

IMPACT OF MOTIVATION ON HEALTH AND SAFETY OF SEMI-SKILLED OPERATIVES IN CONSTRUCTION SMEs

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UNDERTAKING

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ABSTRACT

Semi-Skilled construction operatives in SMEs around the world suffer from extensive injuries and fatalities due to the dynamic nature of their work. Large construction firms have greater resources to support efforts for ensuring the health and safety of their workers. In contrast, Construction SMEs often do not possess such resources and have limited funds to invest in the health and safety of their workers. In such SMEs, semi-skilled operatives are one of the most vulnerable types of construction workers as they are often not provided with adequate safety equipment and training. In addition, the motivation of these workers is a major factor that affects their safety behaviours, including their participation in following regular safety protocols. Motivation is also viewed as an important aspect because when workers experience safe work environments, they are more motivated to complete their tasks efficiently, hence motivation is revealed to be a vital force for increasing workers productivity. This study investigated the impact of motivation on semi-skilled operatives health and safety in Construction SMEs of Birmingham UK.

Based on an in-depth review and synthesis of the relevant literature, a conceptual framework was developed of the relationship between motivational factors and health and safety outcomes for semi-skilled operatives working in Construction SMEs. To test this framework, a primary qualitative research methodology was adapted involving a total of 20 semi-structured interviews with semi-skilled operatives working for Construction SMEs. These interviews explored the operative's intrinsic and extrinsic motivational factors and their effect on their safety outcomes. The views and insights gained were interrogated using a thematic content analysis approach.

The results revealed a significant relationship between extrinsic motivational factors and intrinsic motivational factors, with both having cumulative impacts on the health and safety of semi-skilled construction operatives. Key extrinsic factors were found to include the manager's role, working conditions, respectful environment, and safety training, while the key intrinsic factors consist of stress and job satisfaction. It was found that the role of the management and their level of commitment towards the health and safety of the workers have direct effects on the stress and job satisfaction of the workers. In addition, working conditions, a respectful workplace environment and safety training also affect stress and job satisfaction. Based on the findings, the key indicators of health and safety outcomes of semi-skilled operatives at Construction SMEs in the UK consist of stress, job dissatisfaction, working conditions, disrespect, and poor safety training.

The study implies that there are several crucial issues in the health and safety management of semi-skilled operatives employed in Construction SMEs in the Birmingham UK. As a result of incompetent practices, many problems arise at the workplace. Improved practice, commitment and involvement of the management is vital to resolve these issues. Motivation can be used as an important solution by fulfilling the needs of the workforce and providing them with the support, training, PPE equipment to bring about appropriate health and safety practices, and thereby the wellbeing of workers.

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List of Abbreviations

H&S – Health and Safety
PPE – Personal Protective Equipment
UK – United Kingdom
SMEs- Small and medium-sized firms
HSE-Health and Safety Executive
ICE-Institute of Civil Engineers
CDM2015- Construction Design and Management Regulations 2015

Glossary

Term	Definition
Extrinsic Motivation	External factors that affect workers' motivation.
Health and Safety	Processes that prevent workplace accidents and fatalities,
Intrinsic Motivation	Internal factors that affect workers' motivation.
Personal Protective Equipment	Equipment used for protection while at the workplace.
Safety Training	Training sessions directed towards the workers' safety.
Semi-Skilled Operatives	Workers with limited training and skills.
Semi-Structured Interviews	Interviews that are loosely structured.
SME	Firms employing less than 250 people, or firms with an annual turnover of EUR 50 million
Thematic Analysis	Data analysis that looks for repetitive patterns in the dataset.
Working Conditions	The working environment at an organisation.

CHAPTER 1: INTRODUCTION

1.0 INTRODUCTION

This chapter provides a broad overview of the research reported in this thesis and introduces the thesis's research strategy. The chapter begins with the brief research overview, Background of the research including the Construction Industry and Health and Safety, Challenges of Health and Safety at Construction SMEs and Motivation in Health and Safety. Following that, the chapter further discusses the research justification, research gap, research aim and objectives and research design. Lastly, each of the included chapters in this thesis is briefly described in the structure of the thesis.

1.1 BRIEF OVERVIEW

Construction sites are one of the main industrial locations where accidents, injuries and fatalities occur, which are related to the occupation of the workers. According to Hughes *et al.*, (2022), small and medium-sized businesses in the United Kingdom claim that a lack of high-quality, easily accessible guidance and information on health and safety prevents them from improving their health and safety aspects in the workplace. The health and safety aspects of construction workers vary from firm to firm. The more efforts are exerted to enhance the health and safety of the construction site, the better these aspects are likely to be. If efforts are inadequate, the risk of accidents and fatalities occurring at the workplace are increased (Ganah and John, 2015). In addition, it has been reported that the construction industry suffers from a high intensity of motivational factors affecting workers behaviours and psychological factors in the

workplace. As an improvement tool, the concept of motivation can be used to enhance the health and safety behaviours of the construction workers. With motivational endeavours, the construction workers' needs can be fulfilled, which would in turn encourage them to participate in activities that would improve their health and safety. According to Robbins (2001), one must satisfy motivational factors associated with their job in order to feel satisfied. Motivation is a needs-satisfying process, which means that when a worker's needs are met, the worker will exert greater effort towards achieving goals. Motivation is influenced by a variety of factors, including personal objectives, workload, training, and working conditions (Bluff, 2019).

This project has been undertaken in order to address how the motivation of semi-skilled construction operatives can be used to improve the system of health and safety at construction SMEs in Birmingham United Kingdom. Additionally, semi-skilled operatives have been selected due to their possible inadequacies in terms of knowledge, as well as their need of working in the construction SMEs instead of career-centrism or professionalism. Lastly, the rationale for selecting SMEs is due to their limited number and range of resources, working conditions may also be poor, the SMEs are not financially secure, while they possess restricted resources or information for implementing H&S protocols at the workplace (Barbosa *et al.*, 2019). Undoubtedly high costs are associated with the implementation of health and safety programs, that can be affordable for bigger companies but in the case of SMEs, lesser funds and low revenues, it becomes extremely difficult for the management to create and implement strategies for the mitigation of health and safety-related risks (Asad *et al.*, 2022). Alarcón *et al.* (2016) state that when adequate prevention strategies are implemented at the workplace, the rate of on-site accidents drops significantly. In other words,

prevention practices are directly proportional to the reduction in accidents (Alarcón et al., 2016), which restrict the establishment and implementation of sufficient practices related to the health and safety of the workers. In other words, this project addresses the health and safety of semi-skilled operatives at construction SMEs in the Birmingham United Kingdom, in the context of motivational factors.

1.2 BACKGROUND OF THE STUDY

Because of the reported and unreported work-related fatalities and injuries, the construction industry is consistently regarded as one of the most dangerous industries in the UK and around the world. Due to their significant contribution to the UK construction supply chain, Small and Medium-Sized Enterprises (SMEs) are blamed for the majority of these incidents. The effectiveness of safety management system implementation in these kinds of organisations is widely believed to be closely related to health and safety performance in those organisations. Even though the industry has worked extremely hard to enhance health and safety procedures. Despite a consistent decline in accidents over the last decade at construction worksites (HSE, 2019), a noteworthy number of injuries, fatalities and dangerous accidents resulting in illnesses or disabilities still occur related to the industry. These are health and safety outcomes, as the health, wellbeing and safety of the workers are affected. Such outcomes are present in nearly all types of organisations despite of their size, sort of work or their location. Around two million employees in the construction sector are affected by these outcomes, hence H&S has become necessary for them all (Sykes, 2022) and for the wider society too. Over the past few years, the legal system has seen substantial changes related to the H&S of construction workers. The introduction of the Construction Design and Management Regulations (CDM 2015), the Corporate Manslaughter and

Corporate Homicide Act (CMCHA) in 2007 and the Health and Safety at Work Act of 1974 have aided the Health and Safety Executives (HSE) in prosecuting offenders (both individuals and organisations) who do not demonstrate adequate H&S management standards (Appleby *et al.*, 2012; Perez, 2019).

According to Diugwu (2008) SMEs in any industry are often unaware of their legal and ethical obligations and are not taking their health and safety responsibilities seriously. They do not understand the consequences of poor management of their workers' health and safety, or the benefits of good practices in the same field. In most cases, they either do not have sufficient resources to exert in improving the health and safety of their workers, or they do not devote them to the purpose. A greater proportion of accidents at the workplace, as well as higher risks and hazards are involved at SMEs, in comparison with larger organisations. It is a concerning issue, as a higher number of hazards is indicative of a lower level of safety for the workers (Croucher *et al.*, 2013). Additionally, large construction firms usually have a strong set of extensive techniques for maintaining the health and safety of their workers. On the contrary, these techniques cannot be used at smaller (Hasle and Limborg, 2006), as it takes a high number of financial resources to reach the level of large firms due to their sheer size and employee numbers. The risk of accidents at SMEs is higher, along with occupational injuries and diseases. These are made worse due to the limited access to technological, human and economic resources at SMEs (Champoux and Brun, 2003 and Croucher *et al.*, 2013).

In such circumstances, the health, safety, and wellbeing of the workers is impacted. Not only this, their level of motivation to engage in health and safety operations and

physical activity is reduced. This has urged researchers to conduct a range of studies to gain a thorough understanding of the factors that enhance the risk of adverse safety incidents for these kinds of SMEs. Rainnie, (2016) states that a firm must provide its workers with the highest possible standards of health and safety, and encourage them to participate in safety protocols, in turn benefiting the organisation itself in the form of better management. It would eventually contribute towards improving the firm's reputation. The more the workers in the firms are motivated to engage in protocols of health and safety management, the more enhanced their health and safety performance is likely to be and prevent work hindrances due to frequent accidents (Reese, 2018). All of these factors combined bring the topic to the motivation of operatives in construction SMEs, and the factors that affect their health and safety in the workplace. The background of the study is further explained in below sections under the name of the Construction Industry and Health and Safety, Challenges of Health and Safety at Construction SMEs and Motivation in Health and Safety.

1.2.1 The Construction Industry and Health and Safety

The construction sector is constantly deemed as a highly risky industry in the United Kingdom (UK), as well as worldwide, because of recorded and unrecorded injuries, accidents, and deaths at the worksites (HSE, 2020). Serious difficulties are present in the construction industry, due to it being exposed to a risky environment of operation. The culture of the industry is based on fragmentation and multiplicity of operations, while it also contributes towards unfamiliar hazards, unsafe behaviours, and often substandard health and safety policies (Nejati, 2013). In accordance with the official records of the government, there are about 3.1 million people working in the UK

construction industry, representing 9% of the workforce (GOV.UK, 2019). In 2018, the number of small and medium sized firms and businesses in the UK construction industry rose by around 32,000 firms, increasing the total number of SME's operating in the construction sector to over 1 million (Blundell, 2018). Despite being a key stakeholder in the industry, small organisations in the industry show poor performance related to health and safety.

Around 1.6 deaths per 100,000 construction operatives occur within the UK itself, on a yearly basis (Arewa, 2014). Over the past five years, this rate has grown by nearly 10%, indicating that the construction industry is increasingly becoming unsafe for employees. It may also be due to the steady increase in the number of SMEs in the sector, most of which do not give particular attention to health and safety standards. The mortality rate associated with the construction industry is four times greater as compared to other large sectors, which also shows that workers face high risks at construction worksites (Mcfarlane, 2022). In 2019, around a total of 147 employees met the end of their lives in the UK due to accidents at the worksites (HSE, 2019). Around 25% of workplace injuries occur in the nation's construction industry (HSE, 2020). The construction workers' health and safety have improved over the previous century, yet more progress still needs to be made. No significant improvements are being made related to this issue, while the construction sector remains the most dangerous among all large industries, with over 40 fatalities every year, resulting in a financial burden of £1.1 billion (Garside, 2022). In addition, more than 78,000 people suffered from work-related injuries in the UK's construction sector. It can be shown in the figure below.

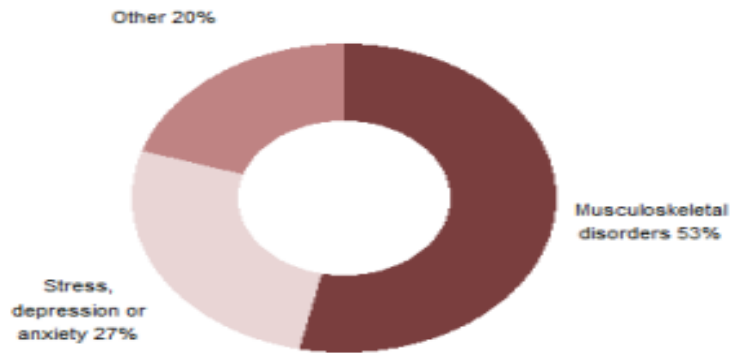


Figure 1: Worksite injuries in the UK's construction sector (HSE, 2022b)

The rate of deadly injuries in the country's construction industry can be seen below.

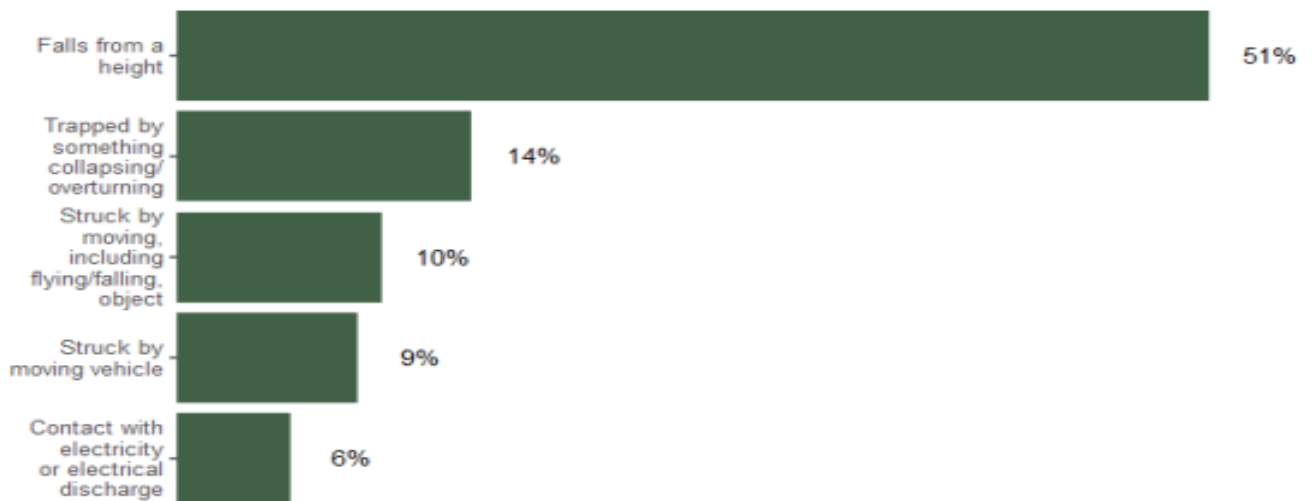


Figure 2: Fatal Injuries (HSE, 2022b)

One of the main considerations for construction firms is to achieve high standards of health and safety at the workplace. Over the past few years, the legal system has seen substantial changes related to the H&S of construction workers. However, Despite the

fact that many factors, including legal, physical, and personal ones, have been mitigated by new workplace requirements, but the health and safety standards in construction SME's remain the lowest, and still workers in construction SMEs are facing challenges regarding their health and safety in the workplace.

1.2.2 Challenges of Health and Safety at Construction SMEs

Improving health and safety remains a complicated issue, involving a wide range of factors, including personal, physical, and legal issues. Across the country, Construction SMEs operate at a scope of 99%, which provide around 60% rate of employment within the private sector in its entirety (BPE Statistics, 2018). Evidence indicates that a wide range of SMEs understand the likely advantages of having high standards of H&S at the worksite (Vicker *et al*, 2005). On the contrary, these construction companies are highly questionable when it comes to focusing and endeavouring to achieve better H&S management of their workforce, even if they are aware of the facts. SMEs have a reputation of not following all health and safety guidelines (Cunningham and Sinclair, 2015). A focused approach remains lacking in such cases, resulting in little to no progress (Walters and James, 2009). Evidence indicates that a wide range of construction SMEs recognise the potential advantages of having good standards of health and safety at the worksite (Rainnie, 2016). On the contrary, construction SMEs are highly unlikely to focus and endeavour to achieve better health and safety supervision of their staff, even if they are aware of the facts. A focused approach remains lacking in such cases, resulting in little to no progress (Walters and James, 2009). The prospects of health and safety in construction SMEs are not always of the highest standards. Construction SMEs often have limited financial and human

resources. For instance, there are no professional health and safety advisors or trainers at construction SMEs. The working conditions are also poor, the firms are not financially secure and have limited resources and information to implement health and safety protocols at the workplace. Some of the most important yet lacking features consist of workplace risk assessments, training, site audits and inspections (Çalışkan, 2014). With low revenues, it becomes extremely difficult for the management to create and implement strategies for the mitigation of health and safety-related risks. Alarcón et al. (2016) state that when adequate prevention strategies are implemented at the workplace, the rate of on-site accidents drops significantly. In other words, prevention practices are directly proportional to the reduction in accidents (Alarcón et al., 2016). Hence, whatever the size of the firm, it is important to implement safety protocols.

Despite organisational efforts to implement health and safety procedures and protocols, there are numerous hindrances and difficulties that slow progress. Some obstacles to the implementation of safety cultures consist of overconfidence, lack of awareness, peer pressure, mental health issues, stress, lack of understanding, ignorance regarding safety protocols, short cuts, unscheduled work, excessively working overtime, inadequacy of the workforce, along with a range of other issues (Biggs et al., 2013). The resolution of these core problems is the first step before implementing a relevant set of procedures for protecting and maintaining the wellbeing of construction workers. Once these issues are effectively resolved, the motivation level of the construction workers can be enhanced as well. With high motivational levels, the health and safety participation of the workers can be improved too.

Moreover, construction workers are often more prone to psychological disorders and stress, as compared to those working outside of the industry. According to Tiwary et al. (2013), individuals working in the industry of construction often suffer from psychosocial stress. Some of the main causes of this stress consist of occupational health hazards, long working hours, low wages, lack of job security, poor communication between the management and among colleagues, exploitation by the employer, gender discrimination, and even sexual harassment (Tiwary et al., 2013). This stress acts as the single most troublesome barrier towards the implementation of a safety culture. It is because these issues have a direct impact on the motivation level of workers and safety culture in the organisation. A low level of motivation discourages active participation in health and safety protocols.

There is a multitude of steps that need to be taken while planning on implementing a safety culture within a construction organisation. Yiu et al. (2018) state that high levels of commitment from the senior management, adequate manpower, sufficient financial allocation, along with a highly competent safety manager must be present for the successful implementation of a safety culture within a construction firm. The authors also state that reduced rates and costs of accidents, as well as an improved infrastructure and safety audit ratings are some of the core benefits of implementing such a system. This system is essential in enhancing the health and safety motivation of construction workers. An efficient system enhances the prospects of worker motivation and participation in health and safety procedures. There are several techniques that can be used to improve the health and safety outcomes of construction operatives. In this case, motivation can be used as tool for improving the operative's health and safety behaviours and outcomes in construction SMEs.

1.2.3 Motivation in Health and Safety

The term "motivation" refers to "the set of psychological processes that lead to the direction, initiation and persistence of behaviour". Motivation encourages engagement between workers during any strategy or process (Brody, 2013). It is an important part of the workplace. The importance of motivation arises from the fact that helps in increasing employee overall efficiency and behaviours as they work towards a certain goal and for workplace H&S performance. Employee behavior towards workplace safety has received a considerable lot of attention in both the academic and practitioner sectors. One example of this interest is the popularity of behavioral-based safety programs (Bentoy *et al.*, 2022). Marques *et al.* (2007) adds that for today's industries, employee motivation is a critical aspect that needs to be considered as it is the driving force behind human behaviours and activities at the workplace. By encouraging the employees to participate in safety protocols, and adapt them sufficiently, many accidents and injuries can be prevented.

Employee motivation is a critical aspect in deciding how they behave. Both safety compliance and participation behaviors contribute to a safe workplace; nevertheless, both forms of safety behaviors are dependent on employees being motivated to conduct these sorts of behaviors. Ali and Anwar, (2021) stated that the overall motivation level of a workforce is affected by a cumulative influence of different types of motivational factors (i-e hygiene and motivation). Early research on employee motivation was built on these two viewpoints on human nature that Bassett & Lloyd (2005) present. Focus is placed on Taylorism in the first viewpoint, which held that these types of employees could only be motivated by external stimulation because they were essentially lazy and

work-shy. The second perspective was founded on the Hawthorn findings, which backed the idea that workers are motivated to perform well for "its own sake" in addition to the social and financial benefits. This type of motivation, in this school's view, was internally motivated. Furthermore, Maslow (1954), Herzberg, Vroom (1964), Alderfer (1972), McClelland (1961), and Locke et al. (1981) expanded on research that Basset-Jones and Lloyd suggest can be divided into two types of motivation theories: content and process. Furthermore, Herzberg et al. (1959) proposed content theories, which propose a complex interaction of internal and external factors and investigate how humans respond to various external and internal stimuli. Meanwhile, process theories, such as Vroom's (1964), address how internal causes influence behaviour. It is the reason that an individual has for carrying out any set of actions and causes behind their behaviour as well. A highly motivated individual is likely to perform well at their job, as well as in their personal life (Peters, 2015). Motivation works together with safety in the field of construction, in the form of safety motivation.

Safety motivation consists of the willingness of an individual to engage in protocols of safety (Zaira and Hadikusumo, 2017). It is also related to valuing safety behaviours. Protocols such as safety training to raise awareness regarding occupational hazards are involved in enhancing the safety motivation of workers (Sawhney and Cigularov, 2018). According to this definition, there is a correlation between safety motivation and safe behaviour—the higher the motivation for safety, the more likely it is that semi-skilled operatives in construction SMEs will follow safe behaviour guidelines.

Therefore, in order to create a safe workplace, safety motivation is important and essential. In the literature, research studies support the importance of safety motivation in enhancing safety practices and lowering the incidence of occupational accidents and injuries. Significantly positive connections have been documented between employee safety motivation and safety behaviors (Vnodkumar and Bhasi, 2010). Heinrich (1931) stated that, since the early 1930s, motivating workers to work appropriately and safely has been acknowledged as a key aspect in stopping and reducing workplace safety issues and injuries. It is the reason that an individual has for carrying out any set of actions and causes behind their behaviour as well. A highly motivated individual is likely to perform well at their job, as well as in their personal life (Peters, 2015). In addition, Kazak *et al.*, (2008) contends that to improve employee health and safety at work, companies should take into account the motivational interventions. Training initiatives, safe working conditions and H&S management interventions are all potential interventions for improving workplace safety (Wirth and Sigurdsson, 2008).

Moreover, self-determination theory is one of the few motivation theories that focuses on the reasons that inspire individuals and explains various different types of motivation (Deci & Ryan, 1985). When attempting to understand and predict human behavior, self-determination theory differs from other human motivation theories in that it implies that the type or quality of motivation is equally as essential as the amount or quantity of motivation (Deci & Ryan, 1985). As a result, self-determination theory provides a suitable theoretical framework to guide this research, which aims to investigate whether distinct types of employee safety motivation exist and how these types of safety motivation influence employees' safety behaviors.

Despite the importance of safety motivation and motivational theories in determining which safety behaviours individuals engage in, little attention has been paid to the reasons why an employee is driven to behave safely. In addition, numerous studies have supported the link between motivation and workplace injuries. Therefore, the goals of this research program were to see if there are empirically distinct concepts that represent different reasons, or types, of motivational factors for working safely, and if the different types of safety motivation were all equally related to employee safety compliance and participation behaviors.

The present study focuses on a gap in knowledge. There is limited and rare literature present related to motivational factors in relation with the health and safety of construction operatives in SMEs. Diugwu's (2008) indicates that SMEs depict a lack of sufficient compliance with health and safety rules, regulations and policies. They also have a higher rate of accidents and fatalities at the workplace when compared to larger firms. Mashwana *et al.*, (2019) adds that SMEs face a high number of accidents and fatalities due to a lack of commitment from the management, poor working conditions, relevant policies and performance appraisals. It is evident that future research is necessary to discover how the health and safety motivation of construction operatives at construction SMEs can be improved. In addition, Soltanifar (2022) state, the key to the worker and organisation health and safety performance is to keep the workforce externally and internally motivated. Olusadum and Anulika, (2018) stated that the key to company H&S efficiency is to make the workforce encouraged or motivated. Herzberg (1959) came to a conclusion which indicates that an efficient leader considers workforce motivation. Numerous studies have established a link between motivation and workplace injuries. While there has been a lot of research on

health and safety performance, it appears that little research has been done on the motivational factors that affect the health and safety performance of employees in construction SMEs. Extensive evidence confirms the link between worker motivation and worksite injuries. In order to enhance the safety profile of companies and motivational strategies for enhancing safety behaviours of the workforce, it is essential to understand what motivates employees (Friend and Kohn, 2018). This represents a key challenge for organisations to ensure that their workforce operates in a safe manner even in complicated situations where the risk of physical injuries is greater.

A wide variety of literature indicates that the construction operatives suffer from high intensities of motivational factors in the context of the physical workplace (Osabiya, 2015). On the other hand, little evidence is present that investigates the psychological factors and how they affect the health and safety of construction operatives at SMEs. Additionally, existing evidence is mostly related to large firms. According to Herzberg's Theory, for employees to feel a sense of satisfaction, the motivational factors associated with their job must be fulfilled. These factors include may include the personal goals, workloads, training and development and the workplace environment of the employees (Gayani *et al.*, 2014; Bluff, 2019). In order to improve the safety performance of firms and motivational strategies for enhancing safety behaviours of the workforce, it is essential to understand what motivates the employees (Boakye et al., 2023). It is a key challenge for organisations to ensure that their workforce operates in a safe manner even in complicated situations where the risk of physical injuries is greater.

Based on the background established so far, it is in furtherance of the agenda that this study seeks to answer the research question, “*what are the motivational factors affecting the health and safety of semi-skilled operatives at construction SMEs of Birmingham UK?*”. In order to achieve a broad background of the research subject, a literature review was conducted. This review included looking for articles and research papers related to the motivation of semi-skilled operatives at construction SMEs in the UK, and their impact on operative’s health and safety outcome.

1.3 PROBLEM STATEMENT

The research background above shows that construction SMEs face a variety of challenges when it comes to managing their health and safety performance. Health and safety are major concerns in all industries. However, the construction SMEs are more suited for consideration because construction SMEs have a history of a substantial number of serious injuries, even fatalities, due to a lack of competent health and safety management. Health and Safety management is a critical concern for all businesses and industries, as was previously stated by Hughes and Ferrett (2012). It is critical to understand their level of commitment to their employees' health and safety and to make recommendations that will help resolve the issue by lowering the rate of worksite accidents. A wide variety of literature exists that discusses preventive strategies. The findings of many research papers indicate that an inverse relationship exists between the size of the firm and worksite accidents. It is also evident that most studies only target large construction firms and their practice (Arewa, 2014), despite of evidence suggesting that large organisations employ best practices regarding the health and safety of their workers. On the contrary, limited research is present related to

construction SMEs, which reduces the understanding of how they implement a safety culture.

In addition, Alshmemri *et al.*, (2017) stated that according to Herzberg (2008), the motivation of construction operatives is an indicator and a key characteristic of them working safely at the worksite. Moreover, Kazak *et al.*, (2008) argue that in order to improve the workers' health and safety, companies must consider interventions of motivation. These interventions can be related to training and development, improving the working conditions, health and safety management strategies, as well as the adoption of appropriate management commitment and externally motivating the workers to improve workplace safety (Wirth and Sigurdsson, 2008). Other authors also suggest that if the workers change their behaviours, health and safety objectives can be achieved at the workplace. They also indicate that motivation of the employees is a crucial factor that assists in changing their behaviour and creating a safer and healthier workplace environment (Reese, 2018).

The construction workers' motivation levels, along with their health, safety, and wellbeing are some of the most important factors that impact their performance and efficiency. A highly motivated workforce whose health and safety needs are fulfilled is likely to perform well, and in the favour of their organisation (Mohammadi *et al.*, 2018). The health and safety protocol's effectiveness are determined by the commitment of the management, as well as the participation level of the workers. The more motivated the workers are to participate in health and safety protocols, the better the productivity of the firm will be, as the workers will be able to achieve strategic objectives. SMEs

have a reputation of not following all health and safety guidelines (Cunningham and Sinclair, 2015).

SMEs' lack of knowledge about health and safety risks is linked to poor standards, outcomes, and performance (Champoux and Brun, 2003). On the other hand, According to Gopang et al. (2017), there is no empirical evidence that SMEs implement a management system aimed at meeting health and safety requirements. Several studies confirm the connection between worksite accidents and motivational factors. Despite thorough research on health and safety performance, the impact of motivational factors in the case of construction SMEs has not been studied as comprehensively. The present study contributes towards extending the small body of knowledge that is related to specific literature on how motivational factors impact the health and safety outcomes of semi-skilled construction operatives at construction SMEs.

1.4 RESEARCH AIM AND OBJECTIVES

The aim of the research is to investigate the motivation of semi-skilled operatives in construction SMEs towards improving their health and safety outcomes. It is hoped this will improve the engagement of Construction SMEs in the development of appropriate safety activities.

The following six objectives are set out to assist in achieving the research aim:

- To critically review and examine the literature on workplace motivational theory towards developing an insight into the various motivational models.

- To critically review and examine the literature on factors affecting the health and safety of semi-skilled construction operatives in construction SMEs.
- To develop a conceptual framework of motivational factors that impact semi-skilled operative's health and safety at construction SMEs.
- To ascertain the impact and relationship of motivational factors on semi-skilled operatives health and safety in construction SMEs.
- To modify the framework using primary evidence to reflect the relationship between motivation and semi-skilled operatives health and safety.
- To draw conclusions on the motivation of semi-skilled operatives in construction SMEs towards health and safety and make recommendations on how this can be used to improve the engagement of construction SMEs towards improving their health and safety performance.

1.5 SCOPE OF THE STUDY

Studies have shown that motivational factors influence the health and safety of workers. A wide range of studies have already been conducted related to the health and safety and motivation within the construction industry. Evidence is also present that connects the concept of motivation with the health and safety of the workers. However, most of these studies are directed towards large construction firms and are not specific to the construction SMEs, it appears that little research has been done on the motivational factors that affect the health and safety performance of semi-skilled operatives in construction SMEs. This study will act as a steppingstone for future researches makes a contribution in a field where the specific literature on motivational factors and the

health and safety of construction workers is scarce and limited, especially in SMEs (Barg et al., 2014). According to Diugwu's (2008) study, SMEs exhibit poor adherence to health and safety regulations and have more fatalities and accidents than larger businesses. According to Lin & Mills (2001), due to the high costs and resource constraints, small contractor firms lack the capacity to implement sophisticated systems. In addition, these smaller contractors frequently serve as subcontractors for larger ones and are incorporated into their H&S management systems (Awwad et al. 2016).

This study investigates the motivation of semi-skilled operatives in construction SMEs towards improving their health and safety outcomes. It is hoped this will improve the engagement of Construction SMEs in the development of appropriate safety activities. Extensive evidence in the literature confirms the link between worker motivation and worksite injuries. On the contrary, despite of sufficient studies having been conducted on the health and safety performance of construction firms, the health and safety and motivation of semi-skilled construction operatives at construction SMEs is yet to be researched. Therefore, this study intends to take a deeper look into how motivational factors affect the health and safety of semi-skilled operatives at construction SMEs of UK. The gap in literature will be filled with this study, a framework model will be established for analysing the motivational factors that influence semi-skilled operative's health and safety in construction SMEs. The framework model will give us a foundation for understanding how to motivate semi-skilled operatives to act safely, and it will help construction SMEs perform better in terms of health and safety and motivation of their workers.

