure through multiple stages involving different fields of study. The construction industry possesses distinct characteristics that set it apart from other industries. The individual traits of construction workers and the challenging environmental conditions they face, particularly in Kuwait, contribute to the uniqueness of the construction industry. It is important to note that many of these unique characteristics have significant implications for human behavior. Construction projects typically have a short duration, resulting in frequent organizational reconstitution and personnel changes. The construction industry involves a significant distribution of authority and responsibility among multiple parties at different levels, resulting in intricate human relationships. The involvement of multiple subcontractors and builders, design modifications, communication of data, and material deliveries can lead to increased complexity and accountability. Consequently, the construction industry is widely regarded as one of the most formidable sectors globally.

Over the past few decades, there has been a shift towards focusing on productivity, motivation, and job satisfaction. This shift has been driven by the growing complexity of problems and the increased expectations of both managers and workers. Additionally, individuals with higher levels of

education and a reduced willingness to blindly accept authority have also played a role in this evolution [1]. The satisfaction of site engineers is important to consider as it significantly impacts their productivity, work attitude, and consequently, the successful completion of the project. Most studies in Kuwait examined the motivation, job satisfaction, and productivity of laborers and craftsmen. However, site engineers were disregarded. Engineers are an essential part of any project and their satisfaction can significantly impact the achievement of project objectives. Therefore, this study investigates the satisfaction of field engineers employed in the construction sector in Kuwait. This study also examines the relevance of motivation theories in the context of engineers, with a particular focus on the theories proposed by Frederick Herzberg.

The primary aims of this research are to shed light on the factors that impact the job satisfaction of engineers employed in Kuwait. The present study employed Herzberg's original methodology, with a primary focus on comparing and identifying any disparities between the findings of this study and Herzberg's research. Furthermore, analysis is conducted to examine the factors that could potentially impact engineer dissatisfaction through the phases of a project lifecycle. This study aims to provide valuable insights for companies and bureaus in Kuwait, enabling them to better understand and address the behavioral patterns of engineers employed in the construction industry, with the ultimate goal of enhancing job satisfaction.

2. Literature Survey

Frederick W. Taylor, acknowledged as the father of scientific management, revolutionized workplace practices by treating workers as individuals and advocating for incentive pay. The Hawthorne studies at Western Electric's plant in 1924 highlighted the importance of human relations in productivity [1]. This marked the emergence of various theories, notably content and process theories, which respectively focus on individual needs and the causes and mechanisms of motivation [2]. Maslow (1954), Alderfer (1972), Herzberg et al. (1959) [3], and McClelland (1961) contributed to content theories, while Adams (1965), Vroom (1964), and Porter & Lawler (1968) represented process theories.

Research on job satisfaction, dissatisfaction, and motivation has long been crucial for understanding workforce productivity. While many industries have been extensively studied, the construction sector has received comparatively little attention from project managers regarding employee morale. Borcharding and Oglesby sought to address this gap by examining job satisfaction, dissatisfaction, and productivity within construction [4]. Their study, which involved interviews with various stakeholders, identified key factors driving satisfaction, such as profitability, customer satisfaction, timely task completion, and challenging tasks, while noting that dissatisfaction often stems from issues like work delays and poor management. These findings support Herzberg's theory, highlighting the complex relationship between satisfaction, dissatisfaction, and productivity in the workplace.

In 1991, Mansfield and Odeh [5] conducted a study on motivation factors in construction projects, noting persistent low productivity despite technological advancements. They emphasized the importance of satisfying individual needs to boost productivity, leading managers to explore needs theories. However, these theories fell short, prompting the development of the expectancy theory by Vroom, Porter, Lawler, Maloney, and McFillen. The expectancy theory underscores the link between desired outcomes and specific actions, highlighting the necessity for construction supervisors to understand employees' reward preferences. The unique characteristics of the construction industry, such as temporary employment and challenging work environments, must be considered for effective motivation strategies. Managers' motivation can be influenced by construction contract risks, emphasizing the need for thorough work planning and resource allocation. Labor supply and productivity are interlinked, affected by various factors like population density, unemployment, and local infrastructure. Mansfield and Odeh identified multiple motivational factors for employees, including attitude, achievement, appreciation, responsibility, money, advancement, participation, competition, and social relations, emphasizing the importance of recognizing individual differences in motivation [6].