The Birmingham UK construction SMEs are the primary subject of this study. The construction SMEs of the United Kingdom is of high importance, as it is of substantial value. Furthermore, risk management in construction industries is extremely important too, as it reduces work-related hazards, accidents, and mortalities (Rostami et al., 2015). Because the size of the construction industry is increasing in the UK. SMEs are entering the sector at a rapid pace. As discussed earlier, SMEs do not have high standards of health and safety policies in the workplace. Due to their steadily rising number, more people are being employed at UK SMEs. As the construction SMEs possesses a wide range of various organisations that provide significant employment to the nation. Due to the vast size of the industry, a wide range of people including skilled, unskilled, as well as semi-skilled employees are employed in different firms.

Additionally, semi-skilled operatives have been selected as the focus due to their possible inadequacies in terms of knowledge and their vulnerability to the risks involved. Lastly, the rationale for selecting construction SMEs is due to their limited number and range of resources, which restrict the establishment and implementation of sufficient practices related to the H&S of the workforce. This research aims to provide useful insights into the subject area and assist in the improvement of H&S performance for semi-skilled operatives working in construction SMEs in the UK. The theoretical framework developed can also be used as the basis upon which future studies can be conducted. A notable relationship between the factors of motivation and health and safety behaviours, along with SMEs and the construction industry will be formed through this study.

The above-mentioned research gaps show that it is critical to comprehend motivational factors and interventions to enhance semi-skilled workers' health and safety outcomes at construction SMEs. Therefore, it is justified to address the motivation factors associated with the health and safety of semi-skilled operatives at construction SMEs.

1.6 RESEARCH DESIGN

Chapter 5 explains the entire research design. In summary, a qualitative research method was adopted to achieve the research aim and objectives. From the research question, it is evident that the research subject is more subjective, individual, and contextual because this study aim is to deal with the role of human perspective, workplace experiences, and motivational factors impact on workers' health and safety in their workplace. When a researcher is interested in "the immediate response to a new innovation" for example, motivational factors and their impact on health and safety of workers in the workplace, they may be forced to use subjective data, which will entail "what", "why" and "how" questions that require a thorough understanding. "Because it is improbable that objective data would have been gathered in-depth and at the appropriate times or instances. According to Crabtree and Miller (2022), qualitative approaches are particularly effective at answering the "what," "why," and "how" research questions. It was stated by O'donoghue (2006) that qualitative study is rooted in interpretivism which is the adopted research paradigm for this study. Within the overall Positivist framework, an element of qualitative inquiry was taken to take a deeper look into how motivational factors affect the health and safety of semi-skilled operatives at construction SMEs of UK. This resulted in an overall qualitative research

method design. Antikainen et al. (2010) stated that to discover motivational factors, processes and forces at work, qualitative approaches are more beneficial than quantitative techniques because Hoepfl (1997) stated that qualitative methods collect more empirical evidence with enhanced knowledge in answering research questions involving what, why and how questions, that can be hard to convey quantitatively. In addition, Chapter 5 explains the entire research design with explanation and justification.

1.7 STRUCTURE OF THE THESIS

This paper is separated into eight main parts. The following structure is followed throughout the entire paper. The next chapter 2 evaluates present evidence regarding H&S at SMEs in the construction sector.

Chapter 1: Introduction

This chapter presents an introduction to the research. The gap in knowledge, current literature, and scope of the study have been presented in the chapter. Research aims and objectives have also been presented in the first chapter. The justification of this study has also been presented.

Chapter 2: Literature Review on H&S in Construction SMEs

The second chapter presents a detailed appraisal of the current literature related to H&S and SME's in the construction sector. The intention here is to highlight the key factors affecting H&S profile and outcomes in these firms.

Chapter 3: Literature Review on Motivation

The third chapter focuses on current literature catering to the topic of motivation. Several theories of motivation, along with the H&S motivation of construction workforces are discussed in the chapter.

Chapter 4: Conceptual Framework

The fourth chapter covers the conceptual framework, which has been synthesised drawing on the findings from the literature reviewed in chapters 2 and 3.

Chapter 5: Research Methodology

The research design and methodology are discussed in the fifth chapter. The philosophy, paradigm, approach, strategy, and other methods used in the collection and evaluation of the collected evidence are discussed in this part.

Chapter 6: Findings

The findings of the study are discussed in the sixth chapter. It summarises the results of the interviews, research process and established a foundation to build the conclusion.

Chapter 7: Discussion

The seventh chapter focuses on a comprehensive discussion regarding the findings of the study. The results are taken into account and are compared and contrasted with that of other studies on similar subjects.

Chapter 8: Conclusion and Recommendations

The last chapter of the dissertation revolves around determining a conclusion related to the outcomes of research. It also includes the implications of the findings, future directions, as well as recommendations related to the topic of the thesis.

CHAPTER 2: HEALTH AND SAFETY AT CONSTRUCTION SMEs

2.0 INTRODUCTION

This chapter reviews the H&S at SMEs in the construction industry. The present chapter begins with a general overview of construction H&S, overview of these firms, H&S across the firms and overview of H&S management system in the selected type of organisations. The general discussion is followed by specific discussions regarding Construction SMEs, and the issues that semi-skilled operatives face in the context of H&S.

2.1 OVERVIEW OF HEALTH AND SAFETY

Health and safety are critical components of the construction sector. It is related to the safety of the workers during their duty hours, while they are fulfilling their responsibilities. The construction industry has undergone extensive growth on an international level, specifically in the last few decades. Despite this growth, the industry still faces a wide range of issues, such as the safety problems related to skilled and unskilled labour. Despite of legal obligations of firms regarding labour safety, accidents and deaths still occur at the workplace (Kanchana *et al.*, 2015).

Health and safety practices within the construction industry allow organisations to be successfully operational within the sector. Lingard (2013) states that one of the most important observations is that the health and safety regulations at construction SMEs

are not as high in terms of standard, as those of larger-sized firms are. By enhancing the safety of the workers, their motivation levels can be improved, which in turn result in better outcomes in terms of employee productivity and firm performance (Lingard, 2013).

In order to address health and safety of any firms within the construction industry, a set of key parameters must first be set. These parameters can then be used to assess the H&S practices of the construction companies. For instance, the motivation level of workers, the rates of fatality and accidents, or the productivity of the organisation itself can be used as parameters of measurement. Sinelnikov *et al.* (2015) state that commitment and subject knowledge of senior personnel are two of the most important aspects in enhancing health and safety.

Duryan *et al.*, (2020), state that the construction industry is not only open to highly educated and thoroughly trained individuals. Instead, the sector is open to all types of people who can perform basic labour. It implies that unskilled and low-skilled individuals also work as construction labour. These workers are paid low wages, are often not provided working contracts, are overworked, and given no trainings or considerations regarding health and safety. The authors state that migration security must be improved, so that workers can be protected instead of exploited in the construction industry.

In accordance with Alkilani *et al.*, (2013), the sector of construction is known to have the highest level of health and safety impacts on its workers. It is the legal responsibility

of construction firms to establish health and safety approaches, and train personnel to protect their wellbeing. The results suggest that governmental commitment, regulations, policies, and legal constraints all play an essential role in enhancing H&S practices across organisations in the construction sector. The weaker the aforementioned elements are, the weaker the health and safety practices will be (Alkilani *et al.*, 2013).

2.2 HEALTH AND SAFETY IN CONSTRUCTION SMES

HSE (2020) states that nearly a quarter of worksite injuries in the UK occur in the sector of construction. Furthermore, nearly thirty million workdays were lost in 2018 due to worksite injuries. HSE (2018) adds that 144 employees lost their lives at their worksite in the UK during 2017 and 2018, which was a rise of 9% compared to last year. The highest statistics of injuries, accidents and mortalities occur within this sector (HSE, 2020). The findings reveal that there is a consistent necessity of H&S obligations and regulations within the industry.

The UK's economy is significantly affected by Construction SMEs (BPE Statistics, 2019). Evidence indicates that a million businesses are involved in construction, with 99% of them being SMEs (Jo, 2023). Nearly 43% of firms work with one operative, and 50% have nine or fewer workers (Statista, 2019). According to BPE (2022), 16.4 million people (or 61% of the total workforce) were employed by SMEs, and more than £2.1 trillion in turnover to the UK economy. In addition, 12.9 million people were employed by small businesses (48%) with a £1.4 trillion (34%) revenue and with 3.5 million employees and £0.7 trillion in revenue, medium-sized businesses employed

13% of the workforce (BPE Statistics, 2022). Mainer Associates (2023) added that there are more than 300,000 construction SMEs, 2.7 million people were employed by construction SMEs with a 117 billion per annum (9%) of the UK's GDP.

In addition, according to Benassi, *et al.* (2020), the skillsets, infrastructure, training, finances, resources, supervision, management, and employment capabilities of SMEs significantly differ from those of larger construction firms. Due to this difference, Construction SMEs have a wider range of barriers in comparison. As a result, such businesses are often oblivious to their legal requirements (Belayutham and Ibrahim, 2019). Vickers *et al.* (2003) discovered that many small and medium companies are not aware of the legal H&S obligations relevant to their industry. Due to ambiguities in awareness, it is a rather complicated process to develop and implement health and safety policies. Lingard and Rowlinson, (2004) adds that Construction SMEs usually lack administration and policies, along with training, resources, and motivation. The chances of failure are greater in small and medium construction firms than larger ones.

The commitment of Construction SMEs in the industry towards the H&S of their workforce is a matter of concern. Evidence shows that small and medium construction organisations have higher risk levels in terms of their workplace environments. The risks consist of injuries, illnesses, and poor health implications (Legg *et al.*, 2015; Alfadil *et al.*, 2022). Pablo *et al.* (2017) state that SME's account for over 80% of non-fatal and fatal injuries in the construction industry in the UK and account for 90% of the supply chain. To date, all convictions for corporate manslaughter have been linked to SMEs because of shortcomings in how their actions are managed. Such firms are

often not dedicated or even committed towards their workforce's health and safety. Due to their legal obligations, they may have to comply by some laws or regulations (HSE, 2018). But according to Shankar *et al.*, (2022), most SMEs are not fully aware of their legal duties and have poor information of worksite-associated risks. The health and safety of such firms' workforce deteriorates as a result. Mintah *et al.*, (2022) adds that the administrators or owners of SMEs perform the duties of safety supervisors themselves and depict inefficient and ineffective practice due to lack of proper training. Belman *et al.*, (2021) add that SMEs in the construction sector possess high statistics of incidents and injuries and have a poor health and safety prospect for the workers.

2.3 OVERVIEW OF SMES IN THE UK

The United Kingdom hosts multiple excellent industries for businesses of all sizes. According to a report published by the government of the UK (2021), there are about 5.7 million SMEs operating within the nation. There is no concrete definition of small and medium-sized enterprise (SME), as there are notable disputes in literature regarding a universal explanation of such firms. Some authors have identified SMEs through their capital assets. The definition of a small and medium-sized enterprise is a major concern in the literature. Some have attempted to define SME's using capital assets, labour's skill levels, turnover rates, legal statuses, or the technique of production. In addition, According to BPE (2018), The 5.7 million companies in the UK, or more than 99 percent of them, are classified as small or medium-sized enterprises (SMEs), or companies with fewer than 249 employees. However, a standard definition remains absent. Defining an SME is given below in the table.

Turnover	Workers	Company Size
€50 million or less	250 or less	Medium
€10 million or less	50 or less	Small
€2 million or less	10 or less	Micro

Table: Definition of SMEs (Gov UK, 2021)

Furthermore, 99.2% of the business population of the UK is occupied by SMEs, which shows that the nation itself is a splendid opportunity for growth of businesses of all kinds. There are more than half a million SMEs in the UK, from which more than 20% are construction SMEs. Most of the construction SMEs are in London which has more than 53000 construction-based SMEs. (Sketchley, 2019). In addition, the construction industry employs nearly a fifth of all SMEs. Overall, SMEs employ 60% of the workforce, or 16.3 million people, and generate 52% of total revenue, totalling £2 trillion (RICS (2019)).

These stark differences also contribute to the fact that the nation is supportive of growth for small firms. Figure 3 shows these statistics in detail. This data comes directly from the government of the UK; hence it is highly reliable.

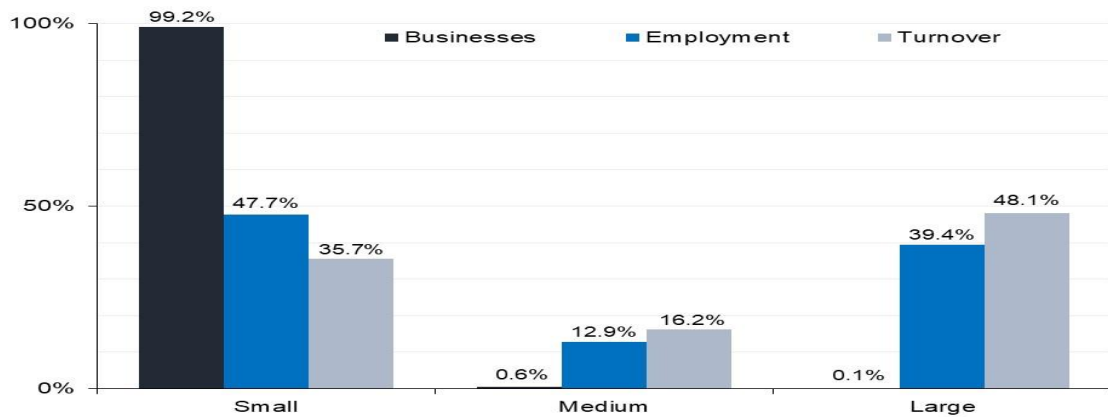


Figure 3: Proportion of different sized firms to the total population, employment rates, and turnover (Gov UK, 2021)

According to FSB (2022), at the start of the year 2021, there were around 5.5 million SMEs in the nation. But due to several economic impacts, such as Brexit and the COVID-19 pandemic, the business population decreased in the UK. When compared statistics from the previous year, the business population saw a decrease of 6.5%, meaning that 389,600 businesses had to close down due to uncertain financial situations. It must be noted that these statistics are regarding the private sector of the business industry, as they face major troubles during economic crises (FSB, 2022). This source established an outline of small businesses conditions in the target country.

According to FMB (2022), small and medium-sized construction firms make up around 99% of organisations in the UK's building sector. Due to their high number and operations, these small construction firms play a crucial role in impacting the employment, economy, and training of people in the nation. Most importantly, the construction industry contributes nearly 9% to the GDP of the country, and per annum its worth is £117 billion. Furthermore, the industry has 2.7 million people employed, and around 300,000 organisations are linked to this industry (FMB, 2022). This source

provides adequate and credible information regarding the UK's construction firm's health and safety, which can be used in the research.

Despite the large number of SME businesses and their significant contribution to the construction sector, Boniface (2016) state that research on the workers' health and safety in construction SMEs is extremely rare. Moreover, according to Brammer *et al.* (2012) When compared to larger corporations, SMEs in the sector frequently face a broader range of hindrances and barriers. They also have different structures of finances, training, infrastructure, staffing, management, and supervision. According to one study, various small and medium-sized businesses have little knowledge and awareness of the specific H&S laws and regulations that apply to their industry (Vickers *et al.*, 2003). Furthermore, numerous differences exist in the health and safety structures and processes of small and medium construction firms in comparison with larger ones. Construction SMEs do not have sufficient resources to even create a safety management system, while larger firms have adequate resources that they use for safekeeping the wellbeing of their workforce. Small and medium businesses often do not have sufficient knowledge regarding health and safety systems, but larger firms have expert personnel who are responsible for carrying out relevant tasks (Cunningham *et al.*, 2018). Perceptions of safety cultures at small and large construction firms vary as well. At small firms, the health and safety of operatives is not taken as seriously as needed, while at larger firms it is a subject of utmost concern (Biggs *et al.*, 2013). Small firms often do not even know their legal obligations, but large firms need to comply by them due to their noteworthy position in the industry. It has been noticed that companies in the construction sector show the highest statistics of incidents as compared to all

other sectors, along with the highest rate mortalities and injuries (HSE, 2020). Hence, H&S management remains a significant issue within the industry.

2.4 FACTORS IMPACTING HEALTH AND SAFETY

There are several factors associated with the implementation of H&S systems at small and medium sized companies in the construction sector. One of the most important barriers in the implementation of such a system is the lack of sufficient financial resources. SMEs often do not possess adequate finances to create and implement an appropriate system of safety regulations (Unnikrishnan *et al.*, 2015). On the contrary, the skillsets and training of the managerial figures at small and medium construction firms are often inefficient. The managers are usually unaware of what actions need to be taken in the context of implementing a safety management system and show incompetence in the field (Buicaa & Antonova, 2017). The workforce's lack of training may also act as a barrier in the implementation of such a system. Moreover, psychological stress related issues, ergonomics and health and safety regulations are the potential issues across organisations in the construction industry. Some variables are reviewed as follows.

2.4.1 Psychological Issues

Occupational psychology studies psychology of people at work and how individual and group of individuals behave at work. It has an important contribution in the success of a firm as it helps in the provision of job satisfaction, performance, and motivation of the workers. Occupational health and safety of the workers is also covered in this field. Occupational psychology of construction workers must be focused upon by the

management and considered as a true part of health and safety. Excessive stress at the workplace negatively impacts the well-being of the workers, in turn impacting their safety performance. Sunindijo and Kamardeen (2017) state that numerous gains are being missed out on by the construction industry, by not focusing on enhancing the mental health of its workers. Poor psychological health is observed among construction workers due to excessive work stress. It was found that the topmost stressors at work for both male and female employees consist of time pressure, long shifts, excessive workload, and unpleasant organisational environment (Sunindijo and Kamardeen, 2017).

Dodanwala and Santoso (2021) have looked into job stress as a mediator in the connection of turnover intention and job satisfaction of workers in the construction sector. The study shows that job stress, indeed, has a mediating role. In addition, supervision and job security also affect stress levels, which have direct impacts on turnover intention of construction workers. A secure job notably reduces levels of stress, eventually weakening turnover intentions. In addition, the study also shows that the demographic details of the construction workers, such as their age and gender, play significant roles in the relationship as well (Dodanwala and Santoso, 2021).

According to Shen *et al.* (2015), the nature of construction projects and related components increase the risk of physical and psychological stress in the workers. By assuming that construction projects work on the same principles as social processes, they developed a conceptual framework for enhancing psychological safety climate at

construction firms, consisting of perceptual, structural, cultural, and interactive perspectives (Shen *et al.*, 2015).

De Silva *et al.* (2017) found that there are several variables that cause stress for the construction workers. These factors have an even wider range of negative impacts on the H&S of the workforce. In addition, the authors have proposed strategies to prevent occupational stress primarily, secondarily, and tertiarily. The outcomes imply that the impact of occupational stress on construction workers, which may cause poor performance, can be managed by controlling the factors causing the negative stress (De Silva *et al.*, 2017).

The psychological work environment that construction workers are surrounded by affects their mental health and occupational safety. In accordance with Boschman *et al.* (2013), the occurrence of complaints regarding mental health issues in people working in the construction sector must be considered in the context of their psychosocial environment. It was found that a negative psychosocial environment aggravates the aforementioned issues among construction workers (Boschman *et al.*, 2013b).

2.4.2 Ergonomics

Ergonomics play a significant role in the health and safety of construction workers. Workplace ergonomics is critical for lowering the risk of musculoskeletal injuries, increasing worker safety and comfort, and improving business outcomes (Norman and Wells, 1998). Ergonomics refers to the efficiency level of workers at the workplace, in relation to human factors consisting of principles related to psychological and

physiological functions for the development of a design of products, systems and processes (Golabchi *et al.*, 2018). It is the overall process of arrangements of the workplace, equipment's, machinery, and systems in a manner that the workers are comfortable in using them. Workplace ergonomics regulations, such as the DSE Regulations and the Manual Handling Operations Regulations, require employers to provide ergonomic workstations and train employees on proper posture and lifting techniques (Stranks, 2007).

Thereby it is the overall study of human beings with other systems in place. Ergonomics have a substantial importance in the H&S related to construction workforces. However, traditional construction projects often result in problems in the productivity of workers due to shortcomings related to ergonomics. By implementing the principles of ergonomics on construction sites, the efficiency of the workers, as well as their health and wellbeing can be enhanced (Straker and Mathiassen, 2009). Using principles of ergonomics at construction sites reduces levels of fatigue and enhances their productivity. It must also be mentioned that correct implementation of ergonomics reduces chances of long-term health conditions among the workers. The authors add that the majority of injuries are caused by repetitive work actions and over-exertion of the construction workers (Kulkarni and Devalkar, 2018).

Mojtaba *et al.* (2013) state that the costs of musculoskeletal disorders are increasing and have become the main cause of worker compensations within the construction sector. By not paying attention to the design of processes, systems, and structures, construction workers are put at risk of suffering from musculoskeletal disorders. There

is a wide range of common ergonomic risk factors associated with the construction industry, which should be taken into account, as irreversible and highly harmful impacts can occur for the wellbeing and health of workforces in the construction sector (Mojtaba *et al.*, 2013).

The most common hazards consist of dynamism, uncomfortable positions, vibration, cyclic stress, contact stress, stationary loading, along with risky conditions related to temperature. The ergonomic design of the workplace needs to consider all of these factors, so that the H&S and wellbeing of the workers in the construction sector can be preserved for the long run (Bhatt *et al.*, 2013). On the other hand, construction workers are eager to maintain good wellbeing and health while at work. They also present good ideas and innovative approaches towards improving their workplace. Furthermore, it is extremely important to practice good ergonomics across the industry, so that the construction workers' aging process can become smoother while they remain professional. Participatory ergonomics can be used to enhance good practice (Eaves *et al.*, 2016).

2.4.3 Vulnerable Groups and Women

Vulnerable groups, like women and ethnic minorities likely to suffer a greater range of H&S issues across SME, s in the construction industry (Pamidimukkala, 2020). Bowen *et al.* (2014) state that occupational stress directly impacts the well-being and health of construction workers. More attention needs to be dedicated towards improving aspects of occupational stress among construction workers. It was also found that women face

higher levels of occupational stress as compared to men, and that more research is required in this regard (Bowen *et al.*, 2014).

A method to enhance return-to-work performance could be to convince the employer that the worker possesses vital skills for the organisation. Injured workers have better chances of return-to-work, re-joining original work, and reemployment if they have official certifications (Bae, 2021). But job stress impacts men and women differently, and that intellectual and emotional demands are strongly connected to job stress, which is not the case with men. The authors add that social support weakens job stress (Rivera-Torres *et al.*, 2013).

Manual workers extensively exposed to heat, workers in low- and middle-income nations in tropical areas, construction workers, soldiers, farmers, miners, and manufacturing employees are constantly at high-risk of heat illnesses (Xiang *et al.*, 2014). Furthermore, Chan *et al.* (2016) state that aging workforces and employee shortages in developed nations have resulted in firms hiring ethnic minorities. They are not provided with high standards of occupational safety. It was found that safety training in native languages, promotion of health and safety awareness, and encouraging workers to learn local languages are essential strategies to enhance occupational safety for ethnic minorities (Chan *et al.*, 2016).

2.4.4 Health and Safety Obligations and Regulations

In the United Kingdom, the Health, and Safety Executive (HSE) is a national regulator of employee health and safety that aims to protect people and workplaces in the United

Kingdom (HSE, 2022). The HSE has published health and safety guidelines and regulations for the construction workers, and it is a detailed guidance of how the operatives and management of the construction SMEs can ensure safe work at the construction sites (HSE, 2022). This capitulation comes with the detail of laws that promise implementation of detailed health and safety laws that are more specific to construction sites in the UK. The main portions of legislation and regulations in the UK that control workplace health and safety are the Health and Safety at Work Act of 1974, the Management of Health and Safety at Work Regulations of 1999, and the Construction (Design & Management) Regulations of 2015.

The primary legal framework governing workplace health and safety is the Health and Safety at Work etc. Act of 1974. The HSW Act, the 1974 Act, and HASAWA are some of its other names (CDM, 2015). This implies to all work-related activities. It requires that all employers use responsible health and safety practices. Every employer is required by the Health and Safety at Work Act to take reasonable steps to protect the health, safety, and welfare of employees (CDM, 2015). If either the employer or the employee violates this duty of care, the HSE inspector may file a civil lawsuit or bring a criminal charge. Below are a few of the legal obligations that apply to both employers and employees (CITB, 2015).

(a) Responsibilities of Employers':

- To protect all employees' health, welfare, and safety at work (CDM, 2015).
- To establish risk-free working environment (CDM, 2015).
- Plans to be ensured in the workplace regarding the health and safety of workers when handling, moving, and using the objects (CDM, 2015).

- To give workers training, supervision, and direction they need to safeguard their safety at work (CDM, 2015).
- To create a workplace that is safe, free from health risks, and conducive to the wellbeing of your employees. (CDM, 2015).

(b) Responsibilities of Employees (CDM, 2015):

- Be responsible for their own safety as well as anyone else who might be harmed by their actions. (CDM, 2015).
- Cooperate with their company in all health and safety-related issues (CDM, 2015).
- Not tampering with or abusing anything supplied in the interests of health, safety, or welfare in an irrational or careless manner (CDM, 2015).
- Utilize everything supplied by the employer while following the rules (CDM, 2015).
- Report anything you believe to be hazardous (CDM, 2015).

Furthermore, The Management of Health and Safety at Work Regulations 1999 is the other part of legislation governing workplace health and safety. This law is more about planning, organising, monitoring, and reviewing the work (Hughes and Ferrett, 2011). This law requires that (a) the management should assess the risk lined with work at the construction site for the identification of all control measures, (b) the firms should have complete access to competent health and safety advice, (c) provision of health and safety advice and information along with training for the employees, (d) the firms should have proper arrangements in case of accidents and imminent danger and (e) an increased cooperation should be ensured in case of health and safety matters.

Additionally, an essential set of regulations for overseeing the health, safety, and welfare of all construction projects in Great Britain is known as The Construction (Design and Management) Regulations 2015 (also referred to as CDM). (CITB, 2015). The CDM regulations apply to all building and construction work, including renovations and refurbishments, new construction, demolition, conversions, as well as repair and maintenance work. A project must have the following in order to comply with the 2015 CDM regulations (CDM, 2015); (a) employees with the necessary knowledge, training, experience, and skills; (b) contractors capable of offering suitable direction, guidance, and information and a written construction schedule plan.

All the above regulations marked a significant advancement in workplace health and safety. Due to the widespread belief that accidents and illnesses were a normal part of working, bigger risks were regularly accepted in the past without any care for safety procedures. Health and safety at work have steadily risen to the forefront as greater emphasis has been placed on safety procedures. However, even while statistics published by the Health and Safety Executive indicated a decline in workplace accidents, simply in the years 2015 and 2016 alone, 1.3 million working individuals suffered from issues related to their jobs. (HSE.gov). Despite of these regulations, requirements, most firms fail to fulfil these targets and implementing health and safety regulations and guidelines.

2.5 HEALTH AND SAFETY PRACTICES IN CONSTRUCTION SMES

Most SMEs in the construction sector possess uncomplicated protocols related to the transfer of knowledge and its application, along with onsite communications, risk

assessment, determination of working conditions, employee management and worksite inspections. The H&S practices of many of these firms are similar to one another (Bowen *et al*, 2014). The inspection of worksites, investigation of incidences, along with planning of each task and orientation of the workforce are much less complicated processes at these companies (Ruben and Hinze, 2008).

Nearly all small and medium sized organisations in the industry that adapt the aforementioned practices and principles frequently have an acceptable H&S culture (Ruben and Hinze, 2008). Within these organisations, certain tasks require the usage of safety gear without any doubt, for the purpose of workforce H&S. For instance, if a team is working on a project that does not pose the risk of objects falling from above, wearing a hard helmet would not be a requirement (Ruben and Hinze, 2008). Certain behaviours and practices can be easily linked to how the workforce is trained.

2.6 STEPS TOWARDS HEALTH AND SAFETY IMPROVEMENT

Losing workers to illness or accidents for any period of time, has the potential to result in substantial losses and disruption for the family and the workforce itself. This phenomenon may also negatively influence the reputation of the organisation, along with the turnover intention, motivation, and productivity of the workforce (OSHA, 2018). Thus, the H&S practice of these organisations need to be improved, in order to achieve a better performance. For improvement of safety, some of the potential measures are reviewed below.

2.6.1 Motivation towards Safety Climate

According to Hedlund et al. (2010), safety climate defines the work practises, procedures, and perceptions of policies in the work. According to the Hedlund et al. (2010), argument that the safety climate will impact workers involvement in accidents, there are many variables which noteworthyly influence employee performance and safety climate. These factors are applicable in nearly all industries, as motivational practices and relevant factors are present on a global level. When workers are sufficiently motivated, they are likely to engage more in safety behaviours, perform effectively and safe and keep their wellbeing while at work (Langford *et al.*, 2000). As a result, the firm's safety climate and workers performance are improved.

In addition, Diamantidis and Chatzoglou (2019) further stated about the external factors, they mentioned that the extrinsic factors in the form of the workplace environment, as well as support from the management have the highest effects on the performance of the workforce (Diamantidis and Chatzoglou, 2019). Extrinsic motivation factors that can help include financial incentives, benefits, praise and recognition and peer pressure. Moreover, Intrinsic factors are internal to the employees, which mainly consists of the morale, job satisfaction and psychological attributes of the workforce (Condry and James, 2015). With the help of a greater job satisfaction level within employees, their commitment to their organisation in improved, which in turn helps in improving their performance. The workforce's job satisfaction is greatly affected by extrinsic motivational factors, creating a connection (Dhurup *et al.*, 2016). This relationship is discussed comprehensively in Chapter 3.

2.6.2 Work-related Safety Management

Studies have shown that strong leadership and the safety standard set by the management have a large impact on workplace safety motivation (Basahel, 2021; Hedlund et al., 2010). However, according to literature research, it appears to be challenging for organisation to create positive work environments and safety management system in SMEs (Sorensen *et al.*, 2007), and follow-up and evaluation procedures have been found to be deficient. Because of their limited resources, SMEs. In addition, management studies on safety enhancement are based on how to exploit employees fairly and justifiably. High levels of skill and motivation, good availability of materials, tools, and equipment, and, finally, proper supervision and fair financial reward make workers more productive (Enshassi and Burgess, 1991). As discussed above in this thesis, Safety motivation, in particular, plays a significant role for safety management in terms of workers' safety improvement and to work productively. In addition, Safety motivation appears to play a significant role in whether employees follow rules and engage in safety-related activities since the implementation of safety legislation and regulations, as well as campaigns aimed at improving the working environment, alone seem to have a limited impact (Hedlund *et al.*, 2016).

In addition, Sherratt (2014) states that in the UK, occupational safety management techniques such as Zero Target, Zero Harm, Target Zero, and Mission Zero are being increasingly adapted by construction firms. The aim of these techniques is implementing high standards of health and safety. The authors used Zero as a target and a philosophy and assessed alternative perspectives regarding the strategy. The findings show that although there are noteworthy differences amongst perspectives regarding the true meaning and aim of Zero, it is still a necessary component in the safety

management of construction workers (Sherratt, 2014). However, according to Zhou *et al.* (2015), despite persistent efforts to enhance construction safety, accidents and fatalities still occur in the industry. Accidents statistics, safety competence, safety culture, and safety design have emerged as important topics of discussion in the field of research. The wide variety of subjects regarding occupational safety management may make it difficult for the stakeholders to develop a single perspective on the topic. The study takes a deeper look into existing researches that have already been conducted for the cause of improving occupational safety among construction workers. A framework has been proposed by the authors, which mainly indicates to use accident data and risk factors to enhance worker safety (Zhou *et al.*, 2015). This study, however significant, does not take into account the various scenarios under which the implementation of safety structures would vary in terms of possibility.

Zhou *et al.* (2013) used Information Communication Technology, GIS GPS RS technology, sensor-based technology, radio frequency identification, along with virtual reality in their study. The results show that they can be effectively used for enhancing occupational safety for construction workers, by continuously assessing and monitoring risk factors. Relevant solutions are easier to develop if the risk factors are identified beforehand, and preventive measures are taken (Zhou *et al.*, 2013). On the contrary, Kim *et al.* (2016) state that the creation of a prevention culture for health and safety practice is essential reducing the incidence rate of worksite incidents and diseases related to the sector. The authors add that new types of occupational disorders, inequality regarding the availability of healthcare services, and noncommunicable diseases have become notable issues besides occupational accidents and injuries.

Instilling an organisational culture that focuses on workplace safety is the most effective solution in this case (Kim *et al.*, 2016).

One of the reports by Unnikrishnan (2015) has mentioned that the construction SMEs of the UK have been motivating its construction workers towards safety by holding all workers accountable for safety management. It is also done with the help of daily meetings where detailed discussions take place related to work procedures, equipment, machines and site safety and structure. The employees or the construction workers can feel motivated once they are aware that the management care for them.

2.6.3 Human Resource Management

Human resource managers, who oversee hiring new workers, overseeing their performance, wages, and benefits, are always looking for new, creative, and efficient ways to address issues that affect their workers' health and safety and motivation in the workplace, and keep them in good health (Azizi, *et al.*, 2021). The Human resource management selection process can help to maintain a healthy and safe workplace by selecting applicants with personality features that reduce the likelihood of accidents (Boyd, 2004). Although they may not always seem to go together, HR, Motivation and health and safety share one thing: they all are concerned with people. Assuring that the workplace is not only physically safe but also that we are caring for our employees' motivation and wellbeing for the duration of their employment with the company, are the tasks that go hand in hand. Employees who do not feel safe and healthy at work will not be motivated. As a result, HR plays a role in employee health and safety. In some cases, the health and safety team may be part of HR. The health and safety function is

intimately tied to the HRM cycle parts of selection, appraisal, rewards, and training (Boyd, 2004). In addition, the effects of safety motivation and human resource management were demonstrated by Ford & Tetrick (2008), who discovered that human resource management and actions are crucial in the prevention of accidents. A bonus system that links bonus payments to a work group's safety record or department might encourage safe work behavior (Bratton & Gold, 1999).

However, In SMEs, the responsibilities are frequently shared by one person. Horváth and Szabó (2019) have connected multinational, small, and medium-sized firms' opportunities, and Industry 4.0. Industry 4.0 is a revolution, which is a concept that promotes rapid changes to industries, technology, and societal phenomenon. It is highly influential on the construction industry as well. According to the authors, human resources are the main barriers and driving forces behind the implementation of successful innovative and modification practices in small and medium-sized firms. Highly talented human resources, when managed effectively in accordance with their position, become factors of success for the firm, and promote its growth. On the other hand, underperforming human resources with lack of efficient management become barriers in the firm's success and growth (Horváth and Szabó, 2019). The source effectively proves that organisations of all sizes must establish strong human resource management practices, as they are the most important factor behind organisational success.

Small and medium-sized firms target a vastly different talent pool for processes of recruitment and hiring. It could be due to the fact that these organisations seek

employees who can fulfil multiple responsibilities at once, instead of larger firms looking to hire specifically talented individuals (Krishnan and Scullion, 2017). These implications can be applied to small construction firms too, as they have been noticed to hire semi-skilled, or even unskilled individuals as well, just for the sake of reducing the costs of human resource management.

2.6.4 Health and Safety Training

When reviewing and contrasting the industries with a higher number of injuries, mishaps and lower accident, Zohar (1980) discovered that a focus on health and safety training remained the second characteristic that set these industries apart. Similar to this, mature firms have health and safety plans. Demirkesen and Arditi (2015) state that there are noteworthy differences between the safety training approaches of construction SME's, and larger ones, such as the magnitude of training, their frequency, the quality of training, etc. Furthermore, contractors are considerate towards feedback, process, content, organisational, and worker- related issues in the case of safety training at construction firms (Demirkesen and Arditi, 2015). Kaskutas *et al.* (2013) found that around 64% of residential construction worker fatalities come from falls from heights, and in other cases, 20% workdays are missed due to injuries. It is argued that worker safety training would prevent falls, which would reduce fatalities and injuries at the same time. A pilot training was conducted, in which 10 foremen were employed by a local residential builder. The results indicate that workers with low experience levels are likely to suffer from fall hazards much more than experienced ones. With the help of the pilot training, the workers became more interactive, focused more on their

hazardous work, and increased compliance with fall prevention standards (Kaskutas *et al.*, 2013).

Training related to health and safety is a vital component of construction organisations, despite of their size. Yoon *et al.* (2013) state that work-related accidents rates, including fatal and nonfatal accidents, can be dropped by more than half if the management is involved in health and safety training. Because, throughout the project's execution phase, workers on building projects are likely to use many different tools. It is must that these people have adequate knowledge of how to operate the tools and machinery in the workplace. One study was done by Umar and Egbu (2018), who examined 623 accidents in his research study about the primary accident causes in the projects and claimed that nearly 14% of them were brought on by equipment. The worker who only had received suitable training that consist of safety and operational components can such accidents be decreased. The authors found that the effectiveness training programmes are positively connected to job duties, health, and safety training, along with job satisfaction (Cao *et al.*, 2021). According to Mazlina *et al.* (2017), there are three key categories of safety interventions that consist of management, human and technical interventions, which were tested in the data for their effectiveness. The safety behaviour of construction workers can be improved through technical intervention, with the help of personal protective equipment programmes, safe work practices, safety permits, and safety equipment usage and maintenance (Mazlina *et al.*, 2017). However, Kroon *et al.* (2012) shows that small but cohesive bundles of high-performance work practises, in small and medium-sized firms, depend on the resources, strategic decision making, and a combination of the aforementioned objects.

In the UK construction-based trainings are also provided by the CITB (Construction Industry Training Board). For anyone who is getting into the professional role of site supervisory and/or management, it's vital that they hold either a **CITB** (Construction Industry Training Board) **SSSTS** or **SMSTS course** accreditation. All are important qualifications, but they achieve different aims.

CITB is the sector skills council as well as industry training board for construction in the UK. The main function of CITB is skill improvement, training, increasing overall competitive edge and respond to various challenges faced by construction companies and employers in the UK (CITB, 2023). There is a great variety of training courses offered by the CITB for improving overall competitive advantage and skills of the UK based construction industry in the UK. Some of the main training courses include leadership and management training that helps in covering gaps of leadership and management skills in the UK based construction industry. Some of the main advantages include reduction of man hours on the site of construction, an increase in productivity, with its contribution towards a safe and a productive working environment. It also offers the benefits of improved retention (CITB, Leadership and Management training with CITB, 2022). The seven main categories of safety training that can be given to construction workers are as follows. All of the following are covered: trenching and excavation, OSHA construction training, rigging type of construction training, fall protection, welding safety training, personal protective equipment (PPE) training, and power tool handling training.

In addition, CITB- SSSTS is an abbreviation for Site Supervisor Safety Training Scheme, which is a vital part of safety training for many professionals today. In particular, an SSSTS training skills plays a vital in the supervisory position (CITB, 2023). It would vastly improve supervisor health and safety knowledge, what their legal obligations have as a supervisor and helps in managing a site by risk assessments and site inductions.

Moreover, The SMSTS training, or Site Manager Safety Training Scheme, is ideal for anyone involved in the management or planning of a construction site. For the most part, managers are required to complete this training scheme (Jones et al., 2018). It is an essential part of management education because it provides managers with critical information about the laws and regulatory requirements in their role which includes, A thorough understanding of modern health and safety laws, an excellent understanding of welfare and environmental legislation, knowledge about the implementation of new guidelines and best practises in the industry and ensures that managers can easily state their duties in terms of welfare, the environment, and health and safety.

2.6.5 Risk management and Safety

When it comes to providing a safe work environment, design of risk management is a key leadership approach. Nationalencyklopedin, (2016b) stated that risk attempts to detect, identify and locate the numerous possible risks that the firm faces and implements suitable actions to reduce or remove them to the level deemed necessary. In addition, Design risk management in construction is the demonstration by the construction engineers and workers of the fact that the designs of construction that they

have developed can be built., used and maintained and can be equally demolished with no negative harms on the overall safety and security of people involved in the process of building development and construction (ICE, 2020). This is very closely related to design risk management defined by CDM (construction design management) regulations of the year 2015. One of the main aims of design risk management is to control dosing related risks and uncertainties to make sure there is no harm inflicted to the people involved in the process of construction. DRM is based on the fact that when two or more workers are working on a construction project they should opt for collaborative working. (UK, 2020) Legg *et al.* (2015) state that conducting inspections to improve compliance, recognition of standards by the industrial stakeholders, and propagation of information to small firms are crucial practices. In addition, it is also essential to discover interrelationships among risk factors and construction accidents to improve workplace safety in the construction sector. The prioritisation of risk factors present at the construction firms is vital in developing strategies to prevent accidents and improve occupational safety for the workers (Chi and Han, 2013).

Fonseca *et al.* (2014) depict that the integration of safety and production is highly possible by consideration at different levels of the phases of construction. The most important phase is design analysis, in which the construction engineer can make the construction site safer for the employees before the actual tasks begin (Fonseca *et al.*, 2014). Whereas Guo *et al.* (2015) formed eight archetypes as a result of data analysis, which consist of incentive programmes, safety regulations, safety management at small firms, procurement and safety, conflict in the workers' goals, production and safety, proactive and reactive learning, along with blame on the workers (Guo *et al.*, 2015). In addition, Feng (2013) states that basic safety investments are not effective for dynamic

and changing project conditions. Safety investments can be highly effective if the accident prevention and safety culture levels are high, while monitoring project hazard levels. The authors add that improving the safety culture is crucial to help safety environments and investments succeed in construction projects (Feng, 2013).

2.6.6 Job Safety Analysis

Job safety analysis refers to the process by which the position of the workers in the firm is assessed in the context of their duties and responsibilities, and the health and safety risks they face are determined. Some of the main risks included in the job safety analysis of construction workers are based on the parameters of natural, structural, mechanical, electrical, chemical, radiation, biological and automated systems (Choudhary *et al.*, 2018). Hofmann *et al.* (2017) state that job safety analyses are carried out in a broad organisational context, to ensure the welfare of all involved parties (Hofmann *et al.*, 2017).

Zhang and Fang (2013) suggest that such techniques should be incorporated within the management routine, so that continuous assessments of the workers' behaviour can be conducted. It is likely to result in better occupational safety prospects for the employees (Zhang and Fang, 2013). Moreover, Bahn (2013) has investigated workplace hazard identification and its management for the continuous improvement of occupational safety. The study focuses on an underground mining operation, yet the methods used in it can prove to be relevant in this case. Two workshops were conducted, in which the first one focused on improving the ability of the workers to identify hazards, which was followed by the second workshop that focuses on managing the hazards identified at

the workplace. The results turned out to be quite positive and beneficial for the welfare of the workers (Bahn, 2013). It helps conclude that the workers need to be aware of the safety associated with their own jobs and responsibilities. When efficient hazard identification is conducted, the wellbeing of the workforce can be maintained and to reduce workplace risks.

In addition, A safe system of work (SSoW) is a procedure implemented by professionals to reduce workplace risks. The steps in creating a safe system of work (SSoW) includes identify the job/task, analysing the tasks, defining safe methods, implementing safe methods and assess the progress. This (SSoW) is done to ensure that workers are working in appropriate and safe conditions. It may not be possible to eliminate all risks in the workplace, but implementing personal protective equipment (PPE), physical controls, and developing safe work systems can significantly reduce the risk of an accident occurring. A safe system of work (SSoW) can be a very important source of how the construction projects need to be run, how safety can be ensured in all the projects and how projects can be completed effectively.

2.6.7 Hazard Identification

Hazard identification is one of the foremost factors of construction-based risk assessment (Wuni and Shen, 2023). To be successful, every industry must be safe and sustainable for workers and in its operations. The industry must identify the hazards, assess the risks associated with them, and reduce the risks to a tolerable level (Paithankar, 2011). The purpose of hazard identification is to identify unfavourable events that could create hazards, analyse the risks associated with those hazards that

might arise, and, most frequently, estimate the likelihood, magnitude, and scope of any negative effects. Kang *et al.*, (2015) added that some of the main areas of risk assessment in construction can include identification of potential workplace hazards, safety of construction site, and quality of overall building materials, assigning responsibilities, and the correct strategies that can be adopted to deal with the risks identified. There are five main steps of effective risk management in construction (Kang *et al.*, 2015). List of steps include identification of the risks, risk assessment, risk control, findings and review of the controls implemented.

In this context the Management of Health and Safety at Work Regulations 1999, has been enacted to ensure the safety of workers. The law came into force in 1999. One of the main articles of the act includes risk assessment in which the employers are required to make accurate risk assessment, as the setting of work is to which the employees and workers are exposed to when they work. The act is very detailed as it outlines the details of the risk assessments that need to be carried out by the employers as these can help in keeping the workers safe (Britain, 1993).

Hazard identification is relevant to the study because the health and safety risks that semi-skilled operatives face at construction SMEs can be prevented with timely and efficient identification. Risks can be mitigated if they are identified early on. Hinze *et al.* (2013) identified two main categories of indicators, i.e., active and passive. Active indicators consist of measures and corrective steps that are conducted in short time periods, while passive measures are predictive over an extended time period (Hinze *et al.*, 2013). Similarly, Jazayeri and Dadi (2017) state that the construction sector is far

from achieving the goal of zero-injury. The authors state that owners, decision-makers, and contractors can be enabled to implement effective safety management techniques through adequate research (Jazayeri and Dadi, 2017). Moreover, according to Harms (2001), analysing the hazard of specific potential undesirable events can decrease the likelihood of occurrence and magnitude of the harmful impacts. Simple and advanced qualitative methods, event sequences, and other techniques can be used for hazard identification.

Perlman *et al.* (2014) found that virtual reality proved to be highly effective for hazard identification, and the performance of construction workers in studying documents and photographs was not as efficient, comparatively. Furthermore, highly experienced construction superintendents failed to identify all of the hazards included in the assessments (Perlman *et al.*, 2014). On the other hand, Habibnezhad *et al.* (2016) state that hazard identification varies, as the human factor of perception interferes with the information being perceived by construction workers. Eye-tracking technology was used by the authors to conduct the assessment, along with a survey. It was found that the levels of risk perception vary across different construction workers, and that their behaviour and eye movement are highly affected by these differences. Those construction workers with low-risk perceptions are more likely to be involved in on-site accidents, as compared to others with medium and high perception levels (Habibnezhad *et al.*, 2016).

2.6.8 Health Surveillance

The practise of "health surveillance" involves keeping an eye on the effects of work on an employee's health and making sure that illness does not interfere with their ability to perform their job (Gyi *et al.*, 1998). When employees are exposed to health and safety related risks in the workplace, health surveillance aims to implement systematic, regular, and appropriate procedures to spot early indications of work-related risks and illness. Health surveillance benefits the organisations in a variety of ways, including by enhancing worker health and wellbeing by monitoring health and identifying potential health concerns to improve health and well-being of the workers, which can lead to a more engaged and a motivated workforce.

The reason health surveillance is important is because it determines whether the organization's risk assessment systems are functioning properly. It is a statutory risk-based system that continuously checks the health of risk assessments within the companies in case if it is known that the workers can be exposed to situations and elements that can harm them externally and internally. Surveillance helps clarify the health conditions of the workforce and implement relevant solutions to any problems. It is also helpful in record-keeping. Tadesse and Israel (2016) found that around 38.3% of construction workers within the target population suffered from occupational injuries. The injuries occurred in relation with protective equipment usage and work experience (Tadesse and Israel, 2016).

In addition, Boschman *et al.* (2014) state that workers' health surveillance, or WHS, is a technique that is used to indicate health complaints relevant to the job at early stages.

The authors found that hearing problems, psychological complaints, musculoskeletal pain, as well as lung symptoms prevailed among the participants. With the help of preventive actions, effective surveillance system and prompt solutions, serious health conditions among construction workers can be avoided (Boschman *et al.*, 2014). In the presence of effective health surveillance systems, the employees and the workers can feel motivated. They know that their health and safety is what matters to the organizations. The level of motivation is what the workers in the construction industry require to work more effectively as they will participate in health surveillance activities of the company.

Jiang *et al.* (2016) worked on personal experience tweets, or PETs, and assessed whether or not the platform can be used for health surveillance. The results indicate that the machine learning method is effective for extracting relevant data regarding health surveillance (Jiang *et al.*, 2016). Similarly, Abad *et al.* (2018) authors applied machine learning as the research methodology and assessed 70,000 medical records relevant to the energy and construction industries. It was found that breathing exploration and lung auscultation were the two most important factors of occupational health surveillance among construction workers who were exposed to silica (Abad *et al.*, 2018). Moreover, knowledge regarding occupational health and working ability plays crucial roles in the surveillance process (Boschman *et al.*, 2013a).

2.7 CHAPTER SUMMARY

The second chapter is the first part of the literature review in the study. It is based on H&S in terms of construction SMEs. An overview of H&S across these companies is

provided, followed by H&S practices related to such firms. A discussion of literature indicates that there is a range of practices that can be followed to enhance the H&S of construction workforces, out of which motivation is the most efficient, yet it has not been studied as thoroughly as required related to construction SMEs. In addition, an overview of semi-skilled operatives at such companies in the UK has also been conducted. The significance of this chapter is based on various aspects that show an increased intervention of the UK based government on construction and the safety of construction workers. Some of the main aspects include training for construction workers provided by CITB. The acts and laws that have gained special attention and mention in this chapter include MHSWR 1999 and design risk management. As motivation has been discovered to have highly effective impacts, the next chapter reviews literature based on motivational theories and factors in the context of H&S at small and medium companies in the construction sector.

CHAPTER 3: LITERATURE REVIEW ON MOTIVATION

3.0 INTRODUCTION

This chapter discusses the role of motivation, motivational theories, extrinsic and intrinsic factors of motivation in the construction, specifically in small firms. Each motivational factor is discussed along with a motivational theory.

3.1 OVERVIEW OF MOTIVATION

According to Herzberg (1966), motivation is the force that drives actions. Brody (2013), on the other hand, suggests that motivation is directed towards specific objectives. It is directional and is the force that encourages engagement between workers during any strategy or process. Pinder (2014), while discussing motivation in terms of work, states that it is the energy of works that allows them to initiate behaviours related to work at the workplace, and determine the intensity, duration, direction and form of the work. The performance and behaviours of workers is essentially driven by motivation. Moreover, Marques *et al.* (2007) adds that for today's industries, motivation is a critical aspect that needs to be considered as it is the driving force behind human behaviours and activities at the workplace. According to Herzberg's theory of motivation, for employees to feel a sense of satisfaction, the motivational factors associated with their job must be fulfilled. These factors include may include the personal goals, workloads, training and development and the workplace environment of the employees (Oah *et al.*, 2018).

Hajjawi (2012) added that the classic organisational behaviour theories are those of Maslow (1954), Herzberg (1966), and Alderfer (1972). There are only two types of motives in Herzberg's work: extrinsic and intrinsic motives, or satisfiers and motivators. These theories share some characteristics with Self-Determination Theory (SDT), such as the concept of psychological needs. Additionally, there are significant distinctions between Self-Determination Theory (SDT) and other theories. Whereas Self-Determination Theory (SDT) focuses on both how behaviour is energised and how it is directed, other theories, for instance, place more emphasis on the motivators of motivated action (Diefendorff and Chandler, 2011).

3.2 THEORIES OF MOTIVATION

There are several theories that are used to define and discuss motivation. Maslow's hierarchy of needs, Herzberg's two-factor theory, McClelland's theory of needs, Vroom's theory of expectancy, and many other theories are examples of such theories. The hierarchy of needs by Maslow consists of five fundamental needs, including physiology, safety, societal, esteem, and actualisation. The diverse nature of these motivational theories allows them to be applicable on a wide range of industries, such as the construction industry. The following subsections discuss motivational theories.

3.2.1 McGregor's Theory

According to McGregor motivational theory, the fundamental assumptions of managers have a significant impact on how organisations are run. McGregor's motivational theory can be applied to explain the influence of the management on labour's safety and health needs (Bushi, 2021). The key to this is managers' assumptions about how

people behave. According to McGregor, these assumptions can be divided into two major categories: Theory X and Theory Y (Carson, 2005). Theory X assumes that work and job is inherently distasteful to people that makes them avoid work at all costs. Most of the employees are not very ambitious and energetic, and they want to be directed. The theory assumes that motivational factors for these kinds of individuals are money and security. On the other hand, some of the main assumptions of theory Y are that the work can be very natural to the workers when favourable conditions are pervaded (Carson, 2005).

McGregor's Theory X and Y has been one of the most famous, influential and widely adapted concepts of motivation and management (Lawter *et al.* 2015). This theory has had deep impacts on managerial thinking over the past decades, since it was developed. Despite the wide implementation, usage, acceptance, and influence of the theory, it has not yet been proved empirically by a significant number of individuals. Theory X states that an authoritative and repressive management that tightly controls its labours is unproductive. On the other hand, theory Y consists of liberating labours' development through a more enabling approach (Carson, 2005). Empirical evidences are used for the purposes of proving the theory. Managerial behaviours proved to have mediated the connection between managerial attitudes and job performance, non-significant relationships were present between performance-related observations prior to that of the authors' (Lawter *et al.*, 2015).

On the other hand, the workers' needs consist of personal growth or career development, timely payments, decision making, respectful job, rewards, amount of

pay, responsibility level, challenges, work appreciation, and cooperation within the team (Al-Abbadi and Agyekum-Mensah, 2019). Moreover, theory X is regarding a more conventional management styles, which were developed due to the assumption that most people working in industries were irresponsible, selfish, gullible, and resistant to change, therefore, they needed to be led by others. Theory Y focuses on organisational hierarchy and the division of roles (Gannon and Boguszak, 2013).

3.2.2 Herzberg's Two-Factor Theory

Herzberg's theory is a two-dimensional concept, initially inspired by the hierarchy of needs by Maslow. Moreover, motivational factors and hygiene factors are two distinct categories of elements that substantially influence the motivation and job satisfaction levels of employees. The motivational factors enhance job satisfaction, as self-growth and self-actualisation are achieved through them. On the other hand, hygiene factors are strongly associated with the need to deflect unpleasantness (Alshmemri *et al.*, 2017). Moreover, the application of motivation in construction industries is a key practice that is effective for the workforce in terms of fulfilling the organisation's strategic objectives. Keeping the managerial figures motivated through financial rewards would in turn assist in keeping the labour motivated via non-financial rewards, such as recognition. (Funso *et al.*, 2016).

The theory is highly relevant and applicable in the practical context. As both hygiene and motivational factors have been presented, the outlined factors can be used to enhance the motivation of the workforce. If these factors are insufficient or poor, such as poor hygiene factor of job satisfaction, the motivational prospects of the workplace show inefficient results (Osemeke and Adegboyega, 2017). Managements can use the

theory to implement beneficial practices to the workplace, as it conveniently outlines what actions have to be carried out for acquiring a healthy motivational level (Alshmemri *et al.*, 2017). The theory can be used at construction firms too.

3.2.3 Equity Motivation Theory

The theory was developed by J. Stacy Adams in 1960s. The theory postulates that the employees try and seek equity in the inputs that they put in the job and the outputs that they receive against the inputs and outputs that have been perceived by the others. The equity theory is based more on inequities than equities. The most important motivating force is the effort to achieve equity, but the presence of several degrees of inequity is vital to be noticed before the mobilisation of this force (Miner, 2015).

Inputs	Outcomes
Education	Pay
Intelligence	Intrinsic rewards
Experience	Satisfying supervision
Training	Seniority benefits
Skill	Fringe benefits
Seniority	Job status
Age	Status symbols
Sex	Job perquisites
Ethnic background	Poor working conditions
Social status	Monotony
Job effort	Fate uncertainty
Personal appearance	Herzberg's dissatisfiers
Health	
Possession of tools	
Spouse's characteristics	

Table 1: Possible Inputs and Outputs (Miner, 2015)

An imbalance between the outlined inputs and outputs needs to be identified, in order for the theory of equity to be brought into motion. In other words, the absence of a balance becomes the driving force behind establishing equilibrium between the exerted efforts of the workers, and their earned rewards (Miner, 2015). When implemented on

semi-skilled operatives at construction SMEs of Birmingham UK, the equity theory can be used to determine their health and safety motivation. The more positive outcomes are received by the workers, the more they are likely to be motivated, which in turn encourages them to partake in safety protocols and practices.

Since very less importance is given to work of Adams as his work is too one-dimensional and ignores procedures. On the contrary, Osabiya (2015) found that teamwork, supervision, leadership, provision of equipment, and contract based on work stood out as the most significant elements affecting workers' motivation. It was found that disrespectful treatment, poor supervision, and little participation in decision-making processes demotivate the H&S factors of labours. But the positive factors impacting the motivation of construction workers consist of communication, sense of belongingness, challenging tasks, identification, goals, and overtime (Osabiya, 2015). Moreover, the stricter the hierarchy is at the organisation, the more negatively it impacts the productivity levels of the labour. Hence, their motivations are also negatively affected (Almathami, 2020).

3.2.4 Vroom's Expectancy Theory

In 1964, Victor Harold Vroom put forth the Expectancy Theory of Motivation. His psychological studies have illuminated workplace behaviour, particularly in terms of leadership, decision-making, and motivation. Additionally, expectancy theory as it applied to the workplace was first systematically formulated by Vroom (1964). Based on individual valences, choices, and instrumentalities, this cognitive theory. Process theory is exemplified by his theory (Von Grabe, 2016). He argued that employees

typically rationally evaluate various workplace behaviours and choose those they believe will lead to their most desired professional rewards and outcomes. The appeal of a particular task and the amount of effort put into it, therefore, will be greatly influenced by whether the employee believes his or her efforts will produce desired results. (Steers *et al.* 2004, Latham 2007). Furthermore, the expectancy theory suggests that a worker trusts that hard work results in acceptable performance, which in turn makes them receive rewards. The workers' motivation levels and their performance have substantial importance in terms of their productivity. Measuring the performance of the workers, along with their motivation levels, is of significant importance (Yeheyis *et al.*, 2016). Similarly, Parijat and Bagga (2014) state that the more motivated the workforce is, the more effectively they are likely to perform their duties within the workplace. The main purpose of the theory, according to the authors, is to take a deeper look into the cognitive processes that have a noteworthy impact on the motivation level of employees (Parijat and Bagga, 2014).

In addition, Atkinson (1957) created an expectancy-value model based on the research findings of Lewin and Tolman's earlier works to capture people's achievement-related behaviours, such as perseverance, choice of achievement tasks, and sustained efforts for accomplishment. The three main variables that influenced these behaviours in relation to an individual were motivations, perceived success likelihood or expectation, and the incentive value attached to an activity. Additionally, expectancy theory, according to Wigfield and Eccles (1992), uses three components—expectancy, instrumentality, and valence—to explain the connection between drive, effort, and performance. These elements are linked in the motivation chain; if one of them is weak, your employee will not be motivated, so you must identify the problem and fix it to

achieve the desired result (Agah, 2019). As a result, Vroom's Expectancy Theory has the following chain (or equation): Expectancy (E) x Instrumentality (I) x Valence (V) = Motivational Force (MF).

The equation fails if E, I, or V are all zeros; this is a sign of weak or non-existent motivation. Ghoddousi *et al.* (2014) state that intrinsic and extrinsic instrumentality, intrinsic and extrinsic valence, and expectancy, significantly affect the motivation of labours in the construction industry. On the contrary, managements need to establish policies that reward labours who partake in health and safety training sessions, so that their motivation levels can be enhanced.

For instance, it's possible that an employee won't produce a satisfactory result because they believe they don't have enough time to complete a task well. Who, after all, would be motivated to work hard on something that was destined to fail? Restoring expectations, demonstrating employees' utility, and/or helping managers better understand the value their staff place on the organization's rewards are all possible by addressing the issue that is causing the lack of motivation (Agah, 2019)

3.2.5 McClelland's Theory of Needs

McClelland's theory of needs includes the need for power, achievement, and affiliation. Rybnicek *et al.* (2017) state that the theory of needs is justifiable and accurate in terms of a neural level, and that relevant actions have a significant neuroscientific impact on the intrinsic motivation of workers. Furthermore, Osemeke and Adegboyega (2017) add that motivation at the workplace is one of the most important fields of research and is deserving of high levels of attention from researchers. But Cong *et al.* (2013) state that

motivating the workforce is not as simple as it seems, because the techniques required to raise their morale differ significantly from that of general situations. They suggest that wages and supervisory practices are the two main elements that affect labours' need for power, achievement, and affiliation. But as compared to all other theories of management, it is one of the main theories that has the least impact. The theory is based on the fact that three main needs are subconscious and the fact that the measurement of these needs may not be very easy.

3.2.6 Maslow's Hierarchy of Needs

Maslow's hierarchy of needs is based on psychological; safety, belongingness, esteem, and actualisation need that determine the motivation and satisfaction of people. It can be implemented on the construction industry, to assess workers' job satisfaction levels. If all needs mentioned in the model are fulfilled, workers are bound to be satisfied with their job (Jerome, 2013). To disclose further, Guo *et al.* (2019) developed a mixed reality system to test out the effectiveness of the theory. The results indicate that more need fulfilment leads to more job satisfaction and immersive behaviours from the workers. It was also found that the physiological and psychological impacts on the employees, through the hierarchy of needs, are more efficient and allow for a longer immersive experience (Guo *et al.*, 2019). Similarly, Stewart *et al.* (2018) state that the most important necessity of people at the workplace is of happiness. This happiness may come from job satisfaction, or the overall fulfilment needs, which contributes to enhancing the motivation levels of the employees.

3.2.7 Skinner's Reinforcement Theory

The reinforcement theory consists of four techniques that can be used to change an existing behaviour or develop a new one within the workforce, which includes extinction, punishment, negative reinforcement, and reinforcement. A directly reciprocal connection exists between the employees and their employer, i.e., the organisation. The employees' behaviour is of significant importance for a workplace where organisational culture has noteworthy impacts on the workers (Asadullah *et al.*, 2019).

Skinner's reinforcement theory suggests that positive and negative reinforcement techniques have varying impacts on the workforce's motivation levels. When reinforcing safety motivations positively, the results are often positive in construction labours, and vice versa. Extrinsic rewards like salary, bonuses, benefits, and intrinsic rewards like encouragement, empowerment, and praise enhance workers' motivation levels. On the other hand, negative behaviours are reduced or eliminated, by establishing negative consequences or punishments (Wei and Yazdanifard, 2014). But Salisu *et al.* (2016) argue that positively reinforcing behaviours is the most effective technique to enhance labours' motivation levels in the construction industry. The authors state that remuneration and compensation are two of the most important rewards which are provided to the employees in exchange for their contributions towards the achievement of the organisation's strategic objectives, as well as their services.

3.2.8 Self-Determination Theory (SDT)

Self-determination theory (SDT), a well-known theory of motivation, provides managers with a framework based on data for motivating employees (Ryan and Deci, 2019). Deci et al. (2017) claim that SDT identifies the social-contextual components that affect employee motivation levels, such as a leader's interpersonal style. The Self-Determination Theory is a crucial tool for analysing worker motivation in the construction industry because it has the potential to increase safety and health standards as well as predict positive performance at work (Lawani *et al.*, 2019). One of the fundamental conceptualizations of motivation is the SDT, which focuses on the type and amount of motivation. According to Gagne and Deci (2005), it is based on human motivation, development, and wellness. It asserts that work environments that support the satisfaction of these needs, namely competence, autonomy, and relatedness and psychological wellbeing, both of which have an effect on workplace health and safety.

In addition, SDT acknowledges that a person's behaviour is influenced by both intrinsic and extrinsic factors. Receiving a result that is dependent on the behaviour's performance is one example of an extrinsic motivation. On the other hand, intrinsic motivations include the enjoyment and pleasure of engaging in the behaviour itself. These various explanations for our actions are a reflection of the extrinsic and intrinsic motivation that Deci and Ryan (1985) identified as two different types of motivation. As a result, when people are intrinsically motivated, the behavior's result serves as the motivation for the behaviour. However, depending on how closely the consequence associates with the individuals' values and goals, these outcomes can vary in how they regulate behaviour and attitudes. The direction of the workers' motivation is a reflection

of the underlying behaviours, attitudes, and objectives that underlie the "why" of actions. Deci and Ryan (1985; 2008) succinctly described the different motivational styles in the SDT based on the various goals or motivations that drive an action. The most fundamental distinction between the two is that "extrinsic motivation" denotes taking a course of action because it results in a separable outcome, whereas "intrinsic motivation" denotes doing something because it is inherently interesting or enjoyable (Ryan and Deci, 2000). As a result, whether a worker acts in a self- or other-serving manner, the quality of their experience and performance may vary.