Lim and Alum [7] examined Singaporean contractors' challenges during low construction productivity. Local

artisans avoided construction due to a lack of recognition, while most foreign laborers were unskilled and temporary. The presence of linguistically diverse foreign workers made communication difficult. Contractors expressed concerns about recruiting and retaining staff, along with various factors impacting productivity such as delayed decisions, poor coordination, and strict adherence to specifications. Recommendations included recruiting and training younger local workers, enhancing incentives, improving management, optimizing machinery use, and upgrading supervisors' skills.

In 2003, Ruthankoon and Ogunlana researched Herzberg's two-factor theory in Thai construction [2]. They applied Herzberg's method, noting the industry's focus on cost and schedule, frequent conflicts, labor intensity, and short-term employment. They sampled employees from contracting companies with full-time construction roles. The study found Thai construction diverged from Herzberg's theory, with job satisfaction linked to responsibility, career growth, and supervision, while dissatisfaction stemmed from working conditions, job security, on-site safety, and relationships with other organizations. Recognition, work nature, company policies, and personal factors also influenced satisfaction. Engineers found achievement motivating, while foremen found it hygiene related. The authors suggested managers to address salary concerns and improve project subordinate relationships through conflict resolution and teamwork.

In Kuwait, two studies were published by Jarkas and Bitar that examined labor and craftsman productivity factors, however, engineers' satisfaction and productivity were relatively disregarded [8], [9].

Navarro [10] reviewed Herzberg's 25-year contributions to the construction industry and highlighted various studies on construction worker motivation and job satisfaction, including works by Ruthankoon (2005), Asad and Dainty (2005), Aiyetan and Olotuah (2006), Bowen (2008), Sang, Ison, and Dainty (2009), Rivas, Borcharding, González, and Alarcón (2010), Thomas A. V. and Sudhakumar J. (2012), Hosseini, Chileshe, and Zillante (2014), Solís-Carcaño et al. (2015), Olcay Genc and Hilmi Coskun (2016), Khahro, Ali, Siddiqui, and Khoso (2016), and Prency and Shanmugapriya (2017).

Stello (2011) underscores Herzberg's enduring advocacy for his two-factor theory, supported by his continuous publication of corroborative articles over two decades [11]. Herzberg's 1965 study in Finland validated the theory's principles among lower-level supervisors. Behling, Labovitz, and Kosmo (1968) refuted criticisms against Herzberg's motivation-hygiene theory [12], while Schwab and Heneman (1970) replicated his findings using his methodologies [13]. Bockman's (1971) comprehensive review further affirmed the theory's validity within existing literature [14]. French, Metersky, Thaler, and Trexler (1973) demonstrated the efficacy of Herzberg-type questionnaires, yielding results comparable to critical incident techniques under controlled conditions [15]. Cummings (1975) extended Herzberg's theory to hierarchical employees, reinforcing the role of

management in job satisfaction [16]. Kacel, Miller, and Norris (2005) applied Herzberg's framework to nurse job satisfaction, suggesting improvements in extrinsic factors, despite Herzberg's contention that such measures primarily alleviate dissatisfaction [17].

3. Methods/Approach

This study utilizes a survey to fulfil the research objectives, with simple and clear questions to facilitate comprehension among respondents. The survey was designed and distributed on Question Pro which made data collection and analysis seamless and efficient. Prior to distribution, pilot testing was conducted, and the survey was reviewed by experts in the field of construction. After making minor corrections and additions, the survey was approved by the experts and was ready for distribution.

The survey was divided into four sections. The initial section focuses on respondent demographics to categorize the participants based on their gender, nationality, level of education, field of study, work experience and sector, and organization and work type. For the second section, engineers were asked about their level of satisfaction within the context of their job.

In the third section, engineers were requested to assess the significance of Herzberg's factors, encompassing both motivators and hygiene factors. The approach of Herzberg's theory (1968) was adapted to inquire about both negative and positive incidents that have occurred in the work of engineers [18]. Herzberg's concept, known as the "critical incident technique," was adapted from Flanagan's work in 1954 [19]. Based on the frequency of positive and negative events, factors have been classified into two distinct categories: motivators and hygiene factors. Motivators are characterized by a higher proportion of positive events and a lower

proportion of negative events, while hygiene factors are characterized by a higher frequency of negative events and a lower frequency of positive events. However, if there was no notable disparity in the occurrence of negative and positive events, the factors were categorized as bi-polar factors [20]. Herzberg's theory proposes these factors, which are ranked according to Frederick Herzberg's hierarchy.

Regarding the final part of the survey, engineers were requested to assess their degree of dissatisfaction during the initiation, mid, and closing phases of a project. It is widely believed that the level of dissatisfaction varies throughout the project lifecycle. Approximately 21 factors have been incorporated into the questionnaire from the guidance of experts and relevant studies in the same domain [21-40]. The dissatisfiers that have been included are disrespectful treatment, stress, errors made by the company or individuals, customer dissatisfaction, interactions with unqualified individuals, inadequate field supervision, poor engineering, uncooperative or unproductive workmen, lack of information, unfair job assignment, unclear job role, lack of resources, poor coordination, adverse weather conditions, frequent alterations and change orders, overtime working hours, conflicts, accidents, unsafe working conditions, high turnover rate, and poor quality. The participants were requested to evaluate and rank the factors that contributed to their dissatisfaction at each stage of the project.

The population was selected at random, resulting in a total of 121 completed surveys. Given a 95% confidence level and a two-sided confidence interval, assuming a normal distribution for the samples, the marginal error for the 121 surveys is expected to vary from three to five percent with a standard deviation of 20 to 30 percent. To ensure compliance with the objectives of the research, participants who successfully filled out the questionnaire were required to have prior experience or ongoing employment in the construction sector in Kuwait. Figure 1 depicts the various sampling characteristics.

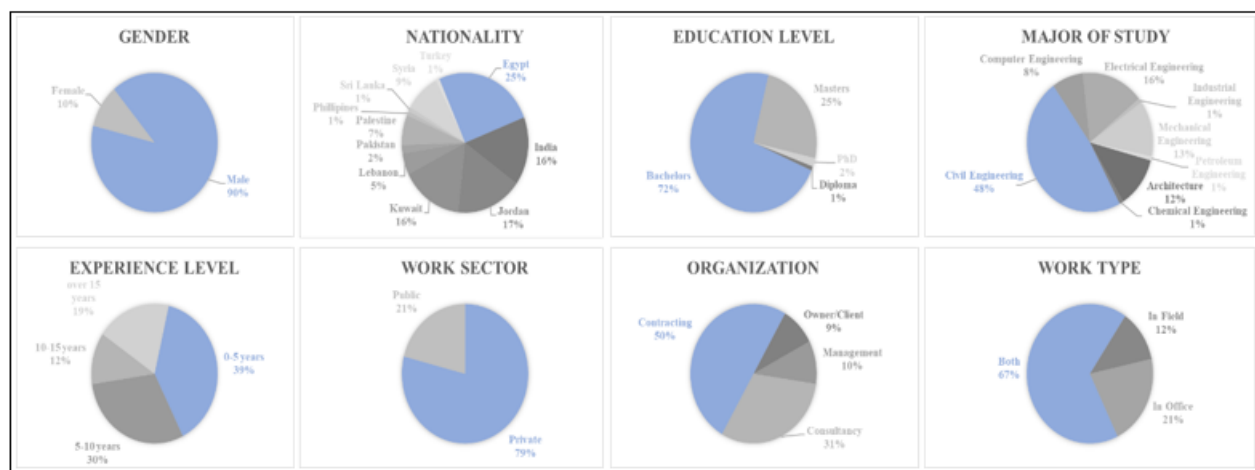


Figure 1: Surveyor demographics

4. Results/Discussion

The findings of this research are divided into three sections. The first section assesses the overall satisfaction level of engineers in the construction industry in Kuwait. Section two discusses the importance and applicability of Herzberg's theory as well as the satisfiers and dissatisfiers based on his