3.3 SELECTED THEORY OF MOTIVATION

In accordance with the discussion above, the most appropriate theory of motivation for the establishment of a conceptual framework for this study would be Self-Determination Theory (SDT). As the classic organisational behaviour theories are those of Maslow (1954) and Herzberg (1966). There are only two types of motives in Herzberg's work: extrinsic and intrinsic motives, or satisfiers and motivators. These theories share some characteristics with Self-Determination Theory (SDT), such as the concept of psychological needs. Additionally, there are significant distinctions between Self-Determination Theory (SDT) and other theories. Whereas Self-Determination Theory (SDT) focuses on both how behaviour is energised and how it is directed, other theories, for instance, place more emphasis on the motivators of motivated action.

Construction SMEs are one of the UK's most important economic sectors, making it necessary to apply psychological research on human behaviour to workplace H&S and motivation issues in a systematic way. The "bottom-up" method of employee

motivation is discussed in this paper, with a focus on construction operatives in SMEs in terms of the H&S and their motivation in the workplace. The Self-Determination Theory (SDT), a solid conceptualization of employee motivation and health and safety at work, was used in the study to illustrate the different types of motivation. As job satisfaction is a crucial component of the theory as well as the present study, it is suitable. The separate discussion of extrinsic and intrinsic motivational factors, which is not included in other theories, make it relevant for this study.

3.4 TYPES OF MOTIVATION

Motivation, according to Ryan and Deci (2000), is the process of being inspired to act. In addition, self-determination theory identifies the critical aspects of motivated human behaviour. SDT (Deci & Ryan 2000) was developed to distinguish between intrinsic motivation, extrinsic motivation, and amotivation. Amotivation, which describes an employee who lacks the drive or inspiration to act. Extrinsic and intrinsic motivation, which shows that the concept is a two-dimensional construct (Benabou and Tirole, 2003; McLean, 2003). Thomas (2009) states that employees at any firm may work efficiently due to their own involvement with the work, which indicates intrinsic motivation. On the other hand, they may also behave in certain ways or work efficiently due to their external environment or requirements, which shows extrinsic motivation. In the context of the workplace, Herzberg (1959) has discussed a direct manner for managerial figures to alter extrinsic and intrinsic motivational factors for improving the H&S issues of the workforce.

According to Bergström and Garcia (2016), managerial figures at the workplace have a strong impact on the extrinsic motivation of construction operatives' engagement with their work. Benabou and Tirole (2003) add that there are several methods that can be employed for improving the performance of workers at the worksite, which include diversity management, leadership styles and training and development. In addition, Al-Haadir *et al.* (2013) state that in order to acquire better safety behaviours and outcomes, it is crucial to use methods that assist in enhancing the extrinsic and intrinsic motivation of the workers. In this regard, Baranek (1996) add that extrinsic and intrinsic types of motivation have direct influences on the goals, intentions, activities and behaviours of the operatives. Brief discussions of extrinsic motivation, intrinsic motivation and Amotivation are attached below.

3.4.1 Extrinsic Motivation

Extrinsic motivation consists of the factors external to an individual, which impact their morale, such as working conditions, behaviour of the manager and colleagues, and workplace environment. (McDonald, 2014). Ryan and Deci (2000) state that extrinsic motivation is a key factor associated with acquiring external value. If the extrinsic motivation of employees is improved, a positive set of behaviours and working conditions can be established regarding their health and safety (Hardre & Reeves 2003; Baker 2004). It is also an external energy that companies use to improve their productivity. Deci (1975) proposed that these variables are the topmost priority of managerial figures when it comes to improving the safety performance of the workforce. As external factors are easily visible, noticeable, and changeable, they are considered to be the most important during processes of increasing motivation. Some of the most important extrinsic motivational factors consist of the firm's policies and

management, training, and development, working conditions, supervision, management commitment, and health and safety systems of management (Herzberg, 2008; Jitwasinkul and Hadikusumo, 2011; Raziq and Maulabakhsh, 2015;).

Sansone and Harackiewicz (2000) state that a strong connection exists between extrinsic factors of motivation and performance. Evidence shows that the performance of workers is largely affected by extrinsic motivational factors (Jitwasinkul and Hadikusumo, 2011). In addition, Stranks (2007) discusses that systems of H&S management are extrinsic motivational factors that are used as a key tactic to control and manage the hazards associated with a workplace. Rowlinson (2004), in this regard, adds that the safety management system at workplaces have multiple influences. They affect health and safety outcomes by managing risks, while they also enhance working conditions for the operatives.

According to James (2005), a strong forecaster performance at the worksite is extrinsic motivation. There is a range of impact of extrinsic motivational factors. They include health and safety environment, safety awareness and safety behaviours. Furthermore, these factors were measured in firms of Jordan, and the analysis indicates that poor systems of H&S management, a lack of policies and inadequate training, contribute towards affecting the health and safety awareness and behaviours of the employees (Al-Refaie, 2013). Moreover, few researchers further adds that training, health and safety management and commitment, proper policies, safety training, appropriate supervision, and good working conditions, which are extrinsic factors, can be used by firms to enhance their workforce's performance (Stranks, 2007; Stella, 2008; Hon et al., 2014)

3.4.2 Intrinsic Motivation

Intrinsic motivation is a starkly different concept from extrinsic motivation. It consists of the internal factors that affect the morale of an individual, such as job satisfaction and stress (Grabowski *et al.*, 2021; Jhantasana, 2022; Sujatha, 2023). According to Jhantasana, (2022), if workers receive pleasure, satisfaction and contentedness while performing a certain action at their workplace, the phenomenon at play in this situation is intrinsic motivation. Similarly, Thomas (2000) indicates that if an operative receives satisfaction and pleasure in an activity, they act upon intrinsic motivation. Regarding the subject, Gagné and Deci (2005) show that intrinsic motivation is directly involved in actions, activities and behaviour patterns of employees at the workplace. Each intrinsic motivational factor has its own type and level of importance. In addition, evidence has also found that intrinsic motivation is a concept that encompasses personal factors, psychological aspects and internal attributes that are relevant to the employees. Such factors have a great impact in terms of the employees' H&S, as their safety behaviours are directly impacted (Moody and Pesut, 2006). Leithwood and Beatty (2007), on the other hand, adds that intrinsic motivational factors can be used to improve job satisfaction, while contributing to better psychological development as well. These factors include but are not limited to attitude, satisfaction, psychological conditions, recognition, and responsibility.

Coon and Mitter (2010) state that a crucial enabler of creativity and performance at the workplace is intrinsic motivation due to it being a desire of interest, awareness, satisfaction, and pleasure associated with work. Moreover, Amabile (1993) indicates that organisations must establish strategies to improve the intrinsic motivation of the workers, so that their performance can be improved by giving them a reason to be

motivated out of their own accord. Wiley (1997) discusses that tasks, behaviours and activities that are intrinsically motivated vitally help in achieving external outcomes, most of which are beneficial for gaining information regarding methods to enhance the workforce's behaviour. Ryan and Deci (2000) further state that intrinsically motivated operatives often have a high level of confidence, excitement, involvement, and interest in their work.

3.4.3 Amotivation

Amotivation is the third motivational dimension identified by SDT. Amotivation is defined as behaviour that lacks intention, resulting in disorganisation and frustrated involvement (Deci and Ryan, 1985). Amotivation occurs when an individual has very low levels of motivation for any given task (Arshadi and Kaabomeir, 2020). Amotivated people do not appear to have specific purposes and goals, nor do they appear to approach their objectives in a systematic manner. Amotivation has been linked to learned helplessness, a condition in which people withdraw effort due to feelings of incompetence and loss of control (Kaabomeir et al., 2023).

3.5 ROLE OF EXTRINSIC MOTIVATIONAL FACTORS

Extrinsic motivational factors consist of attributes outside the control of employees, often established by the management that have the ability to impact the motivation level of the workers (Van der *et al.*, 2019). Johari and Jha (2020) discuss the impact of work motivation on the productivity of construction labour. According to the authors, the poor performance of labour that is working in the construction industry is a perennial issue for firms all around the world. They found that amotivation, introjected regulation,

extrinsic regulation, and intrinsic motivation do not have a significant influence on the sustainability of construction labour's productivity (Johari and Jha, 2020).

Johari and Jha (2020) also address that extrinsic regulation through social constructs, and material such as rewards and outcomes, both play a crucial role in motivating or demotivating the workforces in the construction industry. They add that the sustainability of the construction firm is affected by their social and material regulatory techniques. (Johari and Jha, 2020). Similarly, Mardanov (2020) states that work outcomes enhance employee contentment in the construction industry. It is found that organisational context, along with extrinsic and intrinsic motivational factors all work together to impact employee contentment, hence their motivation and quality of performance (Mardanov, 2020).

According to Gerhart and Fang (2015), the creativity of workers in an organisation, along with their motivation to perform efficiently, are majorly affected by extrinsic rewards. The authors have outlined these extrinsic motivational factors as pay-for-performance (PFP), which consists of rewards and compensations for improving the performance of the workers. Furthermore, it is indicated in the study that PFP just has not been researched enough in terms of its beneficial impacts, instead, its relatively harmful effects have been thoroughly assessed (Gerhart and Fang, 2015). There are numerous types of extrinsic motivational factors. The following subsections discuss several extrinsic factors that impact the labours' health and safety, and motivation.

3.5.1 Management

According to Aghayeva and Ślusarczyk (2019), there are certain factors within the firm that encourage labours, which mainly consist of timely and appropriate remunerations, job security, fringe benefits, and bonuses. On the other hand, the authors state that unsafe working conditions, strict managerial styles, and underpayment cause labours to be demotivated. The most important factors for all construction workers are the ones related to finances and rewards (Namupala, 2023). While the demotivators of significance mainly consist of a combination of physical conditions and finances (Aghayeva and Ślusarczyk, 2019). On the contrary, Larsson *et al.* (2018) state that strict planning and control strategies are traditionally implemented in construction projects, while studies recommend motivational techniques for team building in such operations.

3.5.2 Working Conditions

Reese (2018) states that the safety and health approach chosen by the management are dominant in establishing safe performance at the organisation. Furthermore, safety and health motivation are a key function of the managerial figures. Some factors, such as the compensation of construction workers, lean safety, sustainability, usage of flammable liquids on-site, ventilation, accident reports and investigations, compliance requirements, work environment, and continuous risk analysis prove to be important as they impact H&S motivational practices of construction labour (Reese, 2018). Similarly, Guo *et al.* (2016) indicate that management's safety commitment, social support, and production pressure have a noteworthy impact on workers' safety knowledge, participation, and compliance. In addition, safety knowledge and safety

motivation have noteworthy and positive impacts on the safety protocols participation of workforces in the construction sector (Guo *et al.*, 2016).

Maduka and Okafor (2014) state that pay, water, food, and working conditions are some of the most basic material requirements of the workforce that belongs to any organisation. It was found that construction workers with low motivational levels have a low level of productivity. The study also revealed that junior members of the staff often face discrimination in terms of wages and chances of promotion (Maduka and Okafor, 2014).

3.5.3 Management Commitment towards Operatives Health and Safety

A management commitment denotes the top management's direct involvement in key aspects such as health and safety, quality, security, and workplace environment. Existing evidence indicates that the management's commitment level has a direct impact on a range of vital attributes of the firm. These attributes consist of the workplace environment, H&S of the workforce, and an external framework that may help the firm achieve its desired safety-related outcomes (Hon *et al.*, 2014). Management commitment results in increased motivation and concern for health and safety in the workplace. Highly committed managers are also observed to be involved in the provision of safety policies at the workplace (Vredenburg, 2002). With an increased commitment from the managers the construction workers would feel safe as they know that the managers worry for them (Walton, 1985). The managerial commitment will reflect how well safety rules, regulations, policies, and setups have been created by the managers for safety of construction workers (Jaafar *et al.*, 2018). It

is important that the managers are very well aware of the safety strategies of workers in their projects that can motivate them towards the adoption of the safety strategies.

An effective management is required for the creation and implementation of efficient risk management and hazard prevention strategies (Labodová, 2004), where management commitment plays a crucial role as well. A good safety culture can only be created when the managers are committed to their task (Hon *et al.*, 2014; Panuwatwanich *et al.*, 2017). Lastly, Labodová (2004) adds that the dedication of both managers and operatives have strong associations with the latter's satisfaction levels related to health and safety outcomes.

3.5.4 Safety Policies and Management

UK's occupational safety and health management systems (OHMS) deal with rules and regulations for safety of the employees and workers of various industries in the nation (Winge *et al.*, 2019). Some of the main elements of OHMS include policy, planning, organizing, worker representatives, communication, consulting, implementation and operating, measurement of performance, corrective and preventive actions, review from the management and continual improvement (Diugwu, 2008; Mrugalska *et al.*, 2023). The setup highlighted here leads to the fact that the managers in construction SMEs need to know what level of safety is required by the construction workers in the UK, and how new policies can be developed by the managers to ensure safety of the workers on the construction site (Kheni *et al.*, 2010). One of these include Managing for health and safety (HSG65) which is a detailed guide for leaders, managers, and the workers (Hughes and Ferrett, 2012). This guide will help the latter

in putting in place health and safety guides in their workplace (HSE, Managing for health and safety (HSG65), 2020). On the other hand, ISO 45001 is the regulation which is an international standard regulation for overall management systems for health and safety of workers, it was published in the year 2018 (Karanikas *et al*, 2018).

Systems of managing H&S are dedicated to identifying and resolving risks associated with the workplace (Hughes and Ferrett, 2012). These systems are included in the extrinsic motivational factors that are aimed at developing policies, regulations, and procedures to safe keep the health and wellbeing of the construction operatives (Clarke and Cooper, 2004). One of the most risky and hazardous environments of work consists of construction worksites (Kheni, 2008). Some of the causes behind such high risks include the physical working environment, having to handle heavy machinery, transporting heavy objects, working at heights and the ever-changing nature of tasks (HSE, 2019). Due to such issues at the worksite, it is vital for construction managements to implement a health and safety system to make sure that the safety and wellbeing of the workforce is preserved (Bartusik, 2008). Moreover, Kheni (2008) states that having a safety management system at the construction worksite is associated with an improved set of health and safety outcomes and performance of the firm. As a result, the workforce's psychological factors are considered and improved in the process as well, which may also be involved in workplace risks and accidents. Safety management systems include the identification and resolution of issues, so that worksite accidents and hazards can be decreased through a process of planning, application, and monitoring (Harris *et al.*, 2021; HSE, 2019).

Furthermore, OSHA (Occupational Health and Safety Administration) developed and created a more developed safety management system that consists of seven safety management elements. 1). To protecting workers, 2). Accountability, 3). Worker participation in safety, which includes allowing workers to participate and be a part of the committee, posting safety policies and guidelines in the workplace where everyone can see them, and promoting recognition awards for best safety awards, 4). Identification of hazards, control of hazards, 5). Accident analysis, 6). Training and education, 7). Safety program reviewing and assessment.

3.6 ROLE OF INTRINSIC MOTIVATIONAL FACTORS

Hennessey *et al.* (2015) define intrinsic motivation as the urge to perform a task for its own sake, in order to enjoy the task in its entirety. The authors go on to state that intrinsic motivation can be labelled as the optimal experience or the flow of tasks, which help people complete tasks efficiently due to the perceived challenge of finishing them. It is also established that intrinsic factors are internalised motivators, which include goals and constraints that originate from within the subject (Hennessey *et al.*, 2015). The workers' intrinsic motivational factors may also contribute towards changing their perspective and shaping their performance and effectiveness. Additionally, Conchie (2013) state that transformational leadership plays a crucial role in developing the labours intrinsic motivational factors in the construction industry. The employees' intrinsic motivational factors also have an important impression on leadership efficiency of the managerial figures, in turn influencing the extrinsic factors and starting the cycle once again (Magny, 2012; Conchie, 2013).

Moreover, Ncube and Zondo (2018) investigate the impact of intrinsic motivational factors and self-motivation related to growth for SMEs. The factors consist of problem solving, efforts for growth, recognition, desire to produce outcomes, sense of responsibility, advancement, along with growth aspirations. Intrinsic motivation is somehow the key to organisational prosperity (Ncube and Zondo, 2018).

3.6.1 Psychological Stress

Psychological stress has significant impacts on the H&S, and motivation of labours in the industry under investigation (Alsulami *et al.*, 2023). This type of stress often falls in the category of intrinsic stressors, which are predominantly present in the construction industry due to the tough nature of labours' job (Leung *et al.*, 2014). Maqsoom *et al.* (2018) found that highly experienced and older employees at construction firms are less impacted by intrinsic psychosocial stressors, as compared to less experienced and younger workers. Firm support is substantially needed, as new employees are more susceptible to safety hazards, mental stress, demotivation, and health risks (Maqsoom *et al.*, 2018). On the contrary, Chen *et al.* (2017) state that psychological stress has negative impacts on the safety and health motivation of construction workers. Due to excessive stressors, psychological stress arises, which in turn harms their safety motivation and increases the chances of working accidents' occurrence (Chen *et al.*, 2017).

Moreover, Researchers added that accidents' risk can be reduced through safety behaviour of labours, which is increased through high levels of job control, or strict management. Some causes of stress and job stressors consist of inadequate or

inappropriate equipment, lack of support, or strict timelines related to the completion of tasks (Stranks, 2005; Paul *et al.*, 2007; Leung *et al.*, 2016). The authors indicate that a stricter management technique would encourage labours to participate in safety protocols (Leung *et al.*, 2016). Although this study does determine the necessity of a strict structure of management, it fails to identify the risks and disadvantages associated with a highly structured job control. The stress perceived by labours in the construction industry might as well increase due to a higher level of job control.

3.6.2 Job Satisfaction

Job satisfaction refers to the contentedness of an individual with their position, duties, responsibilities, salary, supervision, and other relevant practices and policies (Peerbhai, 2006; Gebczynska, 2022). The level of job satisfaction is a direct determinant of health and safety and motivation, specifically in terms of the construction industry. Jalagat (2016) state that monetary considerations are the most effective set of strategies used for the motivation of workforces in any industry. It is crucial to address the job satisfaction of employees, and increase it as well, so that their motivation levels and performance can be improved simultaneously (Jalagat, 2016).

According to Van Scheers and Botha (2014), job satisfaction of employees and their motivation levels have a significant relationship with one another. The more satisfied an employee is with their job, the higher their level of motivation will be, and vice versa (Van Scheers and Botha, 2014). In addition, Ismail and Abd Razak (2016) state that the level of workers' job satisfaction has significant impact on their job motivation, extrinsic motivational factors, as well as intrinsic motivational factors. These elements

are interconnected with one another, as an employee satisfied with their job is motivated to perform efficiently, and a motivated worker is often satisfied with their job (Ismail and Abd Razak, 2016).

3.6.3 Behaviour

The way in which the employees and employers engage with one another, or the type of behaviours that they exhibit, significantly establishes, or alters the motivational levels of the workers. According to Yao *et al.* (2014), leadership practices employed by the management, along with the stress of work on the employees, are two of the most important influential factors on motivation levels. It was discovered that a positive connection exists between negative employee behaviour and work stress. The more stressed a workforce is, the more they are likely to exhibit negative behaviours, which in turn reduces their motivational levels (Yao *et al.*, 2014).

On the other hand, Panuwatwanich *et al.* (2016) discuss the impact of safety motivation and environment on the safety behaviour of workers in the construction sector. The findings outline that safety motivation efforts by the management play a crucial role in enhancing employees' safety motivations (Panuwatwanich *et al.*, 2016). In addition, Lazaroiu (2015) state that organisational behaviour plays a crucial role in the motivation and safety of employees. The more productive organisational behaviour is, and the level at which it promotes the personal and professional growth of the workers, the higher the overall motivation levels are likely to be. The author also states in the study that in most cases, leaders and managers fail to give appropriate levels of attention and make efforts to lead their subordinates, as they fall out eventually. This practice

must be stopped, and managerial figures must consider leading effectively (Lazaroiu, 2015).

3.7 RELATIONSHIP BETWEEN INTRINSIC AND EXTRINSIC FACTORS

Ryan and Deci (2000) suggest that extrinsic and intrinsic motivational factors are interconnected. Evidence indicates that some extrinsic motivational factors, including workplace safety, training, safety management and policies have noteworthy impacts on the intrinsic motivation of construction workers (Pelletier *et al.*, 2007). Moreover, Woods (2011) adds that in order to establish a safe and positive working atmosphere in an organisation, it is necessary to combine both extrinsic and intrinsic factors of motivation, as cumulative impacts are found instead of exclusive. Ryan and Deci (2000) state that extrinsic motivation is a key factor associated with acquiring external value. If the extrinsic motivation of employees is improved, a positive set of behaviours and working conditions can be established regarding their health and safety (Baker 2004). It is also an external force that firms use to improve their productivity. Deci (1975) proposed that extrinsic motivational factors are the topmost priority of managerial figures when it comes to improving the performance of the workforce.

As external factors are easily visible, noticeable, and changeable, they are considered to be the most important during processes of increasing motivation. Some of the most important extrinsic motivational factors consist of the firm's policies and management, training, and development, working conditions, supervision, management commitment, and systems of H&S management (Dransfield, 2000; Irabor and Okolie, 2019; Haas, 2020).

Sansone and Harackiewicz (2000) state that a strong connection exists between extrinsic motivation and performance of the workforce. Evidence shows that the performance of workers is largely affected by extrinsic motivational factors (Zohar *et al.*, 2015). In addition, Stranks (2007) discusses that systems of managing H&S are an extrinsic motivational factor that are used as a key strategy and tactic to control and manage the hazards associated with a workplace. The right strategy must happen correctly and at the correct time to effectively manage projects. The more thorough the initial start-up process, the fewer issues later.

The extrinsic and intrinsic motivational pathway can be used in this regard. The first step depicts that extrinsic motivational factors are the first to exist before or during the beginning of a project. The observed risk at the worksite is included in the extrinsic motivational factors, which is one of the most important attributes impacting the motivation of the workforce. The risks must be assessed and mitigated before any physical work is started at the worksite. According to Stella (2008), the performance of the firm and construction workers can be improved with the help of external factors. These external factors include policies, commitment, health and safety management, safety training, working conditions and supervision. Additionally, Deci (1975) states that that extrinsic motivation comes first, which is indicative of the fact that extrinsic factors should be assessed prior to beginning the project. Once extrinsic factors are managed, intrinsic factors can be manipulated to achieve better performance outcomes.

Intrinsic motivation overlaps with extrinsic motivation in the second step. The overlapping of intrinsic and extrinsic motivation occurs after this step. This overlapping

would occur throughout the project. The output of external motivators becomes the input of intrinsically motivated workers, and vice versa. According to Decker et al. (2009), extrinsic factors such as training, managerial behaviour, and workplace policies influence intrinsic motivation. Furthermore, Jolly (2003) stated that if a foundation of competencies is established, a proper H&S planning, management system, and risk valuation process will emerge, resulting in enhanced control across major risks in the workplace and, as a result, operatives will complete their work in a safer manner, as shown in step 3.

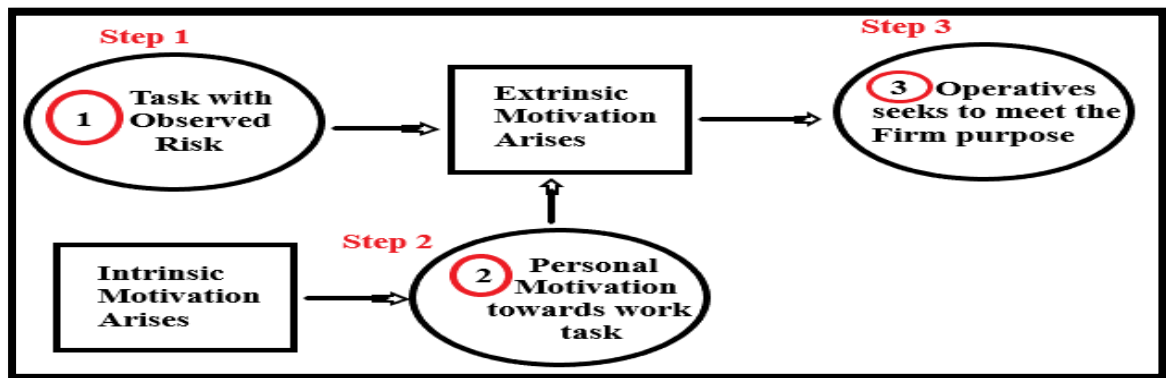


Figure 4: The Intrinsic and Extrinsic Motivational Pathway

3.8 CHAPTER SUMMARY

The third chapter has comprehensively reviewed literature associated with motivation and motivational theories in the context of health and safety in construction. Firstly, an overview of motivation has been provided. It is followed by an explanation of seven theories of motivation, which include McGregor, Herzberg, Equity, Vroom, McClelland, Maslow and Skinner. An explanation has been provided regarding why

Herzberg's theory of motivation has been selected. An overview of motivational theories in the workplace, its types, as well as their roles have been discussed. A relationship between extrinsic and intrinsic and intrinsic factors has been developed too. The findings of the literature review help determine the framework for the present study. The next section provides the conceptual framework.

CHAPTER 4: CONCEPTUAL FRAMEWORK

4.0 INTRODUCTION

Conceptual frameworks are essential components of any research. They are a representation of the connection between the variables or elements that the study revolves around (Imenda, 2014). The characteristics or the properties involved in the discussion of the research are the basis upon which the conceptual framework is formed. In other words, it is a cumulative representation of all of the elements of the study, along with underlying concepts based on existing theories and frameworks. This chapter presents a developed conceptual framework with the help of taking into consideration the topic of H&S motivation among semi-skilled operatives working in Construction SMEs. The conceptual framework has been created in the context of the UK construction SMEs. The present chapter aims to fulfil the third research objective (To develop a conceptual framework of motivational factors that impact semi-skilled operatives health and safety at construction SMEs). The components of the model are also thoroughly described in this section.

4.1 OVERVIEW OF CONCEPTUAL FRAMEWORK

The conceptual framework of this study will be based on the concepts delivered by the self-determination theory. It is one of the major theories of motivation and personalities that takes into account innate growth of individuals, and innate psychological tendencies. It deals with the motivation of people as they make certain choices in the complete absence of certain influences as well as distractions. Deci and Ryan have calculated that there are three main elements of the theory.

1. Humans are proactive in the case of their potentials and mastery of their overall inner focuses.
2. There is an inherent tendency on all of the humans to grow and develop.
3. Humans have a tendency towards optimal development (Deci & Vansteenkiste, 2004)

In addition, A recap of the key points discovered in the review of literature is essential before beginning the explanation of the conceptual framework. According to literature, the health and safety conditions and outcomes of semi-skilled operatives at construction SMEs are quite poor. There is a range of factors involved in this case, as they impact the health and safety culture of the workplace. In order to address this issue, extrinsic and intrinsic motivational factors have been determined through literature, which impact health and safety outcomes. The extrinsic motivational factors consist of safety training, working conditions, management commitment and policies relevant to health and safety. The intrinsic factors include psychological aspects, attitude, behaviour and job satisfaction of the construction operatives. The outcomes, which are affected by both extrinsic and intrinsic factors, are related to health and safety performance in the workplace. The extrinsic factors have direct impacts on intrinsic factors, both of which in turn affect health and safety outcomes.

According to the findings of the literature review, the extrinsic motivational factors of construction operatives are external forces that impact their health and safety motivation. Safety training has been found to have crucial impacts, as an insufficiently trained workforce is not aware of safety behaviours (Abrey and Smallwood, 2014). The

working conditions are also vital, because an unsafe working environment results in an increase in accidents and hazards at the worksite. Working conditions include lack of sufficient lighting, lack of safety equipment etc. Safety management and the management's commitment towards their workforce's health and safety are important too. The level of effort that the managerial figures at a construction firms show towards their workers' safety encourages the latter to engage in safety behaviours (Raoufi and Fayek, 2018). A similar case is found in health and safety policies, which are usually absent at construction SMEs.

The intrinsic motivational factors, which are forces internal to a construction operative, have noteworthy impacts on health and safety outcomes as well. The psychological stress that construction operatives experience due to external factors affect their health and safety motivation, along with their performance (Dutta et al., 2015). The extrinsic motivational factors also affect the workers' attitudes and behaviours towards health and safety, which in turn impact relevant performance and outcomes. The job satisfaction of construction operatives is also directly influenced by extrinsic factors and some intrinsic factors, such as safety training and psychological stress. At organisations where poor health and safety policies are practices, construction operatives have low job satisfaction levels (Navarro-Abal et al., 2018). All of these factors are important as they impact health and safety outcomes, which has been proven through literature.

In order to address this issue, extrinsic and intrinsic motivational factors have been identified through literature, which impact health and safety outcomes. A conceptual

framework of intrinsic and extrinsic factors is developed. Attached below, is the conceptual framework that has been developed by synthesising existing literature that caters to the topics of intrinsic motivational factors, extrinsic motivational factors, the health and safety motivation of employees, and relevant outcomes. Special focus has been placed on construction SMEs in the Birmingham UK, as the study revolves around this subject. In addition to this, not all employees of the construction industry are included in the study. Instead, only semi-skilled operatives and their intrinsic factors, extrinsic factors, and health and safety motivation with their outcomes are taken into account. The conceptual framework is divided into three main phases. The first phase considers how extrinsic motivational factors impact semi-skilled operatives in construction SMEs, the second phase caters to intrinsic motivational factors in the same manner, while the third phase looks into the health and safety motivational and performance outcomes in relation to the first two phases.

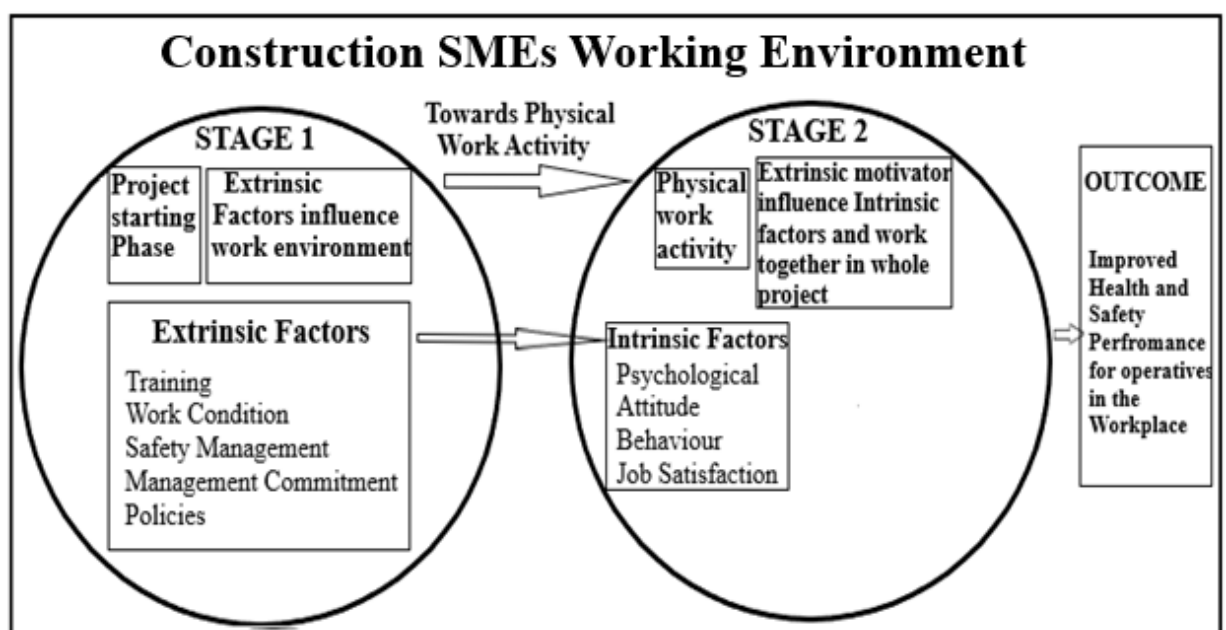


Figure 5: Motivational Factors Impacting the Health and Safety of Semi-Skilled Operatives in Construction SMEs of Birmingham UK – A Conceptual Framework

The stages of the framework are described thoroughly in the subsections below.