motivation factors (achievement, recognition, work itself, responsibility, advancement, and growth) and hygiene factors (company policy & administration, supervision, salary, interpersonal relations, work conditions, and job security). Section three discusses the impact of different phases of the project lifecycle on extrinsic factors (dissatisfiers) collected from previous research. The factors are disrespectful

treatment, stress, company or personal mistakes, customer dissatisfaction, dealing with unqualified individuals, inadequate field supervision, poor engineering, uncooperative or unproductive workmen, lack of information, unfair job assignment, unclear job role, lack of resources, poor coordination, weather conditions, frequent alterations & change orders, overtime working hours, conflicts, accidents, unsafe working conditions, high rate of turnover, and poor quality.

4.1 Engineers' Level of Satisfaction

Engineers were surveyed on their overall level of satisfaction with their job, with five-point Likert responses ranging from very satisfied to very unsatisfied. As shown in Figure 2, it was observed that 36% were satisfied, and 9% were very satisfied with their work. Conversely, a proportion of 14% and 6% were attributed to feelings of dissatisfaction and extreme dissatisfaction, respectively. 36% of respondents felt neutral towards their jobs. The majority of engineers in Kuwait (56%) are not satisfied with working in the construction industry.

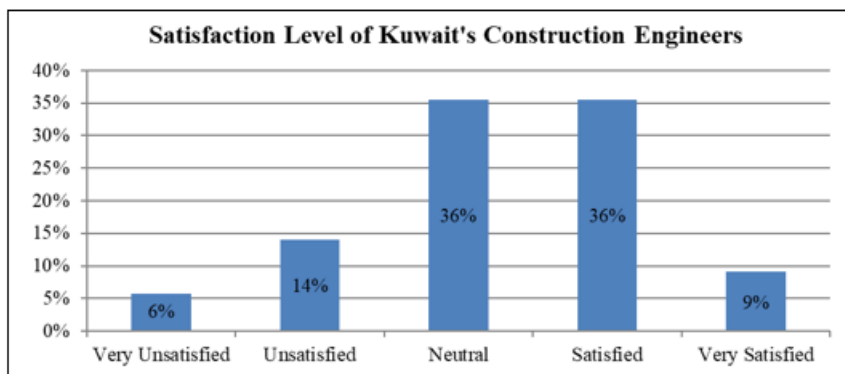


Figure 2: Level of satisfaction of engineers in Kuwait with their jobs

Additional findings have been uncovered by employing cross tabulation techniques. As evident in Figure 3, based on participants' major of study, 57% and 47% of very unsatisfied and unsatisfied candidates were civil engineers while 29% and 18% of vary unsatisfied and unsatisfied candidates were electrical engineers. In contrast, a significant proportion of very satisfied engineers were architects, accounting for 36%. Figure 4 clearly indicates that the majority of dissatisfied individuals were employed in contracting companies. A significant proportion of engineers working in contracting firms, 86% and 53% respectively, reported being very unsatisfied and unsatisfied. In regards to consultancy, 41% of engineers expressed dissatisfaction, while 14% expressed extreme dissatisfaction. It is logical that most client representatives and management positions are content and highly content, as these roles do not necessitate as much physical and mental exertion as contracting and consultancy work, but rather oversee and monitor contractors and consultants.

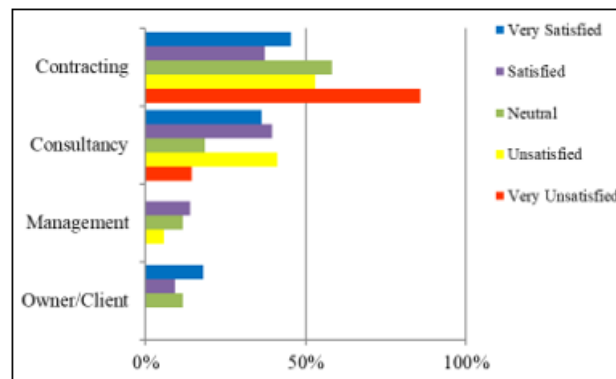


Figure 4: Satisfaction level of Kuwait's construction engineers based on organization type

4.2 Importance and Applicability of Herzberg's Theory

The relative importance index (RII) has been calculated to analyze the perceived importance of Herzberg's factors by respondents. The ranked list of Herzberg's factors as determined by engineers in Kuwait compared to the original theory is presented in Table 1. According to Herzberg's theory, the motivators should be given the highest priority. Apart from work itself being ranked ninth, it is evident that motivators hold the highest position. In contrast, it is essential to assign the lowest priority to hygiene factors, which encompass company policy and administration, supervision, salary, interpersonal relations, working conditions, and job security. With the exception of salary and job security being ranked first and fifth, it is apparent that motivators outperform hygiene factors.

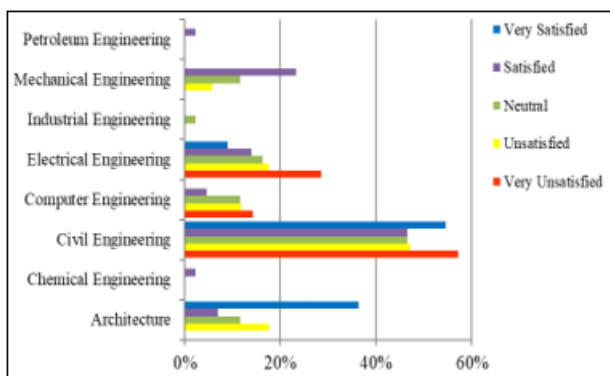


Figure 3: Satisfaction level of Kuwait's construction engineers based on major of study

Nevertheless, it is not unusual that salary and job security are ranked higher than any other hygiene factor. This was primarily a consequence of owners implementing tighter budgets and contractors adopting measures to secure

employment, resulting in a significant reduction in the benefits package offered to engineers in Kuwait. Furthermore, engineers face challenges in securing their employment due to the substantial increase of foreign engineers being outsourced. Moreover, construction projects typically involve time-constrained contracts, with regular personnel changes occurring as the project nears its conclusion. Consequently, the work itself became less considerable by engineers as they do not intend to jeopardize their job security. Moreover, the construction industry is characterized by a highly demanding work environment that diminishes the significance of the work itself.

Table 1: Ranked list of Herzberg’s factors according to the original theory versus engineers in Kuwait

Rank	Herzberg	Survey Results
1	Achievement	Salary
2	Recognition	Achievement
3	Work Itself	Growth
4	Responsibility	Recognition
5	Advancement	Job Security
6	Growth	Responsibility
7	Company Policy & Administration	Advancement
8	Supervision	Company Policy&Administration
9	Salary	Work Itself
10	Interpersonal Relations	Interpersonal Relations
11	Work Conditions	Work Conditions
12	Job Security	Supervision

The study examines the influence of Herzberg's factors on job satisfaction among engineers in Kuwait. The overall factors can be divided into three main groups: job content factors, also known as intrinsic factors, fall under the category of motivators or satisfiers. On the other hand, job context factors, also known as extrinsic factors, are classified as hygiene factors or dissatisfiers. Meanwhile, factors that pertain to both job content and context fall under the category of bi-polar factors, as they are seen as both intrinsic and extrinsic.

Respondents were asked about work events that influenced their job satisfaction or dissatisfaction. The frequency of these events has been summarized in Figure 5 to distinguish between motivation, hygiene, and bi-polar factors. The data indicates that job satisfaction was most commonly associated with responsibility and the work itself among Kuwait's construction engineers. Also, there was a notable correlation between accomplishment and the frequency of events that resulted in job satisfaction. As anticipated, the frequency of job satisfaction outweighed job dissatisfaction when it came to responsibility and growth. It was interesting to note that interpersonal relations, work conditions, and job security were highlighted as factors that contribute to job satisfaction, rather than being seen as potential sources of dissatisfaction.