4.1.1 Stage 1 – Extrinsic Factors

As previously discussed in the literature review based on the motivation of workers, it has been established that there are different types of motivational factors that have both positive and negative impacts on the performance of individuals. The better the motivational factors perform, the higher the level of motivation is likely to be within employees (Opperman, 2016). The first phase of the conceptual framework includes the training, working conditions, safety management, management commitment and policies. According to Barg *et al.* (2014) relevant incentives for workers in the sector of construction are the main variables which assist them in remaining motivated to perform better and participate in relevant activities. In addition, the authors state that motivation is intangible, and is also a hypothetical construct. Extrinsic motivation requires an instrumentation between activities for which the workers need to be motivated, and external consequences in tangible or verbal forms. These consequences could be financial rewards or verbal recognition, which enhance motivational aspects of employees (Barg *et al.*, 2014). The extrinsic motivational factors are mostly in control of higher authorities of the employer. Raoufi and Fayek (2018) state that a stark difference exists between the perspective of supervisors and workers in the construction industry, in terms of motivation and performance. This difference usually determines the variations between extrinsic and intrinsic motivational factors (Raoufi and Fayek, 2018). The extrinsic motivational factors that are included in the conceptual framework are further discussed as follows.

4.1.1.1 Health and Safety Training

Health and safety training of construction workers, or health and safety training, is one of the most effective methods used in enhancing the health and safety motivation of the workers. It is extremely important, and is an extrinsic factor of motivation, which is why it has been placed in the first phase of the conceptual framework. Ricci *et al.* (2018) take a look at safety value in practice, for establishing effective H&S trainings. The results indicate that correcting the risk perception of workers, and the mediation of positive attitudes towards safety and occupational safety environment play a crucial role in enhancing the training sessions' quality and effectiveness (Ricci *et al.*, 2018). Moyce and Schenker (2018) state that the group of people most widely mistreated in the industry is migrants. These migrant workers are paid nearly half wages, engaged in hazardous jobs, and are forced to continue working without any health and safety trainings. Furthermore, their salaries are often comparatively lower, have longer working hours, and suffer from bad working conditions due to being susceptible to abuse, human rights violations, violence, and even human trafficking (Moyce and Schenker, 2018). According to Zubar *et al.* (2014), health management, motivation, safety management, leadership and training, accident statistics, welfare facilities, policies, administration and organisation, risk analysis, monitoring, reporting, and hazard control, all are crucial components of an effective health and safety system.

4.1.1.2 Working Conditions

The working conditions of employees in the construction industry have an important role as extrinsic motivational variables which directly impact on the H&S motivation of workers. Due to this importance, the working conditions have been placed in the first phase of the conceptual framework. Abrey and Smallwood (2014) state that not only

the unsatisfactory working conditions in the construction industry negatively impact productivity, but they also harm the industry's reputation. According to Kisi *et al.* (2017), the highest possible sustainable level of productivity, which is achievable only under good management practices and working conditions, is known as optimal productivity. Bajjou, *et al.* (2017) state that lean construction tools have proven to enhance safety performance of construction workers, such as scheduled tasks, selection of working methods based on safety requirements and their compliance, visual tools, and a simplified workflow (Bajjou, *et al.*, 2017).

4.1.1.3 Health and Safety Management

According to Lingard and Rowlinson (2005), implementing an H&S management system is one of the most important steps in ensuring that H&S is systematically managed within an organisation. The International Labour Organisation (ILO) describes the H&S management system as a group of interconnected and interacting elements that cooperate to establish OSH policy and objectives and achieve those goals (ILO, 2001, p. 19). The occupational health and safety of a company's workers and other individuals who might be impacted by its operations is the responsibility of the company. One of our responsibilities is to support and safeguard their mental and physical health. Adopting a management system for occupational health and safety (OH&S) is meant to help an organisation create safe and healthy work environments, prevent occupational illnesses and injuries, and continuously improve OH&S performance (ILO, 2001).

Additionally, the ISO 45001:2018 standard specifies the requirements for an occupational health and safety (OH&S) management system and offers instructions on how to put them into practise, enabling organisations to provide safe and healthy workplaces by proactively improving their OH&S performance and preventing work-related injury and illness (Solc et al., 2018). The following are the goals of an OH&S management system in accordance with the company's OH&S policy: (1) continuous OH&S performance improvement, (2) adherence to all applicable laws and regulations, and (3) accomplishment of OH&S goals is all mentioned by Redinger and Levine (1998).

In addition, for the improvement and achieving the health and safety goals in the workplace, PDCA is a tool and cycle of continuous improvement which is based on scientific method of proposing a change in a process, implementing the change, measuring the results, and taking appropriate action. It is also known as the Deming Wheel, after W. Edwards Deming, who introduced the concept in Japan in the 1950s. It is also referred to as PDSA, with the "S" standing for "study." The PDCA cycle consists of four stages. 1). Plan (Identify process goals and the changes required to achieve them), 2). Do (Changes implementation), 3). Check (asses the performance outcomes) and 4). Act (depending on the results, standardise and stabilise the change or restart the cycle).

Furthermore, regardless of size, nature, or activities, ISO 45001:2018 can be used by any organisation. It applies to OH&S risks under the organization's control, taking into account elements such as the environment in which the organisation operates, as well

as the needs and expectations of its employees and other stakeholders (Morgado et al., 2019). Furthermore, there are many variables which noteworthy influence employee performance. These factors are applicable in nearly all industries, as motivational practices and relevant factors are present on a global level. Diamantidis and Chatzoglou (2019) state that the extrinsic factors in the form of the workplace environment, as well as support from the management have the highest effects on the performance of the workforce (Diamantidis and Chatzoglou, 2019). Naile and Selesho (2014) state that transformational leadership is way more effective for enhancing the commitment and behaviours of employees, and indirectly improving job satisfaction by positively affecting relationship trust, shared vision, and creativity (Naile and Selesho, 2014). Pranita (2018) indicates that the better the practices of the management are in retaining talent, motivating employees, fulfilling their needs, and instilling a positive and productive environment within the workplace, the better the motivational outcomes of the employees will be, and their resultant relationship with job satisfaction and organisational commitment will be formed (Pranita, 2018).

4.1.1.4 Management Commitment

The commitment that the management shows regarding the H&S of construction workers has a noteworthy effect on the motivation of the workforce (Amponsah-Tawaih and Adu, 2016). Pinion *et al.* (2017) suggests that if the employees understand they possess a low level of control over their jobs within the organisation, their management may not be strongly committed towards the employees' safety. Additionally, according to Pordanjani and Ebrahimi (2015), management commitment has direct impacts on the conscious efforts and safety performance of the workers. Unsafe behaviours of workers

are reduced due to high safety commitment of the management (Pordanjani and Ebrahimi, 2015).

4.1.1.5 Policies

The policies that construction organisations implement regarding the promotion of H&S among workers have a key part in enhancing the workers' safety behaviours and motivational levels. Most importantly, the workers need to be aware of their rights regarding health and safety. Awareness is vital, as policies can be established without ever being properly implemented for the benefit of the workers (Justice and Ngwama, 2016). The lack of adequate resources causes major health and life losses for the construction workers (Ahmad, *et al.*, 2016). But due to reasons of diversity and workforce development, foreign employees are encouraged towards health and safety behaviours more than local workers (Duryan *et al.*, 2020).

4.1.2 Stage 2 – Intrinsic Motivational Factors

The second phase of the conceptual framework includes three most important intrinsic factors, which consist of psychological stress, attitude, behaviour and job satisfaction. According to Rheinberg (2020), the intrinsic motivation of an individual has the capacity to include action outcomes' incentives, if the goal is identical with the action in terms of its theme. It exists to assist them in initiating tasks out of their own accord, without having to be urged by any external forces. Condry and James (2015) state that when a worker is intrinsically motivated, they have internalised desires to fulfil a goal or target. This desire to achieve something causes them to learn new things, and subsequently participate in relevant activities (Condry and James, 2015). According to

Ling and Law (2019), establishing a feedback environment at a construction firm could participate in enhancing the intrinsic motivation of workers. The results show that most construction workers seek feedback, which enhances their intrinsic motivation (Ling and Law, 2019).

4.1.2.1 Psychological Stress

All around the world, construction workers are often the sufferers of extreme levels of psychological stress (Choudhry and Fang, 2008). The more stressed these workers are, the more they are likely to become reluctant in participating in safety behaviours (Vinodkumar and Bhasi, 2010). The high level of importance of psychological stress is the cause behind placing it in the second phase of the conceptual framework for this study. It also originates from the inside of an individual; therefore, it is an intrinsic factor that impacts motivation. Dutta *et al.* (2015) state that urban areas include the highest number of construction projects, where the frequency and intensity of heatwaves are increasing. The workers, when placed in such environments, have to go through extreme stress, and result in negative impacts on health and wellbeing (Dutta *et al.*, 2015). According to Langdon and Sawang (2017), depression, stress, and anxiety have become extremely common in the construction industry. Wu *et al.* (2018) conducted empirical analysis and statistically tested the data. It was found that a negative correlation exists between job stress and behaviour of workforces in the construction sector (Wu *et al.*, 2018). It has been proven through evidence that high psychological stress causes construction workers to become reluctant in participating in safety behaviours and activities.

4.1.2.2 Attitude

Workers' attitudes are one of the most important intrinsic factors determining motivation and level of participation in safety practises at the organisation (Vinodkumar and Bhasi, 2010). Torner and Pousette (2009) found that attitudes towards worker safety were critical for high safety standards in the construction workplace in their study. Because in of the research study, Kao *et al.*, (2019) claimed that attitude is important in predicting safety behaviours and worker motivation. Schat and Frone (2011) claim that work motivation has a significant impact on job satisfaction because it is linked to attitudes and circumstances, where a positive attitude towards work circumstances can boost motivation and a negative attitude towards work circumstances can lower performance.

3.1.2.3 Behavioural Safety

Behavioural safety refers to health and safety strategies that focus on potentially "unsafe" human behaviour that could lead to accidents. It is frequently described as addressing "unconscious" behaviour, which refers to potentially harmful routines and actions that a person may be unaware of or not be conscious of. In 2020–21, there were 441,000 nonfatal workplace accidents, according to the Health and Safety Executive (HSE). These kinds of mishaps and accidents can be brought on by workplace dangers, impacting human behaviours and errors in the work, or a combination of them. According to Lyu *et al.* (2018), a significant relationship exists among safety behaviour, safety climate, along with the safety outcomes for construction workers. The results indicate a significantly constructive connection between safety climate and subsequent behaviours, while a negative connection between behaviours and outcomes in the case of ethnic minorities (Lyu *et al.*, 2018). Proactive behaviour is necessary when it comes

to improving construction safety and safety management at a firm. Proactively creating safety protocols and encouraging personnel to participate in them would greatly assist in enhancing the safety standard at the organisation (Li *et al.*, 2015). Schwatka, *et al.* (2016) have conducted a thorough evaluation of current evidence regarding the measurement of the worksite climate. They state that besides a wide range of elements, measures of safety behaviours contribute towards enhancing the organisation's safety climate (Schwatka, *et al.*, 2016).

In the UK, Construction SMEs are required by law to safeguard the public, customers, and employees from workplace hazards. Employers should think about behavioural safety and its role in fostering safer workplaces in addition to developing health and safety guidelines, performing risk assessments, to define what constitutes 'safe' and 'unsafe' behaviour, to observe employees engaging in risky behaviour, employees should be informed about these behaviours and the potential risks, to explain what can be done to reduce the risky behaviour, to give employees the information or training they need to change their unsafe behaviour and observe employee behaviour after training and provide feedback on which employees' behaviour has become safer.

In addition, the results of a study conducted by Nguyen and Watanabe (2017) indicate that contractor commitment, along with cooperative orientation play a crucial role in the enhancement of workers behaviour and productivity in the workplace. Trust and goal alignment, along with contractor commitment contribute towards enhancing the learning performance of employees (Nguyen and Watanabe, 2017). Moreover, Al-Musadieq *et al.* (2018) suggest that job design has a direct effect on the work workforce

motivation and behaviour, along with the performance of human resource. Hogan and Coote (2014) have investigated the effectiveness of Schein's model, which is related to organisational culture, performance, and innovation. The aforementioned model consists of multiple layers, which are based on basic assumptions, exposed values, and artifacts of the culture of an organisation. The model is attached in figure 6 below.

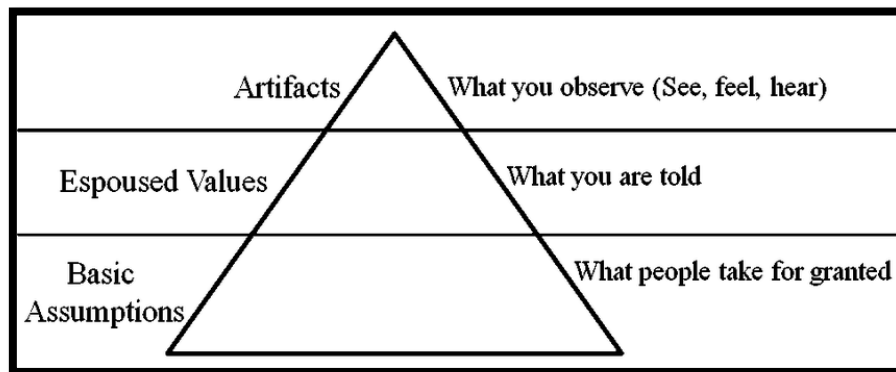


Figure 6: Schein's Model of Organisational Culture (Hogan and Coote, 2014)

The authors state that layers of organisational culture, including the norms, artifacts, along with firm's innovative behaviours are connected with one another. The values and practices of the firm's culture support employee performance, hence, enhance creativity and innovation as well (Hogan and Coote, 2014). Once a culture of respect is instilled within a construction firm, it is likely to achieve better performance and safety behaviours outcomes through motivating the workers.

The ABC model of behavior can be applied in this context that can also be termed as behavior modification theory. Here, (A) stands for Antecedents, B stands for Behavior, and C for Consequences. The theory defines the fact that there are a set of antecedents

that trigger certain behaviors followed by certain outcomes and consequences that increase or reduce the chances of repetition of specific behavior. It is one of the main models that can be used for health and safety behaviors. It can be used for investigation of reasons of workers wearing or not wearing any safety equipment, why they don't follow safety rules and so on.

4.1.2.4 Job Satisfaction

Job satisfaction is an extremely important aspect of the intrinsic factors that impact the motivation level of construction workers. Job satisfaction not only enhances the motivation level of employees, but it also encourages them to participate increasingly in safety activities. Navarro-Abal *et al.* (2018) state that the way in which construction workers perceive their health status is directly influenced by their dissatisfaction or satisfaction with their job. The results indicate that extensive work experience in the industry enhance job satisfaction, while people on contractual jobs or internships mostly remain dissatisfied. Job dissatisfaction is connected to negative health perception, while job satisfaction is related to positive health perception (Navarro-Abal *et al.*, 2018). Dhurup, *et al.* (2016) explain that teamwork, affective commitment, and normative commitment have a positive influence on the job satisfaction of construction workers. On the other hand, continuance commitment has a noteworthy negative influence on job satisfaction (Dhurup, *et al.*, 2016). Furthermore, the age of construction workers plays a mediating role between job satisfaction and safety climate of the company operating in the construction sector. Job satisfaction is connected to perceived rates of accident, and the frequency of safety inspection, while age the role of remains unidentified. A high level of job satisfaction enhances perceptions of safety climate (Stoilkovska, *et al.*, 2015).

4.1.3 Interaction between Extrinsic and Intrinsic Factors

This phase of interaction in the conceptual framework of the study is determined by the interaction of both extrinsic and intrinsic motivational factors. The extrinsic motivational factors, and intrinsic motivational factors, both have significant impacts on the health and safety motivation of construction workers. Both types of factors cumulatively impact the safety behaviours, motivation, knowledge, climate, and outcomes within construction firms. Furthermore, the transfer of knowledge in terms of health and safety in construction firms is essential as well (Duryan et al., 2020). This knowledge transfer can take place in the form of health and safety training. The more the construction workers retain information of these training sessions, the better their prospects of health and safety behaviours and safety motivation are likely to be.

Both extrinsic and intrinsic factors are a part of the concept of motivation. The overall motivation level of a workforce is affected by a cumulative influence of both types of motivational factors (Herzberg, 2008). Coincidentally, these factors have power over one another. For instance, the extrinsic motivational factor of poor conditions of working has a direct influence on the intrinsic motivational factor of low job satisfaction. When the employees are not given appropriate conditions to work in, they face hurdles in their daily operations, which results in discomfort and inconvenience. In addition, the needs of the workforce are not satisfied as well, because workers require a comfortable and safe working environment. When these negative factors are present, workers do not feel content towards their job, causing them to develop job dissatisfaction (Mardanov, 2020). Similar connections are present across various types of extrinsic and intrinsic motivational factors. The greater the power of a factor is over

another, the more apparently the changes will manifest themselves in form of the workforce's morale. Intrinsic motivational factors may also have impacts on extrinsic factors (Sansone and Harackiewicz, 2000), such as high stress levels resulting in a poor workplace environment. The present study investigated these interactions as well.

4.1.4 Health and Safety Outcomes

The final, or the third phase of the conceptual framework is determined by the H&S outcomes of the entire process conducted in the first two phases of the model. Health and safety outcomes, in this case, are defined as the possible enhancement in the health and safety behaviours, motivation, participation, and other relevant attitudes of the semi-skilled workers at organisations operating in the construction sector of the UK. The health and safety outcomes of construction workers is largely influenced by the safety climate, safety motivation and behaviour of the aforementioned personnel and workforce engagement. All of these factors have been added in the conceptual framework in the initial two phases. Furthermore, one study found that the safety climate acts as the mediator between safety behaviour and motivation of the workforce (Al-Haadir, *et al.*, 2013).

There is noteworthy and significant evidence regarding the importance of safety motivation in terms of achieving positive health and safety outcomes. Extensive evidence shows important relationships of these outcomes with leadership, knowledge, motivation, and attitudes. The role of management has also been outlined with the help of evidence in this regard. According to Basahel (2021), poor safety conditions are not only the consequences of organisational or group mistakes, but they also arise from

individual factors. In addition, attention needs to be given towards the topic of sequential impacts of workforce engagement, leadership, motivation, knowledge, and attitudes regarding safety in the construction industry. The author goes on to state that safety knowledge and motivation can be easily predicted by safety attitude and leadership (Basahel, 2021).

In addition, in a safety context, workforce engagement also refers to everyone in the workforce actively participating in managing and improving safety performance. When employees are engaged, they believe they can improve workplace safety in the same way that managers can. Workforce Engagement entails all employees participating in and challenging how workplace safety is managed. In addition, Employees who are engaged contribute to fewer safety issues, while safe work environments encourage engagement and their safety behaviours. Gallup discovered that companies with low levels of employee enthusiasm experienced a 64% increase in safety issues when compared to those with highly engaged employees after analysing decades of research.

When it comes to the construction industry and relevant health and safety outcomes, it is essential to notice a range of elements and perspectives, along with the knowledge and experiences of the involved personnel. Xia et al. (2020) take a deeper look at dual perspectives regarding the perception of risk, and its impact on the safety behaviour of construction workers. The role of mediator is played by safety motivation. The safety climate established by supervisors and co-workers is also given importance. The authors conclude that risk perception may act as a job hindrance, or even a challenge to overcome, depending on the situation. Additionally, construction workers almost

always perceive risk as a hindrance towards their job, which reduces their safety behaviours, resulting in a higher rate of accidents and even fatality (Xia et al., 2020). This information goes on to show that health and safety motivation outcomes are not one dimensional, and that multiple aspects must be considered while investigating them.

4.2 SYNTHESIS OF THE CONCEPTUAL FRAMEWORK

The study's subject is to address the H&S motivation of semi-skilled operatives at Construction SMEs in the UK. In order to address the subject of motivation, both extrinsic and intrinsic motivational factors have to be considered in this case. The extrinsic motivational factors, and intrinsic motivational factors, both have significant impacts on the H&S motivation of workers. Both of these types of factors cumulatively impact the safety behaviours, motivation, knowledge, climate, and outcomes within construction firms. Furthermore, the transfer of knowledge in terms of H&S in construction firms is essential as well (Duryan *et al.*, 2020). This knowledge transfer can take place in the form of H&S training. The more the workers retain information of these training sessions, the better their prospects of health and safety behaviours are likely to be. The conceptual framework involves all these aspects in one way or another.

conceptual framework for this study is divided into three main phases. The first two phases contribute towards the accomplishment of the third and final phase. The first phase consists of extrinsic factors that impact the H&S motivation of semi-skilled operatives at construction SMEs in the Birmingham UK, such as the management, working conditions, culture of respect, and health and safety training. The second phase

includes intrinsic factors, which consist of psychological stress, job satisfaction, and behaviour. Lastly, the third phase revolves around the health and safety motivation outcomes of the target population, which includes their behaviours, attitudes, participation, etc. It must be noted that the barriers are related to the H&S motivation of construction workforces are also addressed in the conceptual framework, within their relevant categories. The most common barriers consist of time, cost, along with a lack of safety concern and awareness (Wong, *et al.*, 2015). The barriers are taken into consideration under appropriate categories, such as lack of concern is included in the behaviour of the construction workers.

4.3 CHAPTER SUMMARY

The fourth chapter of the paper consists of the conceptual framework behind the study. The conceptual framework is based on the discussion of the literature review, in the previous two chapters, i.e., two and three. The points made in the review of literature have been included in the conceptual framework, and a three-stage model has been established. The three stages or phases consist of extrinsic factors impacting motivation, intrinsic factors impacting motivation, and health and safety motivation outcomes of the target population, respectively. The components of the model are then explained in the chapter, each of which is backed up by evidence derived from existing sources of literature. The conceptual framework is incorporated in the collection of data, analysis, and the formation of results at the end of the paper.

CHAPTER 5: RESEARCH METHODOLOGY

5.0 INTRODUCTION

This section focuses on the methods of research. The research methodology is an essential part of the research process. It consists of the research philosophy, research approach, methods and techniques used for data collection and analysis. This chapter will explain how the choices regarding the above factors were made and why. This chapter also explain how the research was designed and research ethics was considered.

5.1 RESEARCH PHILOSOPHY

The first step in the determination of the methodology of the study is the establishment of the research philosophy. The research philosophy becomes the cornerstone upon which the entire process of the research is based (Klenke, 2016). In other words, it is the perspective that the researcher adapts in the collection of data, its analysis, and the formation of results and conclusions (Saunders et al., 2015). There are multiple types of research philosophies, all of which are used for implementation in different types of studies. The most common types of research philosophies consist of positivism, interpretivism, pragmatism, critical realism, objectivism, along with subjectivism (Hamlin, 2015). Some of these approaches allow researchers to collect objective evidence that can be proven by a range of methods, while others remain more focused on the perspective and method of interpretation of information (Tracy, 2019). All philosophical approaches are important and serve their own type of purpose. In most cases, qualitative studies emphasize on the perspective and interpretivism of information, and form conclusions that are often not tested through statistical methods

and techniques (Gasson, 2014). On the other hand, quantitative studies are involved in using philosophical approaches that have an objective focus, test data through statistics, and form conclusions that can be proven through mathematical analyses (McNabb, 2020). The selection of research philosophy has the potential to impact the entire research process, as well as the findings and conclusions.

One of the most widely used paradigms or philosophies of research is positivism. Ontologically, positivism is used to address realm independent, ordered, and external phenomenon. The nature of reality is objective and can be proven (Potter 2013). Epistemologically, positivism refers to a scientific method, and measures observable and explainable facts and figures (Hammond and Wellington, 2012). From an axiological perspective, it is free of values, the researcher is detached from the independent sources of truth, and they maintain an objective stance. It is usually deductive structured, and is a quantitative method (Park, *et al.*, 2020).

On the other hand, interpretivism is the exact opposite of positivism. It refers to the notion that reality is subjective, and that it changes due to the involvement of human beings (Bhattacharya, 2017). Ontologically, it is complex, socially constructed through culture, and has multiple interpretations (Schwartz-Shea and Yanow, 2013). Epistemologically, interpretivism is based on simplistic theories and concepts, and focuses on stories and narratives. Axiologically, it is bound to values, the researcher is a part of the study, and the findings are subjective (Ravitch and Carl, 2019). Typically, interpretivism is inductive, qualitative, with a range of data analysis methods (Alharahsheh and Pius, 2020). In addition, pragmatism is more of a combination of

both positivism and interpretivism (Morgan, 2014). Critical realism refers to relativism, and states that facts and social constructions (Shannon-Baker, 2016). Objectivism is based on real, external, and one true reality or universalism (Elander and Cronje, 2016). Lastly, subjectivism is focuses on nominal, socially constructed, and flowing reality (Yu, 2020).

5.1.1 Adopted Research Philosophy

The research philosophy selected for the conduction of this study is interpretivism. Interpretivism, as discussed in the paragraph above, is based on a major focus that is placed on the role of human perspective in the establishment or creation of reality. In accordance with interpretivism, the nature of reality has multiple meanings, and there is a flux of processes, practices, and experiences. Furthermore, what constitutes acceptable knowledge, in the case of interpretivism, are new understandings, worldviews, and interpretations. Values are of high worth in interpretivism, while the researcher is a major part of the study (Johannesson and Perjons, 2014).

5.1.2 Justification

It is qualitative research, which is why the philosophy of interpretivism is the most suited for the purpose of data collection and analysis. Moreover, it is appropriate because a phenomenon such as the research subject is more subjective, individual, contextual because this study aim is to deal with construction operatives' workplace experiences, motivation and health and safety issues in their workplace. When a researcher is interested in "the immediate response to a new innovation"—for example, motivational factors and their impact on health and safety—they may be forced to use

subjective data, which will entail "why" and "how" questions that require a thorough understanding (Williams, 2000). "Because it is improbable that objective data would have been gathered in-depth and at the appropriate times or instances," This is not directed towards a poor outlook of the positivist approach, but alternative approaches are suggested as they can strengthen and assist the context and motivation of the research in question, because positivist approaches fail to provide sufficient data regarding the entirety of the situation (Crotty, 1998).

Moreover, the conceptual framework developed in chapter four of this research sits well with this paradigm because research framework attempted to highlight and describe all key internal and external factors of motivation, which include policies, training, safety management, managerial commitment, behaviour, attitude, along with working conditions. The impacts of these factors on the construction firms' operatives and their safety performance at construction SMEs are assessed, which is aligned with the interpretivist research paradigm. This does provide support for the interpretivism paradigm study and underlines its suitability for further investigation to obtain empirical evidence about the physical setting in small and medium-sized construction firms to gather empirical evidence by learning about the practical experience of construction workers and their perception towards workplace health and safety motivators. Therefore, it can be said that the adoption of the interpretivism research philosophy for this research project is a suitable approach. It can also be said that by adopting this method the subject of the research can also be described as subjective, contextual, and individual.

5.2 RESEARCH APPROACH

Research approach is way through which the entire process of the study is carried out (Mishra and Alok, 2022). This approach determines whether specific observations will be used for the formation of generalised statements, or generalised statements will be used for taking a deeper look into specific phenomenon (Walliman, 2021). In other words, the research approach determines if a top-down technique is used, or a bottom-up method is used for the conduction of the study. The research approach is extremely important in the determination of the factors involved in the study, including the necessity of a hypothesis, statistical evidence, or any other kind of component involved in the study. Inductive and deductive reasoning are the two main categories of research approaches (Armat et al., 2018).

The inductive reasoning approach consists of the observation of specific phenomenon for the formation of general conclusions (Azungah, 2018). It is mostly used on studies of social situations, and the data is gathered regarding the possible causes behind the occurrence of social trends (Azungah, 2018). The data is examined to form concrete evidence regarding the reasons behind the social trends being observed, while a theory is formed from the collected data at the end of the study (Hayes and Heit, 2017). The inductive approach is commonly used in qualitative studies.

The deductive approach of reasoning, as opposed to the inductive method, is a much more complicated and thorough technique of research conduction (Azungah, 2018). There are comparatively several more steps added in the deductive reasoning approach and is commonly used in quantitative studies that involve the formation of a hypothesis,

as well as methods of proving it (Tjora, 2018). Moreover, existing and general theories are used as the foundation of studies based on deductive reasoning, a hypothesis or multiple hypotheses are formulated, data is collected, data analysis is carried out, and the formed hypothesis or hypotheses are accepted or rejected based on statistical analysis (Aneshensel, 2012). Observations, tests, or experiments are a crucial part of the deductive reasoning approach (Schechter, 2013). In studies revolving around the deductive reasoning approach, a social phenomenon is observed, and a theory is formed which aims to explain why it occurs in the first place. The theory is then tested with the help of appropriate research, and it is either rejected, accepted, or even revised (Blaikie, 2007). In most cases, the deductive reasoning technique is applied in quantitative studies, as well as those researches that make use of statistical analyses for the formation of conclusions (Oaksford, 2015). Through both inductive and deductive approaches of reasoning, concrete evidence is collected for the explanation of social phenomenon.

5.2.1 Adopted Research Approach

The inductive approach has been selected for the reasoning process in this study. It has been chosen due to the fact that the specific social phenomenon of the H&S motivation of semi-skilled workers at construction SMEs needs to be taken into account. As aspects of intrinsic and extrinsic factors of motivation are highly involved and focused upon in this study, the perspectives, and narratives of the target population matter greatly in this study. The inductive reasoning approach emphasises the importance of social phenomenon and the reasons behind their occurrence, based on no experiments or testing processes (Molnár, *et al.*, 2013).

5.2.2 Justification

The justification behind the selection of the inductive reasoning approach for this study is the fact that it intends to collect as much data as possible regarding the health and safety motivation of semi-skilled construction workers, until the point where no new data can be formed or collected. Furthermore, the target population is very specific, and generalised conclusions are to be made with the help of the study, therefore the inductive approach is the most appropriate in this case. Inductive reasoning is an approach that considers specific situations, collects data, analyses it and forms general conclusions (Azungah, 2018). This study must follow the same path. Semi-skilled operatives at Birmingham's construction SMEs are a very specific target population, and the general health and safety motivational aspects of small construction firms needs to be addressed.

Moreover, the data collection in inductive reasoning focuses on specific observations from which broader generalizations are drawn to develop the framework (Malhotra, 2017). Whereas deductive research is used to test theory (Overmars and Verburg, 2007), while Inductive research is used to generate theory from emerging data (Overmars and Verburg, 2007). In relation to this research, which aims to investigate the motivational factors impacting semi-skilled construction operatives/labors in construction SMEs. The theory takes to form a new research framework. as the study, which deals with contextual aspects, which will involve 'why and how' questions, which really need an in-depth understanding and to gain an insight of the factors to observe 'how operatives are experiencing these issues in their work.

Narrative research technique would be appropriate in this case, as the present study requires a detailed account of the experiences of semi-skilled operatives in the context of health and safety at the worksite. Because the study is multifaceted, in-depth and thorough data is required, which makes it difficult for the adaptation of quantitative or deductive approaches, which mainly focus on a single and objective reality. Based on the epistemological and ontological differences in methodologies, they can also not be mixed in with a qualitative technique (Dieronitou, 2014). The inductive approach is much more flexible as compared to the deductive approach. It uses a descriptive stance and aims to understand the processes, perspectives, phenomenon and worldviews of the target population (Cooper & Endacott, 2007). In other words, all types of qualitative data can be inserted into an inductive approach, including multiple ways in which the safety of semi-skilled operatives is impacted by motivational factors. It is why is the inductive approach has been justifiably selected.