The comparative analysis of the factors classified in this study and Herzberg's motivation-hygiene theory is presented in Table 2. The consideration of motivation factors by engineers in Kuwait appears to align closely with the classification proposed by Herzberg's two-factor theory. Both Herzberg's theory and the present study argue that motivation is influenced by various factors, including achievement, recognition, work itself, responsibility, and growth. However, advancement is commonly regarded as both an intrinsic and extrinsic factor. Nevertheless, the findings indicate that interpersonal relations, work conditions, and job security were significant factors in determining job content, even though Herzberg's original study considered them as job context factors. In contrast, company policy was classified as the sole measure of hygiene among all the other factors. Salary has been regarded as a significant factor contributing to both job satisfaction and job dissatisfaction. As previously stated, the construction industry has experienced a decline in salaries due to the influx of foreign engineers, resulting in a situation where just a minority of engineers are receiving competitive compensation. Finally, supervision is also regarded as a bipolar factor, contributing to both job content and context.

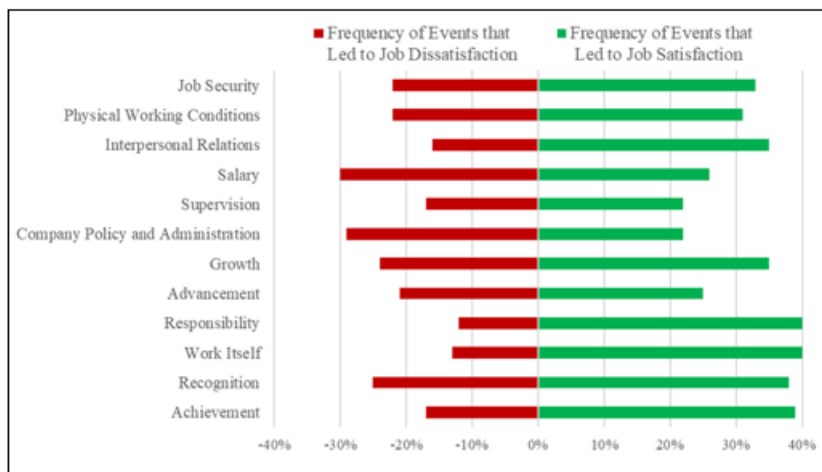


Figure 5: Frequency of events that led to job satisfaction and dissatisfaction

Table 2: Factor classifications by Herzberg versus engineers in Kuwait

Factor	Herzberg	Survey Results
Achievement	Motivation	Motivation
Recognition	Motivation	Motivation
Work Itself	Motivation	Motivation
Responsibility	Motivation	Motivation
Advancement	Motivation	Bi-Polar
Growth	Motivation	Motivation
Company Policy & Administration	Hygiene	Hygiene
Supervision	Hygiene	Bi-Polar
Salary	Hygiene	Bi-Polar
Interpersonal Relations	Hygiene	Motivation
Work Conditions	Hygiene	Motivation
Job Security	Hygiene	Motivation

4.3 Impact of the Project Lifecycle on Dissatisfaction

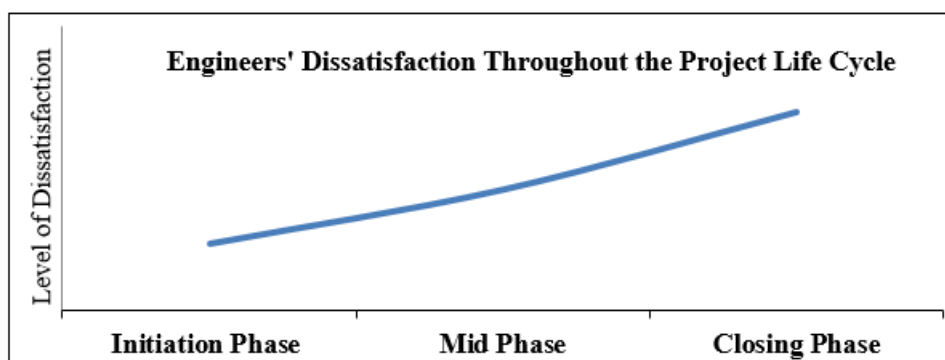
The construction industry has unique characteristics that make completing any project challenging. Construction contracts can be risky and place a significant amount of responsibility on both project managers and their subordinates. Additionally, construction projects are temporary, which could result in the termination of many project subordinates once the project is completed. Furthermore, the projects' complexity necessitates exceptional communication channels. The constant flow of information among project stakeholders demands tremendous efforts and increases the likelihood of conflicts as the project progresses. On top of that, the demanding working conditions in the construction industry cannot be overlooked.

After investigating the impact of various job satisfaction and dissatisfaction factors among construction engineers, it became crucial to examine additional sources of dissatisfaction that could affect engineers' attitudes during different project phases. It was demonstrated during the survey's pilot testing that sources of dissatisfaction vary as the project progresses. Consequently, an extensive literature review has been conducted to gather the project dissatisfiers identified by previous researchers. Participants were requested to evaluate the influence of nearly 21 factors during the initiation, mid, and closing phases of a project. Figure 6 presents those dissatisfiers ranked in order of influence. The results confirmed the anticipated outcome: the level of dissatisfaction rises as the project progresses.

Lack of information and an unclear job role were major factors contributing to dissatisfaction during the initiation phase. Also, the impact of poor coordination, dealing with unqualified individuals, and lack of resources was recognized. On the other hand, as expected, customer dissatisfaction and a high turnover rate are positioned at the bottom of the list.

During the mid-phase, conflicts, frequent change orders, and poor coordination were the most common issues. Since work activities reach their peak and require extensive coordination and communication, it is essential to prioritize effective communication management to prevent conflicts among project team members. Poor coordination and subpar design documents result in the need for frequent change orders, which in turn can lead to duplicated work, decreasing productivity and satisfaction among project team members. Given the circumstances, it is important to emphasize that stress has been given a high ranking, despite initially being rated very low. Like the initiation phase, customer dissatisfaction and a high turnover rate received low ratings.

During the closing phase, engineers in Kuwait ranked stress as their top concern, which can lead to mental fatigue and a decline in productivity levels. The need for alterations and change requests continued to greatly impact job dissatisfaction. Variation orders have a significant impact on projects, resulting in project delays, cost overruns, repeated work, conflicts, dissatisfaction, and reduced productivity. In addition, excessive working hours have been identified as a significant factor in job dissatisfaction. Furthermore, the participants of this study were strongly dissatisfied by the high rate of termination at the end of the project.



Factors of Dissatisfaction (Ranked in Order of Influence)	1	Lack of Information	Conflicts	Stress
	2	Unclear Job Role	Frequent Alterations & Change Orders	Frequent Alterations & Change Orders
	3	Poor Coordination	Poor Coordination	High Rate of Turnover (Job Termination)
	4	Dealing with Unqualified Individuals	Dealing with Unqualified Individuals	Dealing with Unqualified Individuals
	5	Lack of Resources	Stress	Overtime Working Hours
	6	Uncooperative/Unproductive Workmen	Company or Personal Mistakes	Poor Quality
	7	Poor Engineering	Uncooperative/Unproductive Workmen	Customer Dis-satisfaction
	8	Unfair Job Assignment	Weather Conditions	Conflicts
	9	Weather Conditions	Lack of Resources	Company or Personal Mistakes
	10	Company or Personal Mistakes	Poor Engineering	Poor Coordination
	11	Frequent Alterations & Change Orders	Overtime Working Hours	Poor Engineering
	12	Conflicts	Accidents	Uncooperative/Unproductive Workmen
	13	Inadequate Field Supervision	Inadequate Field Supervision	Unfair Job Assignment
	14	Stress	Unfair Job Assignment	Weather Conditions
	15	Poor Quality	Unsafe Working Conditions	Disrespectful Treatment
	16	Accidents	Unclear Job Role	Inadequate Field Supervision
	17	Overtime Working Hours	Poor Quality	Accidents
	18	Disrespectful Treatment	Lack of Information	Unsafe Working Conditions
	19	Unsafe Working Conditions	Disrespectful Treatment	Unclear Job Role
	20	Customer Dis-satisfaction	Customer Dis-satisfaction	Lack of Resources
	21	High Rate of Turnover (Job Termination)	High Rate of Turnover (Job Termination)	Lack of Information