5.3 RESEARCH STRATEGY

The research strategy is based on the philosophy, as well as the reasoning approach that is selected for the conduction of the study (Walliman, 2021). There is a wide range of research strategies, which act as the framework through which a stepwise technique is adapted for the collection of data, its analysis, and the formation of relevant conclusions regarding the topic of the study.

The most common types of research strategies are surveys, case studies, exploratory studies, action researches, grounded theories, ethnographies, archival researches, along with experimental studies (Vizcarguenaga and Lopez, 2020; Walliman, 2021). The

scope, plan, purpose, and method of each type of research strategy differs from one another by a noticeable degree (Badke, 2021). All of the aforementioned strategies of research are based on the collection and analysis of either qualitative or quantitative information. Furthermore, apart from the nature of the collected data, the source of the data is also of utmost importance in the research strategy (Hennink et al., 2020). Qualitative studies focus on the collection of information that determines and denotes attributes and qualities, while there is no involvement of numerical figures or statistics in the study (Tracy, 2019). On the other hand, quantitative studies collect numerical data, and present it in the form of figures and statistics, so that it can contribute towards proving the hypothesis (Das, et al., 2018).

In surveys, first-hand data is collected from the sources of evidence, usually with the help of open-ended, close-ended, or mixed questionnaires (Suhayda and Dave 2017). These questionnaires are given to the target population, who are then asked to fill the survey and provide honest answers to the questions (Blair et al., 2013). Moreover, action research, grounded theory, and experiments involve the collection of evidence for proving certain phenomenon. They collect either qualitative evidence or quantitative data, or create a combination of both, and use it to prove the point of the research question (Polit and Beck, 2010).

Other research strategies like archival research or ethnography often involve the collection of secondary information, which is gathered from previously published sources (Kapiszewski *et al.*, 2015). In addition, another qualitative research strategy called "phenomenological research" aims to comprehend and characterise a

phenomenon's fundamental elements (Lee, 2011). The methodology explores human real-life experience. In other words, phenomenological research investigates actual experiences to learn more about how workers interpret them (Lee, 2011). Lastly, the exploratory research design refers to the collection of either first-hand or previously published information for exploring specific social phenomenon. This study design is one of the most widely used techniques (Hackley, 2003). It involves collecting data and analysing it to form relevant conclusions and establish the reality behind a range of situations (Goodell, et al., 2016). The exploratory research design can be used in combination with both qualitative and quantitative methods. Data analysis techniques also vary from study to study, as the exploratory research technique allows for a wide range of methods to be used with it.

5.3.1 Adopted Research Strategy

The phenomenological research design has been selected for the conduction of this study, in combination with primary and qualitative data collection. Studies based on primary data are comprised of first-hand and latest information that is attained from the sources of the information themselves. This study also consists of new information that is highly relevant to the topic of the study. It aims to explore the specific phenomenon of motivational factors impacting semi-skilled construction operatives in the workplace, which involve their live experiences; therefore, it is essential to discover the causative factors that end up in its occurrence. Van Manen (2017) added that exploring the essence of workers experiences and comprehending the significance that worker attach to them are the main goals of phenomenological research design. Without

imposing preconceived theories or interpretations, it aims to capture these experiences' fundamental structures and essential elements.

5.3.2 Justification

The target population is extremely specific in the case of this research, i.e., the semi-skilled operatives at construction SMEs within the Birmingham United Kingdom. More specifically, Birmingham. As the level of specificity is so high, it is nearly impossible to find existing information regarding the topic. With the help of the literature review, relevant gaps in current research have been identified. The gaps indicate that sufficient data is absent regarding the topic of the study, as it is specific and narrowed down towards an otherwise disregarded target population in health and safety aspects. Therefore, it is essential to collect first-hand information from the target population. As the views of the workers matter greatly in this regard, a qualitative phenomenological research approach has been chosen for carrying out the study.

The subject of the study cannot be measured in figures and numbers. It can only be assessed with the help of qualitative techniques because the perspectives of the target population are the basis upon which the data is collected and analysed. Any assumptions made in the study are according to empirical evidence, which involves the operatives' perspectives and descriptive information. The design of phenomenological research is also descriptive. Sparkes and Smith (2013) added that the goal of qualitative phenomenological research is to learn what a specific experience means to a group of workers and how they experienced it. In addition, the subject of this research study has not yet been comprehensively investigated and is highly specific. Exploring the issue

and collecting in-depth data for analysis are essential parts of the study. Therefore, the phenomenological research technique has been chosen for the topic.

5.4 RESEARCH METHOD

The research method, also known as the choices, made in the process of the study in accordance with the research onion presented by Saunder, is an essential part of the determination of the process of the research (Al-Ababneh, 2020). The method selected by the researcher allows for a streamlined process of data collection, analysis, and the formation of relevant conclusions. In addition, there are standards of procedures that have already been determined for each type of research method. If and when these standards are correctly followed by the researcher, the study becomes a strong source of evidence for future researches that cater to the same or similar areas. There is a wide range of research methods and selecting the most appropriate one is the most important step of the process (Kumar, 2018). The main categories of research methods consist of literature reviews, document analysis, query-based web searches, and algorithmic information mining (Jansen and Rieh, 2010; Hennink et al., 2020). These categories are crossed by the kind of methods that are used for the fulfilment of the research objectives. These methods consist of observation, interrogation, experimentation, intervention, stochastic processes, transformation, and operation (Flick, 2015). When these methods are combined with standard techniques of research, other forms of research designs are established.

Kinds of methods	Standard research methods			
Aggregative	Literature study	Documents analysis	Query-based web search	Algorithmic information mining
Observational	Naturalistic observation	Laboratory observation	Protocol study	System (self-) monitoring
Interrogative	Questionnaire survey	In depth interview	Self-reporting	Focus group session
Experimental	True experiment	Quasi-experiment	Instrumented measurement	Explorative case analysis
Interventional	Physical specimen testing	Clinical testing	Planned user trials	Active diagnosis
Stochastic	Frequentist statistical analysis	Bayesian statistical analysis	Random statistical analysis	Evidence-based reasoning
Transformative	Problem formulating studies	Abductive model synthesis	Proofing of tangible concepts	Evolving system development
Operative	Model-based investigation	Simulation-based study	Action research	Practice-based research

Table 2: Summarized Research Designs (Vroom and Horvath, 2014)

The table attached above, shows a summarised form of research methods. When observational literature reviews are conducted, a naturalistic observation occurs, and interrogative literature reviews become questionnaire survey (Gratton and Jones, 2004). Experimental literature reviews are time experiments, interventional reviews are physical specimen testing, stochastic reviews are frequentist statistical analysis, transformative studies are problem solving designs, while operative literature reviews are model-based investigations (Vroom and Horvath, 2014). Furthermore, other types of studies are also formed with the help of these crossovers (Vroom and Horvath, 2014). The efficiency of each type of research design depends on the context and setting in which it is implemented. For instance, an observational study design of exploratory technique would not prove to be efficient when experimental research methods are required (Zegeye, 2009). In other cases, where experiments are unnecessary or may cause harm to the research subjects, an exploratory or simply observational research

technique is the most suitable to be selected. Data collection techniques also vary from research design to research design, and their efficiency is also established through their level of necessity in a specific situation (Yin, 2009). Latest data is often required when social phenomenon is being observed or explained, while lengthy studies requiring multiple data collection points may also incorporate previously published information in their datasets (Mishra and Alok, 2017). Yet again, it is the decision of the researcher to choose from the available options.

5.4.1 Adopted Research Method

The research method that has been selected for the conduction of this study is based on the primary exploratory research technique. Primary data refers to the collection of first-hand information, while exploratory studies focus on attaining information regarding social phenomenon, in order to try to explain what causes its occurrence (Zegeye, 2009). Furthermore, qualitative information is involved in this study, as the perspectives of semi-skilled construction workers must be incorporated in the research. The qualitative study design refers to collecting and analysing non-numerical data that has the ability to depict attributes regarding the topic of the study (Ahmed *et al.*, 2016). In addition to this, this research follows the protocols of the observational study design. First-hand data is collected as an attempt to explain the causes behind the health and safety motivation of semi-skilled operatives at construction SMEs in Birmingham, the United Kingdom. Observational studies only focus on gathering information and analysing it, without conducting any experiments or tests (Nayak and Singh, 2021).

5.4.2 Justification

This study focuses on very specific thought-processes and causative features within the target population, therefore, the observational study design based on primary qualitative data would be the most appropriate. No experimentation is conducted throughout the process of this study, and qualitative data is simply gathered to be analysed.

The discussed research method has been chosen due to the necessity of collecting first-hand information related to the topic of the study. As inadequate existing data is available regarding the research subject, it is crucial to collect primary data to answer the research question. Furthermore, only qualitative aspects need to be gathered in the form of information, which is why no experiments need to be conducted.

In addition, this research study is regarding intrinsic and extrinsic motivational factors, so this topic in motivation to really get an in-depth understanding of how operatives are experiencing the extrinsic and the intrinsic factors in their work, which really need to listen participants voice and an in-depth understanding. As quantitative research methods can impose constraints on a study so are not well suited to this research as much of the information needed is contextual, involving *questions* of “why” and “how” behind a phenomenon. This would need to be very personable to the individual and much of the information needed concerning motivation is very difficult to quantify because quantitative research involving questionnaires asks only a limited amount of information without explanation. In addition, Potter (1996) further added that questionnaires are inadequate to understand some forms of information regarding behaviour and live experience because it was stated by Emmel (2013) that quantitative

method does not explore the “why” and “how” related questions behind a phenomenon, it does not account for people’s perceptions about what they’re experiencing. In addition, the voice of the participants is absent from quantitative research methodologies, according to a study by Austin and Sutton (2014), and as a result, it fails to account for the special capacity of participants to comprehend their real-world experiences. So, in that sense, the researcher cannot explore the “why” and “how” behind a phenomenon (Black, 1999). Alternatively, Researcher Potter (2013) added that because qualitative methodologies are frequently based on responding to the "why" and "how" questions, they offer pathways that can lead to the empirical evidence and discovery of deeper levels of meaning.

5.5 RESEARCH PROCEDURES

Research procedures refers to the techniques that are used for the completion of the entire study (Kothari, 2004). There are various types of research procedures, in which some of them are standardised processes that are followed by numerous studies in the same field, while in other cases specific methods are created that cater to certain necessities of the study itself. It is important to note that the approach taken by the researcher does not predetermine the procedure of the research that needs to be applied, while the relevance of various procedures remains significant (Opie and Brown, 2019). There are different types of research procedures that are specific to the type of data that is collected and analysed in the study. Two of the most important set of research procedures are based on quantitative and qualitative data. The procedures of the study are established and selected on the basis of the type of data that is gathered, which in turn is dependent upon the research problem itself.

The first type of data, upon which research procedures are set, is known as quantitative. In quantitative data, the collected information is quantified and analysed. The prerequisite of quantitative studies is the research problem being able to be assessed with the help of numbers, figures, and digits (Wetcher-Hendricks, 2011). This technique makes use of models of statistical analysis, such as linear regression and frameworks of correlation (Walliman, 2021). Software is often adapted for data analysis, as datasets are complex and need to be deciphered by the researcher through various techniques (Sheard, 2018). Furthermore, it is important to note that quantitative studies use a deductive research approach. Previously existing theories are taken into account and are used throughout the course of the study. These theories are then tested with data collection and analysis. Additionally, an empirical approach is usually adapted, which focuses on the establishment of evidence in the research process (Albers, 2017). Lastly, the positivist research philosophy is used when it comes to the study, and reality is seen as objective.

The second type of data and research procedure consist of qualitative information. Qualitative information, in simple words, is data that cannot be measured, counted, or conveniently expressed with the help of figures and numbers (Hennink et al., 2019). This type of information is non-numerical, and is extracted from audio, text, images, and even videos (Williams, 2019). Moreover, the information is shared with the help of visualisation tools that may or may not include concept maps, word clouds, timelines, graph databases, themes, and infographics (Gibbs, 2018). Qualitative data is commonly used when it comes to the investigation of human behaviour and phenomenon that cannot be simply explained through numerical figures. For the analysis of qualitative data, special methods of assessment are created and used. They include thematic

analysis, content analysis, narrative analysis, discourse analysis, and grounded theory analysis. The main function of all of the aforementioned techniques of assessment is to establish common recurring themes and patterns throughout the datasets, and form conclusions based on those repetitive details (Javadi and Zarea, 2016).

5.5.1 Adopted Research Procedure

The qualitative approach has been selected in this study. Data that caters to the perspectives, opinions, and experiences of semi-skilled operatives at construction SMEs in the Birmingham United Kingdom are to be considered in the research process. This data will not be able to be analysed through quantitative techniques, hence the qualitative approach has been chosen for this study. Qualitative studies especially focus on collecting and assessing information that caters to attributes and qualities of the target population (Lester, et al., 2020). Furthermore, the data collection procedure, along with all its components such as the principle, sampling technique, size, and the selection criteria are established by considering qualitative information. In most cases, interviews and surveys are chosen as the data collection instrument, as they provide a deeper insight into the research participants' experiences and perspectives (Flick, 2013).

5.5.2 Justification

Qualitative data would be the most appropriate in the case of this study. Subjective perceptions and perspectives are emphasised in qualitative research methods, including the importance of acknowledging individual undergoing experiences idiosyncratically (Oblinger and Krenn, 2020). As opposed to quantitative techniques, qualitative

methods are employed with interpretivist approaches that do not involve any statistical measurements. It was stated by O'donoghue (2006) that qualitative study is rooted in interpretivism which is the adopted research paradigm for this study. The instrument of data collection and analysis in qualitative studies is the researcher. A subjective stance is taken as opposed to an objective one, and despite of critics deeming the method unreliable due to subjectivism, self-examination and reflexivity are encouraged among those who do conduct qualitative studies. Moreover, this type of motivational research has received a lot of attention in the construction management research community, and this has mainly been through the use of quantitative approaches (De Ruyter and Scholl, 1998; Davies and Hughes, 2014; Latham, 2007). There was a trend of preferred use of quantitative research method observed through research of studies conducted earlier about worker motivation (Latham, 2007). In addition, many studies showed the significant influence of quantitative approaches (Austin and Sutton, 2014; O'donoghue (2006). Researchers are aware about the strengths of quantitative methods, for example questionnaire surveys, substantial amounts of data can be gathered from a wide range of participants in short periods, while maintaining cost-effectiveness at the same time. Statistical methods, reduce the time required to analyze data as well (Carr, 1994).

Despite the fact that the quantitative approach is appropriate for this study, there is a need to further explore and investigate 'how semi-skilled construction operatives are experiencing the extrinsic and the intrinsic factors in their workplace, qualitative research methods are often based on depth questioning and close observations, It is more beneficial for this type of research because qualitative research is primarily exploratory in nature and concentrates on gathering data through conversational, open-ended communication (Guion et al., 2001). Unlike quantitative data, which merely

counts things (Fellows and Liu, 2008), qualitative data records people's attitudes and behaviours in greater detail, which supports this research study.

Moreover, in the fourth chapter of the paper, a conceptual framework has been presented which highlights and explains external and internal motivational factors, such as policies, training, safety management commitment, behaviour, attitude and working conditions that impact SMEs safety environment and workers' safety performance. In order to confirm whether or not the framework is a true representation of phenomenon, empirical evidence is collected for verification. Jones et al. (2013) state that qualitative research methods encourage a better understanding of factors present in contexts. It supports the qualitative study design and enhances its suitability for the present study, as empirical evidence is collected to confirm hypothesis.

Furthermore, qualitative research pays greater attention to individual cases (Eisner, 1997) and practices the natural setting as the source of data, with a focus on workers' field experiences, which is an appropriate for discovering the facts and qualitative study make possible to understand attitudes. In view of this, the framework supports the statement of Jones et al. (2013) and forces the adoption of qualitative research methodology, in seeking more empirical evidence. In addition, it was stated by Antikainen et al. (2010) that to discover motivational factors, processes and forces at work, qualitative approaches are more beneficial than quantitative techniques because Hoepfl (1997) stated that qualitative methods collect more empirical evidence with enhanced knowledge in answering research questions involving what, why and how questions, that can be hard to convey quantitatively.

It is evident that a qualitative research design is required for the study. It would allow the researcher to answer pressing questions and fulfil the research objectives while relying on the collected information. Transferable results may be produced instead of replicable ones, and the research design will add thorough data to the topic because health and safety motivation cannot be effectively assessed through quantitative methods, which is why qualitative technique is being followed. The following subsections include the data collection method, principle, sampling technique, sample size, and the eligibility criteria for the participants.

5.6 DATA COLLECTION

The most important aspect of any study is data collection (Zozus, 2017). First, it must be determined which data collection method will be used. There are two main techniques that can be used to gather the necessary information. These methods include the primary and secondary approaches to data collection (Walliman, 2021). Primary data collection is the first and most adaptable method. In primary data collection technique, information is gathered and extracted from the target population itself, or the subjects of the study (Tracy, 2019). First-hand, latest, highly relevant, and substantial information is achieved that cater perfectly to the problem of the study (Islam and Islam, 2020). On the other hand, the secondary approach to data collection refers to extracting relevant information from sources that have already been published. Such form of data collection does not require contacting individuals within the target population or the subject area, as information is already analysed and published by other researchers (Martins, *et al.*, 2018).

The primary data collection technique has been chosen for the purposes of this study. It was chosen because the subject of the study is quite specific, and as data will need to cater to semi-skilled operatives at construction SMEs of Birmingham United Kingdom, narrowed down to Birmingham, the amount of previously published data would not suffice for establishing relevant conclusions. Hence, primary data would be the most appropriate in this case. Furthermore, the technique of primary data collection is of high significance as well. There is a range of methods that can be employed while gathering primary, and in this case, qualitative information. Some of the main methods of qualitative data collection through a primary approach consist of focus groups, open-ended or close-ended questionnaires, surveys, or one-on-one interviews (Flick, 2017). Focus groups consist of individuals gathered for participating in the study, who are in-line with the eligibility criteria of the research. In most cases, the individuals involved in these focus groups are similar in one way or another, mainly through demographics. The interviews are conducted in the form of a group, instead of one-on-one interactions (Kinalski *et al.*, 2017). Such interviews save the cost, time, and effort of the researcher, but data is often complicated to analyse, and the probability of errors occurring during the process of data analysis may increase. The participants of the study may also feel uncomfortable in answering all interview questions with all honesty, which is why this method has not been chosen for the research process.

When it comes to one of the most commonly used techniques of primary data collection, interview questionnaires must be taken into account (Denscombe, 2017). Questionnaires are used for qualitative data collection, as well as quantitative data collection. Qualitative questionnaires focus on collecting information that denotes attributes and qualities regarding the participants, but in written or typed-out responses.

Such questionnaires may also contain statements, to which the level of agreement of the respondents is assessed (Bavdaz *et al.*, 2019).

Questionnaires come in two main varieties: open-ended and close-ended. It is also common to use mixed questionnaires, which combine both open-ended and closed-ended questions (Acharya, 2010). In open-ended questions, there are no limitations on the types of responses that can be provided by the respondents, giving them flexibility in their responses (Young, 2015). On the other hand, close-ended questionnaires provide options to choose from, and restrictions are placed regarding the responses to the statements or questions. The flexibility of answering is reduced in this case (McGuirk and O'Neill, 2016). Most types of questionnaires provide limited information, which is why this method of data collection has not been used in the study.

An important tool of qualitative data collection consists of surveys. Surveys may be based on a range of methods, such as open-ended or close-ended questionnaires. Data is collected from the target population, which may be once or multiple times (Blair *et al.*, 2013). Nowadays, researchers are relying upon the internet for data collection through surveys. With the help of online survey platforms, studies can be conducted on wider basis (Braun *et al.*, 2021). Yet again, this method would not be suitable for the research as it limits the kind and amount of data that can be extracted from the target population.

5.6.1 Adopted Data Collection Technique

The selected method of primary qualitative data collection in this study is interview. Semi-skilled operatives at construction SMEs in Birmingham will be recruited with different nationalities. The method of primary qualitative data collection that is the most relevant to this study is known as interview. In interviews, participants who are recruited for the research are asked relevant questions regarding the topic of the study (Heath et al., 2018). The interviewees are allowed to answer in their own manner, and are given varying levels of flexibility (Alsaawi, 2014).

There are various methods of conducting interviews, which consist of structured, unstructured, and semi-structured interviews (Mann, 2016). Structured interviews have a rigid form of discussion, while unstructured interviews allow the interviewee to direct the discussion. On the other hand, semi-structured interviews include both rigid and unrigid questions. While the researcher has most of the control over directing the discussion, the interviewee may also participate in leading the interview (Newcomer, *et al.* 2015). This method is the most appropriate in this case and has been chosen for the moderation of control over leading the discussion. Semi-structured interviews have been conducted in this study, which have been carried out face-to-face.

While the data collection procedures differ in various studies and depends upon the subject and area of the research, three stages are generally used when it comes to conducting interviews. The three stages consist of preparation for the interviews, conducting them, and lastly making the transcripts. Before conducting interviews for

the research process, a preliminary set of pilot interviews were conducted, allowing the researcher to practice and understand the technique.

Pilot Interview

A pilot study was conducted. During the first stage, before the conduction of the actual interviews, it was essential to conduct dummy ones. It brought forth the realisation that a more open format for interview conduction would assist in enhancing the level of comfort of the study participants, hence the semi-structured approach was chosen. During the second stage, 25 participants were voluntarily recruited for the study as interviewees. Furthermore, it is important to note that the role of the researcher was established as a “friendly helper”, so that their mannerisms and sentence structure with delivery would establish trust within the respondents. The final stage resulted in 20 interviews being actually conducted, out of the 25 volunteering participants. Few participants were sick in that COVID Pandemic situation.

Initially, it was decided that no fewer than 25 participants would be recruited as interviewees for the study. But with the help of the principle of data saturation, 20 interviews sufficed for saturating the dataset. Moreover, it must be considered that data was collected from semi-skilled operatives in construction SMEs in Birmingham, as it is the centre of diversity and a wide range of construction organisations. The data collection procedure mainly depended upon face-to-face interviews, but due to the COVID-19 pandemic, the option of an online technique was also developed. Through Zoom and Skype, video conferencing was made available for the participants who could not physically participate in the interview process. In addition, interviews conducted on

phone calls were an option too. These options were established due to the United Kingdom undergoing the COVID-19 pandemic.

5.6.2 Justification

Interviews have been chosen as the method for this study because they give a more in-depth understanding of the views, perspectives, values, and experiences of the target population. As the perspectives and experiences of the semi-skilled operatives need to be addressed, this method is the most appropriate. Semi-structured interviews have been chosen due to the flexibility they provide to both the interviewer and the interviewees. The discussion can be led by the interviewee, in case they want to provide specific information, while the interviewer has a certain level of control as well.

As stated earlier in this section, there are various types of interviews. There are three types of interviews: structured, unstructured, and semi-structured. In structured interviews, the researcher develops a strict list of questions that must be followed regardless of the participant's responses. Although a directional approach simplifies data collection in structured interviews, the participants are often led towards a specific conclusion without significant input. In addition, unstructured interviews are led by the participants, who are given full control of steering the discussion. Despite of such interviews generating sufficient and in-depth information, irrelevant data is collected in the process too. Semi-structured interviews, on the other hand, have a specific balance. The interviewee leads the discussion, yet the participant's responses shape the structure of the interview. It creates more reliable results and generates in-depth data as well.

5.6.3 Interview Question Formation

The questions in the interview were based on the conceptual framework used in the study. The factors presented in the framework were used in generating the main categories of the questions. In addition, specific questions were based on the components of construction workers' health and safety, as discovered through the literature review. The complete process of forming interview questions was based on a combination of literature review and assessment of the conceptual framework.

There were two distinct categories in the interview questions. One category inquired about extrinsic motivational factors, while the other evaluated intrinsic motivational factors. The connections between these two factors were also identified through the questions. The reason behind generating these questions was the outcomes of the review of literature and the components of the conceptual framework.

5.6.4 Interview Conduction

The data collection procedure mainly depended upon face-to-face interviews, but due to the COVID-19 pandemic, the option of an online technique was also developed. Through Zoom and Skype, video conferencing was made available for the participants who could not physically participate in the interview process. In addition, interviews conducted on phone calls were an option too. These options were established due to the UK undergoing the COVID-19 pandemic.

5.7 SAMPLING TECHNIQUE AND PARTICIPANT RECRUITMENT

Sampling technique is the process by which the individual or group of individuals are selected for the collection of primary data for a study. It is a method that selects sets or subsets from within the population, in order to estimate characteristics regarding the topic of the study. There are numerous types of sampling techniques, all of which serve their own type of purpose. Researchers select sampling techniques for their study based on the research design, as well as the type of data that they require (Alvi, 2016). Two of the main types of sampling procedures are based on probability and nonprobability techniques.

Probability sampling refers to the selection of participants in which each individual from within the target population has an equal chance of being recruited for the study. On the contrary, nonprobability sampling techniques consist of the selection of participants based on convenience and judgement of the researcher, subsequently increasing chances of researcher bias (Cornesse *et al.*, 2020). The difference between nonprobability and probability sampling is that nonprobability sampling does not involve random selection and probability sampling does.

There are subtypes in both probability and nonprobability sampling techniques. Probability sampling techniques consist of systematic, random, stratified, and cluster methods. Stratified method refers to the recruitment of participants based on partitioning the main target population into subpopulations. Random sampling consists of randomly selecting a subset of individuals from within the target population, and each of them have equal chances of being recruited (Acharya *et al.*, 2013). In simple

random sampling, people within the selected population are meant to be unbiased representatives of the group and are selected merely on the basis of chance or probability (Bhardwaj, 2015). Furthermore, there is nothing that may compromise the participants of the study, except chance. This method also helps in the formation of unbiased results, which strengthen the study (Sharma, 2017).

In addition, systematic sampling refers to the selection of random individuals from the target population by starting at a specific number and following that number throughout the entire process (Berndt, 2020). Lastly, in cluster sampling, the population is separated into subgroups or clusters, then random selection is carried out for recruiting participants for the study (Mweshi and Sakyi, 2020).

Nonprobability sampling technique is further divided into two broad types, which consist of accidental/convenience sampling and purposive sampling. Purposive sampling, also known as judgmental sampling or selective sampling, is a technique used in qualitative research to select a specific group of individuals or units for analysis. Participants are chosen "on purpose," not randomly. When using purposive sampling, the researcher selects a sample with a specific purpose or objective in mind. As a result, the sample is chosen based on the characteristics or attributes that the researcher is interested in studying.

In addition, Convenience sampling refers to the selection of participants who are the closest and most easily available to the researcher, increasing bias as a result (Sedgwick, 2013). Convenience sampling (also known as accidental sampling). Judgmental

sampling is an addition to convenience technique. It selects participants based on their characteristics from the perspective of an expert or the researcher (Tyrer and Heyman, 2016).

5.7.1 Adopted Sampling Technique

Purposive sampling technique has been chosen for this study. The purposive sampling technique refers to the selection of participants based on the research study needs and researcher's level of convenience in reaching out to them. The participants of the study are semi-skilled operatives at construction SMEs of Birmingham United Kingdom. The construction SMEs, as well as the location of the study have been selected based on the researcher aim and ability to conduct the study in relevance.

Moreover, Participants for this study have been selected on a nonprobability basis. Furthermore, the recruitment process included field visits, as well as online research regarding semi-skilled operatives working at construction SMEs of Birmingham United Kingdom. Due to the COVID-19 pandemic, the recruitment process became complicated, which is why Construction SMEs in Birmingham only was accessed and an online approach had to be readied in due course. Limited access was provided to the researcher, and not all construction SMEs in the UK were able to be visited. It is one of the main reasons why online databases were searched through about SMEs in Birmingham. Once potential participants were found, the simple random sampling technique was implemented on the process. One of the most important issues regarding the recruitment process in this study was the under-representation of groups within the target population that have limited access to technology, network, as well as the skills

needed to participate in online interviews. These issues acted as a hindrance in the process of recruitment and data collection.

5.7.2 Justification

Purposive sampling technique has been selected for the present study. It is justifiable as the UK's construction industry is substantial in size, and it would be impossible to recruit participants for research on a probability or random basis. It is crucial for the researcher to implement a sampling technique that is realistic and achievable, especially in the COVID pandemic. Because the target population is highly specific, i.e., semi-skilled operatives at construction SMEs, participants could not be easily contacted through a broad sampling method, whole UK Construction SMEs were not possible to cover in COVID pandemic because of travelling restrictions. Availability and reachability of the participants is also an important aspect. The present method is also aligned with the exploratory research design. This study is also exploratory in nature and seeks to answer a qualitative question. Therefore, the purposive sampling technique has been adapted considering the researcher's ability to reach out to semi-skilled operatives working at construction SMEs in Birmingham.

5.8 SAMPLE SIZE

The sample size of a study refers to the number of individuals selected for participation in the research. Commonly, formulas and mathematical calculations are used for assessing the sample size. It increases the reliability and quality of the study (Malone, *et al.*, 2016). The other methods of determining the sample size, such as using census for small target populations, have their unique features. When the target population is

small, such as less than 5,000 individuals, census can be formed for collecting relevant data by recruiting participants (Faber and Fonseca, 2014) and (Marshall *et al.*, 2013). The data collection tool in this study is semi-structured interviews. The selected sample size for this study is 20 participants. The corona influence was a reason which restricted the study participants to 20, it was a travel restriction in the UK, few participants were also sick in that corona Pandemic situation. These issues acted as a hindrance in the process of recruitment and data collection.

A pilot study was conducted. During the first stage, before the conduction of the actual interviews, it was essential to conduct dummy ones. It brought forth the realisation that a more open format for interview conduction would assist in enhancing the level of comfort of the study participants, hence the semi-structured approach was chosen. In this study, 5 people took part in the pilot interviews. In terms of interview question refinements following the pilot study, the pilot study aided in improving the interview guide. In addition, some questions were rewritten and sequentially aligned as a result of issues discovered during the pilot study, and topical probes were added. Furthermore, during the pilot study, the issue of interview duration was discovered. As a result, the interview framework was revised to allow for higher quality data to be collected in a shorter amount of time (on average, interviews were set to 30-45 minutes long) with deeper responses from participants.

During the second stage, 25 participants were voluntarily recruited for the study as interviewees. Furthermore, the role of the author was established as a “friendly helper”, so that their mannerisms and sentence structure with delivery would establish trust

within the respondents. The final stage resulted in 20 interviews being conducted, out of the 25 volunteering participants. One of the most important issues regarding the recruitment process in this study was the under-representation of groups within the target population that have limited access to technology, network, as well as the skills needed to participate in online interviews. Moreover, few participants were sick in that COVID Pandemic situation. These issues acted as a hindrance in the process of recruitment and data collection.

5.8.1 Inclusion Criteria

Inclusion criteria establish a consistent, uniform, objective, and reliable manner to collect and analyse data, which assists in the formation of relevant conclusions. The most common elements in the inclusion criteria consist of the demographics and other relevant details of the target population, such as age, gender, educational background, working experience, ethnicity, race, language, occupation, etc. (Stern, *et al.*, 2014). The inclusion criteria help in the selection process of the participants and allows only those individuals to partake in the study who would provide relevant information (Hornberger and Rangu, 2020).

The establishment of an inclusion criteria is a mandatory and standard protocol. It helps in enhancing the quality of the study, as well as its reliability (Patino and Ferreira, 2018). The inclusion criteria for this study are discussed below.

- The participants consisted only of semi-skilled operatives working at construction SMEs in Birmingham, UK. They also included those semi-skilled construction operatives working at building or construction sites in the selected

area. The participants were only selected on the basis of demonstration of sufficient information, as well as field experience in construction SMEs. Under investigation, those who could provide adequate data along with an informative opinion, which were required to for answering the research question, were included in the paper.

- No limitations regarding the age of the participants were placed.

5.8.2 Exclusion Criteria

The exclusion criteria are a collection of predefined objects, which are used for the identification of subjects who cannot be included in the study, or who may have to withdraw from the research even after the inclusion process (Dewitt *et al.*, 2019). Unfavourable outcomes are avoided, by reducing the collection of information that could interfere with the findings of the study (McElroy and Ladner, 2013). The exclusion criteria for the study are discussed as follows.