Figure 6: Dissatisfaction of Kuwait's construction engineers over the project phases

5. Conclusion

Based on the findings that align with the literature review, it appears that Herzberg's theory may not be fully relevant to construction engineers in Kuwait due to the unique characteristics of the local construction industry. The hierarchical arrangement of Herzberg's motivation-hygiene factors closely resembled his initial study, with only slight deviations. However, the outcomes obtained through the implementation of the "critical incident technique" to investigate job content and context did not align with Herzberg's original study. The majority of Herzberg's factors, namely achievement, recognition, work itself, responsibility, growth, interpersonal relations, work conditions, and job security, were found to be associated with "intrinsic" factors, indicating their placement along the satisfaction continuum. On the other hand, the sole factor that exhibited a correlation with extrinsic factors was the company's policy and administration, indicating its placement along the dissatisfaction continuum. The influence of company policy and administration on dissatisfaction is logical, as it can impede motivation attitudes, even in the absence of any inherent motivational factors. In contrast, both satisfiers and dissatisfiers were influenced by factors such as advancement, supervision, and salary. It is imperative to give significant consideration to these bipolar factors, as they serve as both intrinsic and extrinsic determinants. Employing construction managers who possess both technical and managerial competencies, as well as contractual knowledge is important to ensure effective supervision. Additionally, it is advisable to offer incentives, bonuses, salary increases, and rewarding programs to alleviate dissatisfaction and enhance the likelihood of satisfaction.

The findings obtained from examining the factors and degree of dissatisfaction among construction engineers throughout

the project lifecycle appear to be logical. Dissatisfaction intensifies as the project commences and culminates at its peak upon project completion. The degree of dissatisfaction is directly proportional to the advancement in the project. By examining the factors contributing to dissatisfaction at each stage, it was determined that lack of information, unclear job roles, and poor coordination were the primary causes of dissatisfaction during the initiation phase. Similarly, poor coordination, in addition to frequent alterations and change orders, and conflicts, emerged as the primary factors contributing to dissatisfaction during the mid-phase. Lastly, the main causes of dissatisfaction during the closing phase were stress, frequent alterations and change orders, and a high rate of turnover. Adequate planning and the establishment of a thorough work breakdown structure during the initial stages, particularly during the tendering phase, can effectively mitigate time, cost, and conflicts, thereby facilitating efficient implementation during the execution phase. Furthermore, enhancing the insurance system to provide coverage for engineers during their period of unemployment subsequent to project completion is recommended.

The results of this study fill the knowledge gap regarding satisfiers and dissatisfiers among field engineers in Kuwait. These findings can be utilized to offer employers and policymakers valuable insights for enhancing performance. The most notable limitation was the scarcity of empirical research conducted on engineers in Kuwait, as well as the limited application of Herzberg's theory to the selected sample. Despite the existence of numerous studies, none of them have specifically focused on the construction engineer profession in Kuwait. Another limitation was the sample size, resulting in insufficient data to provide a conclusive assessment of the validity of Herzberg's motivation-hygiene theory. Furthermore, time constraints prevented the implementation of alternative motivation theories within the

construction industry. It is anticipated that this study serves as a stepping stone and a catalyst for future studies in the field. It is advisable to subject Kuwait's construction industry to the examination of additional job content theories as well as process theories. Furthermore, it is important to conduct further research and prioritize the investigation of job attitudes and productivity among construction engineers in Kuwait. This is because of their significant influence on labor productivity, work supervision, project quality, project completion time, and cost. Finally, it is recommended to conduct interviews with key government managers and officials in the construction industry to gather their perspectives on these recommendations, with the aim of enhancing satisfaction levels pertaining to salary and job security.

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