- The participants who refused to provide informed consent regarding participation in the study have not been recruited for data collection. Informed consent is the principle in research ethics, which indicates that the participants must have adequate information and a clear understanding regarding the study before deciding to participate in it (Heerman, *et al.*, 2015). It is crucial to achieve informed consent, hence, those who refused to provide it have been excluded from the study.
- Participants who were unwilling to remain a part of the study, or individuals within the target population who simply refused to participate in the research process have been excluded.

- Individuals working at construction SMEs other than semi-skilled operatives have been excluded from the study.
- Semi-skilled operatives working at large-sized construction firms have been excluded from the study.
- Managers, leaders, and other professionals belonging to the construction industry or construction SMEs have been excluded from the study.

5.9 DATA ANALYSIS

The method of data analysis has great significance when it comes the study. The collected data needs to be analysed, interpreted, and synthesised to form reliable, usable, and theoretically strong conclusions. Qualitative data analysis refers to the process by which the gathered data is deciphered, assessed, broken into smaller parts, and combined to establish findings relevant to the research (Ridder, 2014). There are numerous methods that can be used to analyse both qualitative and quantitative data, each with their own set of analysis techniques. This study is qualitative in nature; therefore, qualitative data analysis methods must be discussed. Content analysis, narrative analysis, grounded theory, discourse analysis, and thematic analysis are some of the most commonly used data analysis methods. Each method of qualitative data analysis is specifically used for different types of studies, and has its own advantages and disadvantages (Walliman, 2017). It is important to note the purpose for which the data analysis technique is being selected.

The first technique for analysing qualitative data is content analysis, which is also the technique that researchers use most frequently. A qualitative research technique known

as content analysis is used to identify the presence of particular themes, words, concepts, or patterns in the qualitative data that has been gathered. Usually, qualitative data such as interview transcripts, text, and other types of information are assessed through content analysis (Drisko and Maschi, 2016). With the help of content analysis, the research quantifies and analyses the presence, interpretations, and relationships among the discovered words, concepts, and themes from within the collected qualitative information. There are mainly three steps involved in content analysis. In the first stage, the dataset is read through so that the researcher may become familiar with the information. The second step consists of identifying coding units, so that the concepts present in the dataset can be extracted. The last step included the analysis of the qualitative data by applying the coding units (Leavy, 2014). This method has not been chosen for the study, as it may be reductive, too simple in the context of the study, and may disregard important underlying themes in the interview transcripts.

Another technique commonly used for the analysis of qualitative data is narrative analysis. This technique refers to a collection of assessment methods that are used for the interpretation of visual, auditory, or textual information that may have a form like a story. The notion that human beings prefer to tell stories regarding their thoughts, perspectives, and experiences, and use those stories to organise and make sense of their accounts is the basis upon which narrative analysis has been founded (Coyle, 2021). There are several advantages and disadvantages of narrative analysis. The advantages include heightened collaboration, giving a voice to the participants, collecting ordinary and familiar information, and helping the participants understand the topic more deeply (Herman and Vervaeck, 2019). The disadvantages, due to which narrative analysis has

not been selected for this study, consist of the participants faking the data, telling false accounts, and providing unnecessary information.

Apart from content and narrative analysis, researchers are also adapting grounded theory analysis for the assessment of qualitative data in studies. Grounded theory analysis a systematic approach that has been widely implemented by researchers, mainly in the field of social sciences, or studies in which human behaviour and related phenomenon need to be addressed. This data analysis technique consists of establishing hypotheses, as well as theories, which is carried out with the help of collecting and analysing data. Furthermore, this technique requires the application of the inductive reasoning approach (Engward, 2013). At a basic level, there are four main stages involved in grounded theory analysis. These stages start with the collection of raw data such as interview transcripts, which is followed by forming codes, creating categories, and connecting them with existing concepts along with the formation of new ones. There is high involvement of theories and frameworks in this type of data analysis (Birks and Mills, 2015). This approach has not been selected for the study, as it is a complicated process to plan ahead, analyse the multifaceted data, deal with the positivist tendencies, and focus on certain objects whilst ignoring external influencers.

In addition to the methods of qualitative data analysis discussed in the sections above, discourse analysis is one of the emerging techniques that researchers, especially in the field of social sciences, are adapting for assessing qualitative information. Studies are also being entirely based of discourse analysis. This method is an approach towards analysing vocal, written, sign language data, or any important semiotic event. The main

objects included in discourse analysis are defined as coherent sequences of propositions, sentences, speeches, etc. (Engler and Stausberg, 2022). Discourse analysis can be implemented on studies revolving around a range of subject areas. It enables the researcher to reveal the hidden meanings behind the collected qualitative data, and view issues from a higher perspective. On the other hand, it is only a method of deconstructive interpretation of qualitative data. This method of analysis does not provide concrete evidence (Brannen, 2017). These disadvantages are the reason behind not selecting discourse analysis for the study, and conclusive evidence is required in the research.

The last, and the most important technique of data collection, is known as thematic analysis. Thematic analysis is one of the most common techniques used in the analysis of qualitative information. This method emphasises the identification, analysis, and interpretation of patterns within the collected qualitative data, and establishing meanings behind them. Usually, thematic analysis is conducted on a basis of three stages. They consist of collecting qualitative data, coding it, and forming themes with the help of iterative comparison among the codes (Smith, 2015). When a researcher conducts thematic analysis, they are indulged in repeated readings of the same dataset. An initial list of objects extracted from the dataset is created as well, which is later on refined and polished for the formation of the findings. The most important benefit of thematic analysis is that it maintains the richness of the dataset, allows deeper insights into the information, and is flexible in terms of data analysis (Willig and Rogers, 2017). It is highly dependent upon the researcher's judgement; hence it is a subjective approach towards data analysis. Its strengths and subjectivity are the reasons behind selecting thematic analysis for this study.

5.9.1 Adopted Technique

There are multiple techniques of data analysis through thematic analysis. One of them is the software NVivo, which automatically creates codes and themes from the inserted data (Castleberry and Nolen, 2018). This study has chosen to use a thematic analysis methodology. Semi-structured interviews with workers at construction SMEs in Birmingham, United Kingdom, were used to gather the data. This primary data has been collected in the form interview audios, transcripts, as well as field notes. Braun and Clarke (2017) method have been used for thematic analysis. It entails becoming familiar with the data, initial coding, theme generation, theme reliability and validity assessment, theme definition and naming, and theme interpretation and reporting. (Terry *et al.*, 2017). The model is presented below.

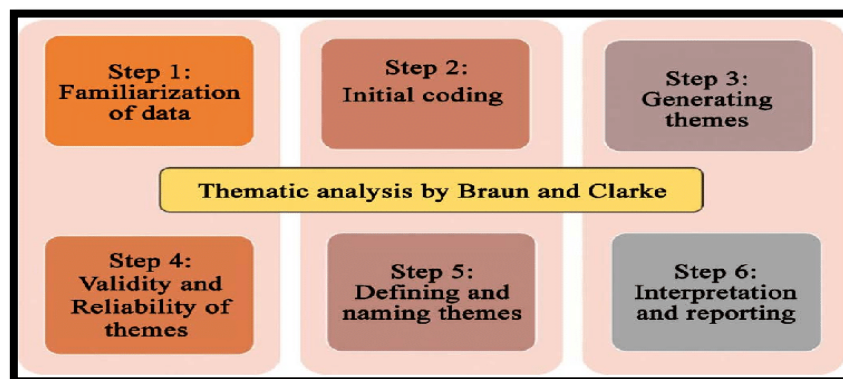


Figure 7: Thematic Analysis Technique by Braun and Clarke (Anyanti *et al.*, 2020)

The transcripts have been coded and categorised, in order to look for patterns and themes through the thematic analysis. Letters such as Company A/B/C, or Participant A/B/C, have been used to defend the discretion and secrecy of the respondents, and personal information has been excluded from the interpretation of data.

Process

In the first step, the semi-structured interviews were transcribed. The transcripts included all responses of the participants, including the specific probes that were selected in the questioning process of the semi-structured interviews. The transcripts of the interviews were then read and re-read, so that a familiarisation could be developed. Important points from the data were extracted and noted down. Initial codes were developed in the second step. The initial codes were related to recurring concepts and responses in the interview transcripts. Codes such as poor working conditions, low lighting levels, absent manager, and a range of other short sentences were formed to sort the data based on the type of response to the interview questions.

Moreover, the themes were to be extracted from the interviews conducted. After all the interviews had been conducted, the detailed analyses were carried out to extract themes based on central meaning-based concept. The interview base responses were listened to repeatedly to confirm to the central meaning-based concepts of the responses. It helped in organizing the interviews and specific responses as themes and categories. The interviews were carried out verbally and all interviews were recorded using voice recorders using smartphones. The interviews were recorded and coded according to dates, number, and code of respondent for specificity. For the purpose of interview transcription there are various apps easily available for smartphones and android platform. For this study, the main app from android platform used was Otter.

The third step was marked by a search for themes. Out of all the codes that were established in the interview transcripts, an arrangement was made. The arrangement

was based on repetitive codes, which were sorted into groups. These groups were the themes extracted from the collected data. A thematic map was created out of the extracted themes in the fourth step. The thematic map was associated with a list of all the possible themes that were acquired from repetitive patterns in the interview transcripts. In addition, initially established themes were merged and combined, so that a concise and summarised form could be developed. The extracted themes were determined, defined, and named. Three main themes or concepts were generated, including extrinsic factors, intrinsic factors, and the interaction of these factors. These themes were divided into categories, which have been described in the fifth chapter. Finally, the data reporting process was also conducted and produced at chapter 6 with the whole analysis procedure.

5.9.2 Justification

Thematic analysis has been selected for the study as it accurately and comprehensively assesses qualitative data. With the help of thematic analysis, interview transcripts can be easily investigated to find relevant and repeated patterns within the dataset. It is the most appropriate method for this study because of its reliability and relevance to the type of data collected in the paper. Thematic analysis summarises data into groups and encourages the formation of themes. These themes can be then used to create a modified conceptual framework that discovers and explains how external and internal motivators impacts the health and safety outcomes of construction operatives. All the data extracted from semi-structured interviews with the help of thematic analysis is explained and produced in chapter 6 of this thesis.

5.10 ETHICAL CONSIDERATIONS

Ethics are an important part of the research process. Research ethics are a collection of principles and guidelines that are used in the conduction and dissemination of scientific research. These principles are extremely necessary in conducting studies, as the participants must be protected in all forms, and the collected data must be valid enough to achieve reliable findings in the study. The researcher must be aware of their ethical obligations while conducting the study. It is vital to understand the benefits of carrying out an ethically correct study, and the disadvantages of the opposite. Many universities have frameworks and guidelines that are provided to the students regarding research ethics. Birmingham City University has also formed a framework of ethics upon which every student must act, in terms of ensuring that their studies are ethically sound. The ethical implications of the research that the students are conducting must be considered by them, while discharging their duties to relevant bodies in an ethical manner. The most important step in considering research ethics in this study has been submitting a research ethics approval form. In the form, all significant details of the study have been disclosed, referring to the fact that the university is completely aware of the process of the study.

Apart from the ethics of responsibly conducting the research under the supervision of the university, there is a range of other ethical considerations that must be taken into account as well. When human participants are involved in the research in any way, the ethical purpose of the study is altered. With studies that do not contain human samples, it is not necessary to take certain steps such as obtaining informed consent, protecting anonymity, maintaining privacy of the participants, etc. On the other hand, in studies that do work with human participants, the aforementioned ethical elements become

essential (Dooly, et al., 2017). This study involves semi-skilled operatives working at construction SMEs in Birmingham, the United Kingdom, therefore, the ethical principles related to human samples are applicable. The necessary steps have been taken to ensure that the study remains ethical.

While conducting studies under the supervision of an educational body, such as a university, it is vital to apply the ethical frameworks and principles provided by that institute. Some of the main ethical principles of research consist of attaining informed consent from the participants, minimising the risk of harm, protecting the anonymity of the participants, ensuring confidentiality, providing the right to withdraw at any moment, and avoiding deception throughout the research process (Barrow and Khandhar, 2019). All of the aforementioned aspects of research ethics have been followed in this study. Before data collection, the respondents were thoroughly informed regarding the study, its purpose, and the ways in which the data they provide could be used in the future. In order to protect anonymity of the participants, their names and their employers' names have been coded with letters, such as A, B, or C. Furthermore, during the interpretation of data, all personal information has been eliminated from the datasets, hence, no identification points remain in the dataset. Lastly, the participants were given complete rights to remove themselves along with their provided information from the study, up to the point where data analysis were to begin, i.e., 1st June 2021.

Ethical Procedure Adopted

Firstly, an ethical approval was acquired from the committee, in order to successfully conduct the study. The application of the ethical approval was conducted by considering the safety and privacy of the respondents. Most importantly, the confidentiality of the participants was strictly maintained. The data they provided, or their identity, remained confidential. No individual other than the researcher was allowed access to the data.

The participants were briefed about the study and its purpose, then informed consent was acquired with a consent form. The right for the participants to withdraw was also provided, which allowed them to remove their data from the study up until the point of data analysis.

The consent form included details about the possible uses of the data. In addition, it was ensured that no data was shared to anyone other than the researcher. No third parties were given access either, or the collected data was only used for the purpose of forming conclusions in the present study.

The collected data was kept safe and private in the personal computer system of the researcher. The folder was also password protected. A separate backup was made online in the private cloud storage of the researcher, with password protection, and no access to any other individual.

The duty of care to the participants was fulfilled. The participants were not harmed in any way, their concerns were answered, and their identities were kept strictly confidential.

Any complaints from the participants were responded to by the researcher. In addition, they were given contact details of the research supervisors as well, so the participants could communicate their concerns with them directly.

No incentives or finances were given to the participants for attending the interviews, as it is an unethical practice. The right to withdraw before data analysis was provided, and if the respondents urged to remove their data after the analysis, penalties would have been applied. But no respondent engaged in such an action, hence no incentives or penalties were given altogether.

The research forms are attached in the appendix. They show the process through which informed consent was acquired from the participants.

5.11 LIMITATIONS

When conducting a study, it is crucial to address the limitations that may be included in the process. In most studies, several limitations are present, which have direct impacts on the quality, reliability, and correctness of the research. The limitations of a study refer to the features of a research methodology or design, which impact the implementation of the results of the study, or the interpretation or analysis of the

involved data (Ross and Zaidi, 2019). This study also has a range of limitations. The most prominent limitation of the research is the fact that COVID-19 pandemic is still present around the world. The governments of many countries had to implement protocols consisting of stricter hygiene, social distancing, wearing masks, and restrictions to limit human interaction in general. Construction SMEs in Birmingham United Kingdom, at the time of data collection, were also facing the effects of the pandemic. The data collection procedure was negatively impacted. For the purpose of following standard operational principles in the context of the COVID-19 pandemic, field visits faced obstacles.

The sampling technique adapted in this study may have resulted in researcher bias. Purposive sampling has been used, which increases the chance of researcher bias based on preference. In addition, the target population of the study consists of semi-skilled operatives working at construction SMEs in Birmingham only, which increases the chance of researcher bias based on preference. Due to the COVID-19 pandemic, it was restriction to travel freely and majority of the field trips and physical interactions between the interviewer and interviewees were disrupted by the pandemic and its resultant lockdowns, the data collection procedure had to be conducted in approachable areas and location for a range of participants. An issue came to light regarding the accessibility of network and technology among the research participants, as well as their digital literacy. As semi-skilled construction workers were recruited for the study with no regards to their educational background, age, and experience levels, the digital literacy of the sample remained unknown. In addition, the access to internet and relevant devices turned out to a major limitation for the study, as not all semi-skilled

operatives in the construction SMEs are digitally literate and have access to resources such as the internet.

The data collection technique of this study was the conduction of semi-structured interviews. There are certain limitations of semi-structured interviews, similar to that of other methods of data collection. One of the most noteworthy limitations of semi-structured interviews is the extensive consumption of time. These interviews take a significant period of time to conduct, which slows down the research process (Galletta, 2013). In addition to time consumption, the data collection method in this study required extensive resources. These resources are both financial and human in nature. In some cases, it is possible for the researcher to lack adequate training regarding the conduction of semi-structured interviews and end up including irrelevant information while failing to gather relevant pieces of data. In addition, the subjective perception of the researcher acts as the biggest barrier in semi-structured interviews. Data that is only specific to the researcher's perspective is collected, and the presence of the interviewee may also prove to be influential on the answers of the participants. It is also important to note that not all participants are equally perceptive, analytical, and articulate, which may disrupt the collected dataset's quality.

5.12 CHAPTER SUMMARY

This chapter consists of the methodology that has been followed throughout the process of the research. All elements of the research methodology have been explained comprehensively in this chapter. The study follows a primary and qualitative approach, which is based on the research philosophy of interpretivism. In addition, an inductive

approach has been followed for reasoning purposes. The target population of the study consists of semi-skilled operatives working at construction SMEs of Birmingham United Kingdom. The tool used for data collection consists of semi-structured interviews. Due to the necessity of implementing protocols related to the COVID-19 pandemic, both physical and online methods of data collection remained open throughout the research process. The selected data analysis method is thematic analysis. The ethics and limitations of the study are discussed as well.

CHAPTER 6: RESEARCH FINDINGS

6.0 INTRODUCTION

This study aims to investigate the motivation of semi-skilled operatives in construction SMEs towards improving health and safety outcomes for operatives in Birmingham, UK. For this purpose, verbal face to face interviews were carried out with 20 selected workers on Birmingham based construction SMEs that were later transcribed with android app. This study expects to play roles to improve the engagement of small and medium construction firms in the development of appropriate safety activities. In this chapter, the findings of the study are discussed in a detailed manner. The interview process, the questions asked, along with the key motivational factors discovered from the responses of the interviewees are provided in the table in this chapter. Among the findings, both the extrinsic and intrinsic factors found to be influential on the health and safety behaviours and motivation of semi-skilled operatives working at construction SMEs of Birmingham are also identified and thoroughly discussed in this chapter. The conceptual framework has been considered while conducting the interviews and outlining the results, so that relevant and previously outlined factors can be appropriately addressed in a structural manner. The interview process, as well as the findings of the research process are discussed in the following subsections.

6.1 INTERVIEWS

Semi-structured interviews were used to collect primary data in this study. Construction SMEs in Birmingham were chosen for the data collection process. A total of 20 face-

to-face semi-structured interviews lasting 45 minutes (range 30-60 minutes) are included. All interviews were digitally recorded and verbatim transcribed. We did not include any personal identifiers. The characteristics of the respondents were chosen based on the eligibility criteria, which have been discussed priorly in this paper. Furthermore, special attention was given towards achieving a diverse range of people for the interviews, in terms of their nationality. Semi-skilled operatives at construction SMEs of Birmingham were recruited with different nationalities. Table 4 shows demography of the participants.

Nationalities	Number
UK	4
Ireland	1
Romanian	3
Poland	2
Italian	1
Pakistani	3
Indian	2
Bangladesh	2
Arab	1
Somalian	1

Table 3: Participant Demography

Out of the 20 participants, 4 belonged to the UK, 1 of them was from Ireland, 3 were Romanian, 2 participants belonged to Poland, 1 was Italian, 3 were Pakistani, 2

participants were Indian, 2 belonged to Bangladesh, 1 interviewee was Arab, while 1 of the participants was Somalian. The reason behind the selection of such a diverse range of people for the data collection process is the fact that the experiences of each of these people could vary. Practices of discrimination, racism, and negative behaviours towards immigrants is very well possible at small and medium construction firms, just like in other industries.

The questions in the interview were semi-structured, meaning that a large margin of control was given to the participants for leading the discussion. While the topics of the questions were predetermined by the researcher, the direction in which the conversation would lead was not concrete. The participants were allowed to answer the questions in their own manner, providing both relevant and somewhat irrelevant information at the same time. The important pieces of information provided by the participants were extracted from the interviews with the help of assessing the transcripts, which also turned out to be the dataset of the entire research. Furthermore, the length or duration of each of these interviews varied, as it depended on how much each of the participants was willing to reveal into the topic of health and safety aspects and motivation at their workplace. The experiences and perspectives of these participants were found to be different, which made the usage of semi-structured interviews all the more justified in this case. It enabled the respondents to give detailed information regarding their conditions and experiences at the workplace.

The interview questions investigated the operatives' extrinsic motivational factors, intrinsic motivational factors, as well as the interaction among both extrinsic and

intrinsic motivational factors, in the context of H&S conditions at construction SMEs of Birmingham United Kingdom. The main factors that were inquired by the researcher during the interviews consisted of workplace accidents, psychological stress, job satisfaction, respect, health and safety training, the role of the manager, the working conditions and the management's commitment towards the prevention of accidents at the workplace, and the influence of various extrinsic motivational factors on intrinsic motivational factors. For instance, the impact of the manager's role was discovered on psychological stress, job satisfaction and overall intrinsic motivation. Similarly, the impacts of working conditions, respect, and health and safety training on psychological stress, job satisfaction and intrinsic motivation in general were inquired about during the interviews. These questions were aimed to clarify the real experiences of the recruited participants in the study, so that a complete view could be generated regarding the impact of motivational factors on H&S conditions of semi-skilled operatives at the selected organisations.

Since a great range of foreign language speaking people was included that generated the risk of language barrier but participants were asked about their English level of understanding before the interview was scheduled and confirmed. The general discussion, pilot interviews and the very beginning of the interview were the tests of detailed assessment of fluency and the understanding of English language of the participants. The smartphones of android platform were used for recording all of the interviews and the app named Otter was used for transcription of the interviews. In terms of interview duration, on average, Interviews were 30-45 minutes long.

In addition, some questions had probes of yes and no, which prompted the interviewer to ask additional questions. For instance, if an interviewee responded in “yes”, specific questions were asked in that direction. If they responded in “no”, other questions were asked towards that direction. The full interview questions can be found the appendix. The key interview results are presented in the following sections.

6.2 EXTRINSIC FACTORS

Extrinsic factors define the external context within which the construction operative carry out roles and responsibilities. The extrinsic factors revealed with the help of critical review and synthesis of the body of knowledge incorporating the motivation literature, motivational theories and their impact on workers’ health and safety, has been used to become the extrinsic factors in consideration and then investigated in the interviews, which consist of workplace accidents, manager role, working conditions, respect in the workplace, health and safety training, and the manager’s role. The following sections thoroughly discuss the interview questions along with their findings.

6.2.1 Health and Safety Training

The main question regarding health and safety training was, “have you received any health and safety training from the company?” There was a probe of yes, and a probe of no. If the interviewee responded in no, the questions attached in the appendix were asked.

Participants were asked to indicate whether they had any health and safety training in this company, in response to the health and safety training, 14 out of 20 interviewees responded that they did not receive any kind of H&S training sessions at the worksites. This is demonstrated in the following comments.

“I have been working with contractors for a number of years, I have hardly heard of a training course that targets safety” (Participant A)

“Company doesn’t offer any safety related training” (Participants C and H).

When asked about why they believe that no health and safety trainings were conducted, it was revealed that most of the respondents perceive their companies either not having sufficient resources and finances to conduct the sessions, or not being interested in the H&S of their employees. The feelings of participants were reflected in the following comment from the participants:

“Company does not care for our health and safety, no training, no resources and money and inadequate facilities in the workplace” (Participant K)

In addition, the respondents also disclosed the biggest problem that their firm have, which hinders their aspects of health and safety training, could be an absence of trained personnel who could conduct the safety training sessions. When asked about what impact the lack of H&S training had on the workers’ motivation and security, the responses showed that not being trained had substantially negative impacts on the work motivation and safety of the operatives. This is demonstrated in the following comments.

“We are doing multiple works, work is sometimes new for us, which needs training skills and knowledge required for it to perform the tasks correctly” (Participant G)

It appeared from the above statement that absence of training impact the operatives’ work performance, as they felt unsafe at the workplace, while they perceived that the rate of accidents at the workplace increased as well, due to a lack of health and safety training. Also, some of the interviewees responded in the positive when asked about whether or not they received any health and safety training at the workplace. The respondents stated that from their perspective.

“There is some sort of training being provided before starting physical construction work activity, which was beneficial” (Participant C).

“The rate of errors and accidents reduced once we have knowledge and training about the tasks” (Participant H).

3 participants added that they became aware of the risks that were involved in each task, and how those risks could be mitigated for enhancing their own safety and wellbeing. The training knowledge helped the operatives gain sufficient knowledge and skills to protect themselves, which improved their performance as well as the safety conditions.

Furthermore, the interviewees were asked regarding what safety issues were discussed during the training sessions. The respondent B stated that, *‘I have done training, training was good, training sessions include health and safety at work, use of equipment. ’ (Participant B).*

Additionally, respondent P added that:

'At my first working day, company told me to do online training course regarding safety at work, i started my work and haven't completed online training ye, no one asked me about that training again. ' (Participant P).

Participant stated that the frequency of training sessions was quite low, such as only once with no follow-ups, or a couple of times in the year at most. Those who agreed to having participated in health and safety training sessions agreed to having been involved in training related to workplace tools, machinery, and protective clothing usage, along with emergency procedures and fire hazards. In addition, the respondents were asked about whether or not they had been given any information regarding accident reporting procedures, to which a mixed set of responses were attained. Some of the interviewees agreed to having received information on how to report accidents, while most of the participants disagreed. Upon inquiring who conducts the training sessions it was revealed that most construction SMEs use their own managers to train and educate the operatives, while no outsource experts to conduct the sessions.

6.2.2 Working Conditions

The main question regarding the working conditions of semi-skilled operatives at construction SMEs of Birmingham, “can you describe the condition in your workplace regarding safety guardrails, safety warnings, and other measures for on-site safety protection?”

The questions in this category targeted very specific features of the H&S aspects across construction SMEs. Most of the participants, in response to the main question, did not provide satisfactory answers. They described safety warnings to be very limited at the workplace, as well as the abundant absence of guardrails and safety measures. These working conditions indicate that the standards of on-site safety procedures were very low at most construction SMEs of Birmingham. The more targeted questions, such as assessment of mechanical failures, generated quite negative responses as well. Most small construction firms fail to assess for failure of machinery prior to the equipment failing, as scheduled safety procedures would hinder the work progress.

The interviewees were asked if their companies check the safety levels of the tools and machinery before allowing the operatives to use them. In response, a majority of the participants stated that they had never observed their managers checking the machinery before use. This is demonstrated in the following comments.

‘‘No checking of work machineries, work equipment’s are always broken, I was not aware about the equipment, and I injured myself, look at my hand, see the cuts and stitches, it was due to machine blade. He further added that my left hand is not working properly which puts me in the stress all the time’’ (Participant K)

Furthermore, when inquired about lighting levels for working in the dark, most of the participants stated that they are either given flashlights or helmets with flashlights attached to them for working in the dark. Other than these approaches, not much effort is put into adequately lighting the workplace, including the installation of a single or very few lightbulbs. The feelings of participant were reflected in the following comments.

“I was injured because of poor lightening and then was jobless for two months, which affect me financially and also affect me mentally” (Responded J)

According to the respondents, ‘‘the low lighting levels substantially increased the risk of on-site accidents’’.

Moreover, according to the respondents, they were not even provided the lowest level of protection, and were forced to work unprotected at hazardous sites, with inappropriate protective equipment’s which increased their health and safety related risks. Furthermore, the participants were asked about how they feel about protective equipment such as gloves, helmets, glasses, and safety clothes, and whether or not they wear all of these items when entering the construction site. Very few of the participants who were actually provided with some of these items disclosed that they perceive them to be necessary for their own protection. On the other hand, a majority of the participants were not even provided with such protective items. The interview also included a question that targeted equipment that could be used for working in the dark. As discussed earlier, most of the respondents were only given small flashlights or helmets with flashlights, and no real arrangements were made for enhancing the lighting levels at work. According to the responses, poor working conditions rapidly deteriorated the respondents’ health and safety, as well as their work motivation.

6.2.3 Safety Management

The target of this category of interview questions was to find out the safety management practices from the manager regarding the H&S of the workers at construction SMEs of Birmingham. The main question in this category was, ‘‘does your manager provide

personal protective equipment for safety, such as safety gloves, shoes, helmets, and other items at the workplace?”. The questions aiming to extract specific information regarding the safety management at firms are attached in the appendix.

In response to the main question, which inquired whether or not the construction SMEs’ managers had provided the semi-skilled operatives with protective equipment for enhancing their health and safety, very few of the participants gave a positive answer. In fact, the participants who belonged to the UK and Ireland were the only ones who confidently stated that their manager provided them with the safety equipment that they needed while at the workplace. For example, this is demonstrated in the following comments.

“ Managers do not supply the needed PPE and safety equipment’s (Immigrant Participant)

“No safety equipment’s (Participant K).

In addition, Participant D stated, *“company only gave us rain boots because it’s raining every time”*.

However, in the same company, the feeling of other participant was reflected in the following comments.

“Safety is provided in the workplace with all the necessary precautionary actions and personal protective equipment’s” (Participant D)

This pattern in the responses of the participants shows a theme of discriminatory behaviour against people who belong to other nations and work in the construction industry, especially at construction SMEs of Birmingham. The aforementioned participants were quite satisfied with the safety equipment that their managers provided to them, and further responded that their managers had been encouraging them to make use of the equipment so that their health and safety standards could be improved. These operatives were even provided with PPE kits, for which they were motivated to use while at the workplace.

Moreover, managers in such organisations often are insufficiently attentive towards H&S regulations and problems and there are no clearly outlined H&S policies and regulations in the workplace. The feelings of participant were reflected in the following comments.

“Manager do not really care about the safety policy as much as they care about the profit” (Participant A).

“Where I was working, manager don’t say anything about health and safety”
(Participant C)

Moreover, majority of the participants stated that the failure of H&S policies and their implementation in these constructions companies is due to managers’ non serious attitude. The feelings of participant were reflected in the following comments.

“I was injured many times because of manager’s negligence as manager does not implement health and safety policies and does not see our safety and saying to us that this is your fault, he was telling us to finish the work” (Participant G)

“Health and safety policies are not clear to me, and no manager commitment, the manager is not concerned about our safety, the only focus is on the fulfilment of work” (Participant C)

6.2.4 Manager Commitment to Workplace Health and Safety

This category targeted the level of commitment that the managers of construction SMEs of Birmingham have shown for the improvement of health and safety standards at the workplaces. The main question in this category was, “what steps has your manager taken towards the prevention of accidents at the workplace?”.

According to most of the responses, the manager had not taken any important steps for the prevention of accidents at the workplace. For example, participant C added that:

“No implementation of health and safety rules and regulations for risk prevention because manager is not always present on site and manager mind is not that much towards health and safety of workers” (Participant C)

On the other hand, some nationals of the UK seemed quite satisfied with the apparent efforts of their managers when it came to the prevention of accidents. They stated that:

“company is providing everything, the safety equipment’s, and information regarding precautionary measures before the start of any work activity” (Participant D).

Such responses were not in line with the answers of the other respondents, as the majority stated that their managers showed no level of commitment or efforts showing that they cared about their workers’ health and safety at all. Some of the respondents stated that their managers review the safety work procedures, while yet again, the majority said that even if these procedures exist, they are just a formality and are almost never reviewed by the managers. The UK nationals (3 from England and 1 from Ireland) agreed to having been provided with everything that helps them lift and transport heavy objects, such as forklifts. On the other hand, immigrants and foreign nationals disclosed that they had to work in groups and transport heavy objects manually, which resulted in immense pressure on their lower backs, shoulders, and upper limbs.

Such statements led the discussion towards the next question, which inquired whether or not the participants had suffered from any musculoskeletal injuries while working at the construction sites. The respondents who had agreed to having special machinery for transporting heavy objects disclosed that they had suffered minor injuries, if any, and were adequately compensated for them with paid leaves as well. On the contrary, though, the majority of participants responded that the most commonly injured parts of their body were the lower back, upper limb, and lower limbs. They suffered from falls, accidents with heavy objects, and excessive stress on their spine. According to the participants, neither were they compensated properly for their injuries in the past, nor were they given sufficient leaves to properly recover from the injuries.

The interviewer inquired the participants about how they manage the risks of working at heights, and if any safety equipment is provided for the prevention of fall. Only a few participants agreed to having been provided with protective helmets, gloves, and safety footwear. According to their responses, they managed working at heights by wearing the complete kits provided to them by their employers. Coincidentally, these responses came from the UK nationals. On the other hand, the rest of the participants were either provided incomplete safety kits, or no kits at all. They held on to rails and other structures while working at heights, or with the support of other workers. When asked about first aid kits, respirators, and fire extinguishers, very few workplaces had them. Lastly, only one participant responded in the positive when asked about whether or not there was a first aid kit at their workplace.

6.2.5 Policies

The policies related to the H&S of semi-skilled workers at the selected organisations are another form of an extrinsic motivational factors. If the policies and regulations urge the operatives to adapt high standards of health and safety while performing their duties, their motivation levels to engage in such behaviours would increase as well (Lu and Yang, 2010). Therefore, it is vital to address what the manager is doing in a formal manner, in order to promote the adaptation of high health and safety standards at the company.

According to the responses from the participants, a common theme was extracted regarding the management. The answers indicated that most of the managers were not even available or present on-site during projects at construction SMEs of Birmingham,

which caused a lack of awareness on the side of the management as to who is following the health and safety procedures, as well as who is not.

“Managers always not available on the site, no supervision in any construction activity” (Participant K)

“Work activity is difficult, no safety policies and no one is responsible for our safety and supervision” ((Participant M)

A recurring idea within the responses of the participants was that at most of the construction SMEs of Birmingham, the manager either did not implement any policies regarding health and safety standards at all or did not conduct any follow-ups to check whether or not the workers are following all rules and regulations. The half-hearted formation and implementation of the policies regarding health and safety standards could have been due to legal issues that the construction SMEs of Birmingham intended to avoid.

Furthermore, most of the participants indicated that their managers were not concerned in the least if they had been following the safety standards, while discriminatory behaviour was observed as well. The discrimination was seen in the form of the managers urging racial majorities to adapt the safety standards and providing them with the necessary material and equipment to do so, while ignoring the health and safety aspects of foreign nationals and minorities.

Only 4 respondents, including nationals of the UK (3) and Ireland (1), stated that they had never faced any issues regarding the implementation of policies regarding their health and safety. They added that their managers have always been highly concerned about their safety at work, and that they are regularly questioned about whether or not they have been following the safety procedures. Such responses were found to be rare during the interviews, as the majority of participants disagreed to having observed any positive health and safety outcomes due to the development of relevant policies. On the other hand, it is essential to note that most construction SMEs, disregard the establishment of health and safety policies altogether. Such actions from the management in the construction industry substantially increase the chances of injuries that the workers face. It was another common theme that the construction operatives ignored safety standards, as they were either not trained sufficiently to understand the methods and implications, or they were simply not given the material necessary to follow the guidelines.

6.2.6 Respect

Receiving respect at the workplace is a basic right that every employee must receive (Duska, 2007). When a culture of respect is practiced within a workplace, the morale of the employees is likely to be improved, which in turn enhances their behaviour and intrinsic motivation (Oyediran, 2021). If adequate respect is not given to the workers, or if they are disrespected, discriminated, or ridiculed, they are highly likely to lose their motivation to perform effectively (Ebeid et al., 2003). It may also have psychological implications. The participants in this study were asked regarding the

culture of respect at their workplace. The main question was, “have you experienced any kind of disrespect at the workplace?”.

It was not surprising that only three of the participants (Participant D, J and M) stated that they had never experienced any kind of disrespect at the workplace, while 1 participant belonging to same nationality, along with the rest of the participants, responded positively to the question. In most cases, it was commonly observed that the semi-skilled operatives at construction SMEs of Birmingham, were victims of discrimination or racism. In response to the question that asked for a brief description of the disrespectful incident, the most common answers were related to the working speed, efficiency, race, religion, language and even gender. The participants stated that such disrespectful behaviour is frequently observed at their workplace, and that nearly no employees speak up against it. The managers and leading figures are usually involved in such actions, while other workers who belong to racial majorities often engage in such behaviours, without ever being reprimanded.

When the interviewer asked the participants about what, from their perspective, could have primarily caused the acts of disrespect, most of them did not produce any lengthy responses. A recurring theme in response to the question was discrimination, racism and unethical behaviour. The feelings of participant were reflected in the following comments.

“I Want to be treated fairly and others to be treated fairly as well” (Participant C).

“I was less valued by manager and disrespect in terms of religion” (Participant G).

“ Inequality remains a repeating aspect of working life for ethnic minority workers, ”
(Participant E).

Moreover, the interviewees were then asked to share how the disrespectful behaviour affected their health and safety. Quite unsurprisingly, the responses showed that the health and safety of the workforce at the selected companies deteriorates when they are disrespected and cause unsafe behaviours or acts such as demotivation, depression, developing anxiety disorders and loss of self-control.

“Managers tend to reject the time for religious prayers, which make me angry, stressed and demotivated (Participant C)

Moreover, (Participant I) claimed that *“manager mistreated me, and I ended up with depression and demotivation.*

Furthermore, participants were asked about how the disrespectful culture in the workplace has impacted their motivation levels, the participant responses showed a major drop in their intrinsic motivation on a regular basis due to disrespect in the workplace. The feelings of participant were reflected in the following comments.

“Due to absence of respect and equality in the workplace, I always feel insecure and demotivated during the work and are more likely to involve in work errors and face hazards during activity in the workplace” (Participant C)

Moreover, Interviewee G states, *“we will work more safely with a supervisor who is seen as someone who give respect”*.

According to some of the responses, once individuals begin disrespecting operatives at the workplace, and no actions are taken to prevent the phenomena, they begin to steadily lose their morale. The more disrespected they are, the lower their motivation levels go. In turn, demotivation causes the operatives safety performance and work motivation to drop, which results in more disrespectful behaviour from the side of the managers. The cycle continues, and the health and safety behaviours of the construction operatives deteriorate even further. In addition, the participants were asked how they reacted to the disrespectful behaviour that they faced at the workplace. A mixed set of answers were received. A common theme was that the semi-skilled operatives tried reporting the incident to the managers, mostly to no benefit. On the other hand, most of the respondents stated that they had been aware that their actions would be fruitless in this regard, therefore, they remained quiet and decided not to deal with the matter. Another reason behind not reporting or remaining quiet regarding the disrespect was that the semi-skilled operatives could even lose their job at the construction SMEs, for making complaints related to their managers.

6.3 INTRINSIC FACTORS

The next set of questions were directed at discovering the impact of intrinsic factors on operatives' H&S and motivation across the selected companies. The intrinsic motivational factors, along with the impact of extrinsic motivational factors on the intrinsic factors were inquired during the interviews. The intrinsic factors are based on the conceptual framework, and consist of psychological stress, attitude, behaviour along with job satisfaction. These aspects are comprehensively discussed in the following subsections.

6.3.1 Psychological Stress

Most semi-skilled operatives at construction SMEs of Birmingham suffer from high levels of psychological stress. This stress is often due to long working hours, disrespectful behaviour from the upper management, discrimination, or low wages. Additionally, if the working conditions are poor at such construction firms, the workers become more prone towards psychological stress. The interviewees were asked about their psychological stress. The main question in this category was, “what is by far the most stressful situation you have faced at work?”. The follow-up questions in this category are attached in the appendix.

This set of questions, by far, generated the most homogenous collection of responses from the participants. All of the participants agreed to having faced stressful situations at work. There was no discrimination in this regard, and no semi-skilled operative was free from psychological stress while working at construction SMEs of Birmingham. The feelings of participant were reflected in the following comments.

“I feel stress because of no respect from the manager, high and excessive amounts of workload with no extra money support” (Participant K)

“sometimes work stress led the issues to home as sleeping problems, fights in the family and also affect my mood which leads me towards lack of motivation and focus on work and as a result, injury happens” (Participant P).

Furthermore, most of the responses regarding the most stressful situation at work were based on making errors during working hours, not having sufficient financial resources

due to low wages, being overworked, working overtime, and not feeling a sense of job security. These were the most common stressful situations, which the participants faced at the selected construction SMEs of Birmingham. On the other hand, when asked about the main reason behind the stressful situation, similar answers were produced. It was found that the low wages and excessive burden of responsibilities related to the workers' jobs were the most common reasons behind their high levels of psychological stress. Additionally, being unable to fulfil family and financial duties due to the long working hours and low wages, respectively, caused the workers' psychological stress to increase even further.

The interviewees were asked to describe a time when their psychological stress resulted in them making errors while working. Some of the participants stated that whenever they are extremely stressed, they make minor mistakes while working. In some cases, the intensity of mistakes is increased, which jeopardizes both their health and safety, as well as the quality of work itself. The following comment depicts this notion.

“I did accident in the workplace, which is not explainable as I was dizzy and underneath the whole brick wall. It was stress, pain, and hopeless situation”

(Participant Q)

“Whenever I was in the stress, I constantly feeling headaches, depression, and difficulty in work concentration and stop work and no self-care” (Participant B)

Frequently under stress, semi-skilled operatives forget to switch machinery on or off, misplace important equipment or material, lose track of time while finishing a job, or forget fine details of a task. Psychological stress negatively impacts the workers'

performance, which results in them getting reprimanded for the performance, causing an even further increase in stress levels. When the participants were asked about how they handle stressful situations, they responded that they tend to take small breaks, share their concerns with a trusted colleague or someone in their social circle, slow down the pace of work or “just get through it”, as the stressful situations are temporary. The same strategies were observed when the participants were asked how they prevent situations from getting too stressful. Lastly, psychological stress negatively impacts both work motivation and the workers’ health and safety.

6.3.1.1 Interaction of psychological Stress with Extrinsic Factors

Psychological stress is an intrinsic factor that interacts with some extrinsic factors. Some questions were asked regarding how extrinsic motivational factors affect the psychological stress of the workforce at the selected companies.

The management’s role had the most prominently negative impact on the psychological stress of the construction workers. The management’s incompetence regarding the maintenance of the H&S standards of construction workers at the selected organisations turned out to be the most major factor that increased the psychological stress of the workers. Poor working conditions also increased the level of psychological stress among the participants.

“Low lighting levels make it difficult for me to focus on work. I get stressed because I’m not sure if I’m doing something correctly or not, and I fear for my safety with heavy machinery in the dark too.” Participant G

The lighting, mess at the workplace and the excessive workload increased a sense of insecurity among the workers, causing an increase in stress as well. When it comes to the impact of a disrespectful culture on the psychological stress of the workers, the participants seemed to remain in fear of being insulted at every instance, which participated in increasing their stress. Lastly, poor health and safety training made the participants concerned for their safety and wellbeing, which also negatively affected their psychological stress levels.

6.3.2 Attitude towards Safety

Attitude is a set of feelings, beliefs or opinions regarding approval or disapproval of a certain situation, which is developed with the help of observing phenomenon around an individual. It is different from behaviour, which is the physical actions or reactions that occur in response to internal stimuli. In order to assess the attitude of the semi-skilled construction operatives, their experiences regarding workplace accidents had to be discovered, as these experiences help shape their opinions and feelings regarding the specified circumstances. The main question asked in the category was, “do you have any experience with any workplace accident, have you witnessed any workplace accident, or have you been indirectly involved in any workplace accident?”.

The attitude of the participants was mostly developed based on their experiences regarding health and safety standards and practices that they faced at the workplace. The opinions of the participants were also established based on these experiences as well. Out of the total 20 participants, 18 agreed to having been either directly or indirectly involved in accidents at the workplace. Almost all of them provided a description of the event in their own words. The most common themes regarding the

workplace accidents were found to be falls from heights, errors with machinery, incidents while lifting and moving heavy weighted objects, along with a range of other incidents like slips, trips, sprains and strains. This is demonstrated in the following comment.

“We were two labors demolishing the room and that time I was without safety helmet and one side of wall was collapsed and whole brick wall came on me and also there were some heavy wooden pieces which hit me as well. I was totally hopeless that time because the wall hit my head and there was totally darkness on my eyes, and I was feeling very dizzy that time and was not in a situation to handle myself” (Participant C)

“I was nearly dead, but I got another life. It was a life-changing accident. I was working on the roof and was removing the existence roof material from the roof top. I was on the top and one more worker was working and helping me on the top in removing the stones and existence chimneys and woods. Suddenly rain started and I was trying to go down and my footing slipped, and I was fell down on the ground from top of the roof. I broke my leg and arm, but I was lucky that my head was saved. I was without fall protection” (Participant K)

The intensity of each workplace accident varied, and some fatal accidents were shared during the interviews. According to most of the respondents, the primary cause behind the occurrence of accidents was either a lack of health and safety standards and procedures, or carelessness from the side of the workers. When asked how the experience affected the workers' health and safety, the most common answer was that they feared they might get involved in another accident at the workplace. The opinions

of the construction operatives, according to the responses, rapidly changed after witnessing or being a part of an on-site accident. Those who had suffered an accident at the workplace began to feel as if they were not safe, and that anything could happen to them at any minute. Their perspective changed, and they started perceiving their management as incompetent in terms of protecting them. These opinions were especially negative when it came to the participants who had been suffering discrimination and disrespect at the workplace. They did not talk about their management and leading figures in a positive way. A higher rate of workplace accidents led to a more negative perspective regarding the management.

6.3.2.1 Interaction of Attitude towards safety with Extrinsic Factors

Safety attitude is widely acknowledged as a component of safety culture. Safe attitude means staying alert and focused on the job. Some questions were asked regarding how extrinsic motivational factors affect the safety attitudes of the workforce at the selected companies. The manager, according to the participants, plays the most prominent role in impacting workers safety attitude and behaviour in the workplace. This is demonstrated in the following comment.

‘Manager is not supportive, not providing us any safety equipment’s, work is hard and I am lifting heavy loads without any machinery, no safety measures in the workplace, that’s why my work is risky (Participant L).

‘Working in cold weather under low lighting, no care for us in this working profession (Participant P)

According to the responses, participants were complaining about poor working conditions and manager incompetence, which affects workers motivation and safety attitude. A supportive and influential leadership style, according to Clarke and Ward (2006), impacts workers attitudes and behaviour. In addition, When the manager did not fulfil the H&S needs of the workforce, the workers began perceiving their leading personnel as incompetent, unconcerned, and only using them to complete projects (Atkin and Brooks, 2021). Furthermore, the working conditions majorly affected the construction operatives' attitudes. When the workplace environment was discovered to be substandard, such as insufficient lighting and a messy workplace environment, the construction operatives' attitudes changed as well. The worse the working conditions are, the more negative the workers' attitudes become (Debrah and Ofori, 2001). Similar responses were achieved regarding disrespectful organisational culture and poor health and safety training. The workers' attitudes were found to deteriorate and become more negative with worsening conditions and facilities.

6.3.3 Behaviour

The behaviour of the construction workers is a set of physical actions, reactions or activities that they carry out based on their beliefs and attitudes. These behaviours can be related to the demands that the construction operatives intend to make from their management, in order to enhance their experience as employees at their workplace.

Only a few of the participants, 4 to be precise, did not provide any insight regarding what steps can be taken for improving their health and safety at the workplace. Coincidentally, these participants were nationals of the UK. In accordance with their responses, they were quite satisfied with the current health and safety standards at their

workplace, and that there was no apparent necessity of improvements in their current regime of health and safety at their workplace. They stated that all of their relevant necessities were fulfilled, and that they would not want the standards to be changed in any way. Such responses were openly contradictory towards the majority of answers from the participants, as they divulged into a range of suggestions and strategies that they would like to see being implemented at their workplace. The most important and common theme amongst these responses was improving the role of the manager. Some participants stated that their manager must consider the workers' health and safety as a crucial component within the workplace, and that new policies must be established that would urge the construction operatives to engage in health and safety behaviours. The manager, according to the participants, plays the most prominent role in this regard, and change should begin from it as well. This is demonstrated in the following comment.

“Manager need to provide us safety equipment’s before start of every construction activity, sadly, nothing on site is available” (Participant C)

“Our company has no safety for labors, that’s why, my behavior is impacted a lot, and as a result, I always violated safety rules and rushed in the work” (Participant N).

“Poor safety system results in unsafe behaviors and unsafe behaviors lead to accidents in the workplace” (Participant D)

Within the responses, it was found that the participants demanded safety equipment from their managers, which were not provided to them in due time. The respondents agreed that before starting any project, new or relevant safety equipment must be given to the semi-skilled operatives. It is the most basic way through which the health and

safety of the workers can be improved. Furthermore, some of the respondents stated that the culture of disrespect must be eradicated from their workplaces. A human resource management department should be established, which would be able to effectively deal with incidents where the workers are disrespected by their colleagues or seniors. Not only this, but the participants demanded discrimination at their organisation to be ended. According to the respondents, discriminatory behaviour not only lowered their morale, but it also made them not want to work for the small and medium construction firm anymore as well. The participants seemed full of opinions and perspectives regarding how their health and safety can be improved. In accordance with one of the participants, the management must install adequate lighting at the construction sites, so that the operatives can work having full visual of the area. Furthermore, emphasis was placed on equipment required for improved safety while working at heights. The management, according to the respondents, must also conduct regular screenings and training sessions for health and safety of the workers.

6.3.3.1 Interaction Behaviour with Extrinsic Factors

The behaviour of the construction workers is directly influenced by the extrinsic factors involved in the motivation of the operatives.

According to the responses, poor managerial role had a strong negative influence on the intrinsic motivation of construction operatives. Their willingness to perform tasks and participation in health and safety behaviours decreased due to poor managerial role. Similarly, the same effects were observed in terms of poor working conditions.

“Our manager is usually absent, and even when he is present, he disrespects us in one way or another.” (Participant E)

The motivation of the semi-skilled operatives lowered with lowering working standards. A disrespectful culture, along with poor health and safety training also produced similar results. When the workers were not respected enough, and that sufficient health and safety training was not provided, the workers’ intrinsic motivation deteriorated along with their performance.

6.3.4 Job Satisfaction

Job satisfaction is a crucial element of the intrinsic motivation of the workforce. A highly satisfied workforce tends to perform better due to higher levels of intrinsic motivation. In addition, the workers’ job satisfaction is also affected by a range of extrinsic factors, such as the management, training and workplace environment. In the interview process, it was essential to address how satisfied the semi-skilled construction operatives were regarding their H&S standards at the organisation. The main question in this category was, “how would you describe your level of satisfaction in terms of health and safety at the workplace?”. Following the response to the first question, a series of question was asked as well, which are attached in the appendix.

In response to the main question, 18 out of the total 20 participants stated that their levels of satisfaction with their job were below significantly low. Only 2 of the respondents agreed to being satisfied with their job. It must be mentioned that the participants who were satisfied with their job belonged to the UK and were its nationals,

therefore, discriminatory behaviour could be at play yet again. Furthermore, when they were asked why they were satisfied, and what kind of support they had been receiving or not, the satisfied participants stated that all of their rightful needs are fulfilled by their employer. The management plays an important role in this case as well, because the health and safety related need of the construction workers were fulfilled by the managers, which increased the workers' job satisfaction levels. There are numerous other needs of construction operatives that need to be fulfilled other than health and safety, which include sufficient wages, appropriate working hours, overtime pays, along with a range of other factors. According to the responses of the satisfied operatives, these needs were also being fulfilled by their management. This is demonstrated in the following comment.

"I am satisfied, I find my work safe and enjoyable" (Participant D)

In stark contrast with the responses discussed in the paragraph above, 18 out of the 20 participants stated that they were dissatisfied with their job. The interviewee asked them regarding the most dissatisfying situation the participants had faced at work, and range of different responses was received. The most commonly recurring theme amongst the responses was that the reason behind the dissatisfaction of semi-skilled construction operatives was failure from the side of the management to fulfil the employees' needs. Low wages, substandard health and safety protocols, insufficient safety equipment, long working hours, disrespectful behaviour from the management, along with numerous similar reasons were provided by the respondents for being dissatisfied with their job. The most common impact of low job satisfaction levels was a reduction in the

operatives' work motivation. The lower the job satisfaction level, the lower the work motivation. Participant responses are given below.

"I have felt dissatisfied on the job when I feel underpaid and overworked" (Participant B)

"Dissatisfaction takes the issues and stress to home. Fighting's in the family and anger and as a result, I am facing a lot of depression in the workplace and at the home, sleep problems, and excessive worry, as well as facing injuries in the work" (Participant C)

6.3.4.1 Interaction of job satisfaction with Extrinsic Factors

As job satisfaction is an intrinsic motivational factor, it is largely affected by extrinsic motivational factors. The extrinsic motivational factors that were investigated as being affective towards job satisfaction consist of managerial role, working conditions, culture of disrespect, and health and safety outcomes.

Managerial role had the most significant impact on the job satisfaction of semi-skilled construction operatives. The lack of appropriate actions from the side of the managers, their discriminatory behaviour, and the absence of leading personnel at the worksite caused the job satisfaction levels of the participants to notably drop.

"I am highly dissatisfied with this job. I feel like we are just labourers who drive the company that has no regard for our safety at all." (Participant A)

Similar effects were observed in the case of poor working conditions. Due to the poor workplace environment, the participants could not effectively focus on their tasks, which caused their performance to decline, in turn negatively affecting their job satisfaction. Furthermore, disrespectful behaviour at the workplace also produced the same results, along with poor health and safety training. All of these factors, when poor or insufficient, resulted in lowering the job satisfaction levels of the semi-skilled construction operatives.

6.4 HEALTH AND SAFETY OUTCOMES

H&S outcomes for the selected target population were a direct result of a range of factors of motivation, especially the manager's role and H&S practices at the organisation. In order to take a deeper look into the H&S outcomes of the workforce, a range of responses from the interview were taken into account. Questions were involved in this category that mainly targeted workplace accidents, stressful situations, impacts of H&S training, along with the overall influence of all extrinsic and intrinsic motivational factors combined, on the H&S of the semi-skilled workers. The H&S results, in this study, are the last part of the conceptual framework. These are the results of the initial two phases of the framework, which are a combination of both the extrinsic and intrinsic factors of motivation impacting the H&S of the selected target population.

One of the most important components of health and safety outcomes are accidents at the workplace. When the participants were asked regarding their experiences with accidents at the workplace, nearly none of them could respond that they had not witnessed or been involved in such an incident. The severity of workplace accidents

varied from individual to individual, but it was clarified that the insufficient arrangements made by the construction SMEs regarding the H&S of the workforce resulted in both accidents and fatalities.

“I have experienced knee injury accident and was injured during working in Birmingham. It was 5 months before” (Participant B)

“I was badly injured because I was not aware about using electric equipment’s, after the accident, I was unemployed for months without any support and money from the company and manager. I spent whole my injury duration in the home and manager didn’t even call me and not give me any money. That were very bad days for me and for my family. I was in depression stage and family problems was arises as well”
(Participant K)

Moreover, it must also be considered that the lack of appropriate, repeated, and adequate health and safety knowledge also contributed towards the occurrence of accidents at the workplace. Due to the operatives not being completely aware of all of the risks associated with their task, they could not take all necessary precautions, which resulted in harmful incidents occurring to them. Additionally, in most cases, the company failed to provide the semi-skilled operatives with the safety equipment that is necessary in certain situations, which further jeopardized their health and safety while working on-site.

As it can already be assessed, the H&S outcomes of the workforce were not at an acceptable standard. Most of the times, managers were unavailable at the workplace.

Due to their absence, the workers could not ask for materials and safety equipment that they needed before starting a certain task. Moreover, safety checks were not conducted before the beginning of any project at the selected construction SMEs of Birmingham, which caused a further increase in the risk levels regarding the H&S of the workforce. Another important subject of discussion is the poor workplace environment. Insufficient lighting, mess at the workplace and excessive workload caused the semi-skilled construction operatives to become increasingly stressed, which reduced their levels of work motivation. Due to low motivation levels, the construction operatives' participation in health and safety behaviours reduced as well, causing a heightened risk for their wellbeing while working at the construction SMEs. In most cases, the management did not conduct checks for mechanical failure and broken parts in the machinery, which contributed towards negative H&S outcomes.

The H&S outcomes of construction operatives depends highly upon the level of commitment that their organisation shows in managing relevant aspects of the workplace. The respondents were asked regarding what steps their organisation had taken for the prevention of accidents at the workplace, and the answers were not satisfactory in the least. According to most of the responses, the small and medium construction firms do not review safety procedures at all, or establish a protocol only once, due to legal formalities. Such protocols, according to the participants, were not even practically implied at the workplace. It resulted in unknown and unprecedented risks towards the H&S of the selected workforce. In addition, most of the construction operatives were not even provided with the necessary equipment required to work at certain heights. Due to a lack of adequate safety tools, the risk of falls, as well as the actual occurrence of falls, increased at the workplace. All of these factors of the

workplace environment and the management indicate that H&S outcomes of semi-skilled workers at the selected construction companies are poor.

6.5 THE MOST CRITICAL FACTORS

The most critical factors that affects the H&S of construction workers at SMEs has been found to be the role that the manager plays, working conditions, respectful culture, along with health and safety training in the extrinsic category. The intrinsic category consists of psychological stress and job satisfaction. The findings indicate that the manager is highly responsible for providing the necessary safety training and equipment to the semi-skilled operatives, as well as for conducting regular safety checks, maintaining the machinery, assessing risks on-site before starting a new project, maintaining a good workplace environment, as well as adequately training the staff regarding emergencies, and health and safety. The management is also highly involved in the behaviour that the semi-skilled operatives witness while working on-site. Disrespect and discrimination from the managers and leading personnel only harms the morale and work motivation of the construction operatives and have serious consequences for the firm as well as the employees.

The responses of the participants show that a major part of their experiences being semi-skilled operatives at the selected construction firms has been negative because of the unfair and incompetent practices of the management. Managers are often unavailable at the worksite and do not seem to care about the health and safety of the construction operatives at all. Almost no initiatives are taken to further train the construction operatives, and no emergency resources are available for saving people's lives if they get into any accident at the workplace. This lack of efforts and interest causes the work motivation of the construction operatives to significantly drop.

6.6 INTERVIEW DATA ANALYSING PROCESS

The thematic analysis was conducted based on the transcripts of the conducted semi-structured interviews. A manual technique of thematic analysis was followed, developed by Braun and Clarke (2006). Six steps were followed for the analysis of the interview qualitative data, which include familiarisation, generating initial codes, searching for themes, involving reviewed themes, defining, and naming themes, and finally reporting the findings. The steps are discussed as follows.

6.6.1 Familiarization

In the first step, the semi-structured interviews were transcribed. The transcripts included all responses of the participants, including the specific probes that were selected in the questioning process of the semi-structured interviews. The transcripts of the interviews were then read and re-read, so that a familiarisation could be developed. Important points from the data were extracted and noted down.

6.6.2 Generating Initial Codes

Initial codes were developed in the second step. The initial codes were related to recurring concepts and responses in the interview transcripts. Codes such as poor working conditions, low lighting levels, absent manager, and a range of other short sentences were formed to sort the data based on the type of response to the interview questions. In addition to it, Manual coding with deductive approach was adopted in this research. Coding was started with set of pre-established codes that was originated from the research conceptual framework. Furthermore, code book was made to keep track of the codes.

6.6.3 Searching for Themes

The third step was marked by a search for themes. Out of all the codes that were established in the interview transcripts, an arrangement was made. The arrangement was based on repetitive codes, which were sorted into groups. These groups were the themes extracted from the collected data.

6.6.4 Involved Reviewing Themes

A thematic map was created out of the extracted themes in the fourth step. The thematic map was associated with a list of all the possible themes that were acquired from repetitive patterns in the interview transcripts. In addition, initially established themes were merged and combined, so that a concise and summarised form could be developed.

6.6.5 Defining and Naming Themes

The extracted codes were determined, defined, and named by closely examining of the above stages to confirm that the collected themes stayed representative of the initial assigned codes. Three main themes or concepts were generated and finalised, including extrinsic factors, intrinsic factors and the interaction of these factors. These themes were generated from the interview participants, which have been briefly described below in the table.

Code Name	Description	Example
Manager's absence/untrained	Most of the respondents stated that their managers were not trained in health and safety procedures. It was also found that the managers were absent from the worksites, in addition to a lack of commitment from the management's side.	<i>"Our manager is almost never present at the sites of work. I think that even he knows nothing about our safety."</i> - Participant D

Poor working conditions	The working conditions were significantly poor, according to the participants' responses. The lighting levels, worksite conditions, equipment conditions, as well as supportive safety material associated with working at heights and in dangerous conditions were not sufficient.	<i>"We are not given protective equipment like PPEs or even harnesses for when we have to work at heights. All of it really puts us at risk."</i> - Participant B
Disrespectful or discriminatory culture	Respondents faced disrespect or discrimination at their workplace, which reduced their motivation to work effectively.	<i>"I have experienced discrimination at work more times than I can count. It just discourages me because I don't do anything wrong to deserve to be discriminated."</i> - Participant K
Untrained staff	The staff was not trained regarding practices and protocols of health and safety. The lack of training worsened the workforce's safety aspects.	<i>"Safety training sessions are almost never conducted. Even we don't know enough about our own safety related protocols."</i> - Participant C
High stress levels	The construction operatives had high levels of psychological stress due to a range of reasons, such as long working hours, low wages, poor working conditions, etc.	<i>"Most of the times I am extremely stressed. My urge to engage in safety behaviours is lowered when I am stressed."</i> - Participant E
Job satisfaction	The workers felt a low level of job satisfaction.	<i>"I am not satisfied with my job. I don't feel safe with my work, and I don't even earn enough. I would switch my job if I could."</i> - Participant H
Extrinsic factors' impact on intrinsic factors	The extrinsic factors, such as poor working conditions, had impacts on intrinsic factors like job satisfaction.	<i>"The main reason behind my job dissatisfaction are the working conditions. Every day it feels like a huge risk working at the company."</i> - Participant F

Table 4: Coding and Key themes

In addition, after getting the key information, the final report was conducted and produced as described below in the section 6.6.6 under the name of producing the interview responses report.

6.6.6 Producing the report from Interview responses.

Meaning Unit	Code	Category	Theme
Common responses from the participants indicated the absence of managers from the worksites, the managers being untrained regarding health and safety, along with a lack of managerial commitment to safety	Manager's absence/untrained	Manager's role	Extrinsic factor
Repetitive patters were found in the responses related to poor lighting, lack of machinery maintenance, and unavailability of safety equipment	Poor working conditions	Working conditions	Extrinsic factor
Responses indicate that discriminatory and disrespectful behaviour is practiced at the worksites	Disrespectful or discriminatory culture	Respectful culture	Extrinsic factor
The staff is not trained for health and safety, reducing their level of awareness and motivation	Untrained staff	Training	Extrinsic factor
Due to low wages, high workloads, poor working conditions, and long working hours, operatives have a high stress level in general	High stress levels	Psychological stress	Intrinsic factor
Due to high stress levels and poor working conditions, operatives often feel job dissatisfaction	Job dissatisfaction	Job satisfaction	Intrinsic factor
Extrinsic factors like working conditions, managerial role, disrespect and untrained staff have negative impacts on intrinsic factors like job satisfaction and psychological stress	Extrinsic factors' impact on intrinsic factors	Interlinks	Interaction

Table 5: Final data report and factors

6.7 CHAPTER SUMMARY

This section thoroughly discusses the findings of the research. Semi-structured interviews were conducted, while the number of participants from construction SMEs was 20. The motivational factors were addressed, in the context of impacting the H&S of semi-skilled workers at the workplace. In addition, the impact of extrinsic motivational factors on intrinsic motivational factors was considered as well. The

results show that there is a general poor outlook of H&S at the selected construction SMEs in Birmingham. There is a lack of training, resources and safety equipment for the H&S of the workforce. The most critical factor was found to be the management, which plays a crucial role in the poor health and safety outcomes of the workers.

CHAPTER 7: DISCUSSION

7.0 INTRODUCTION

This study set out to look into the motivational factors that affect the health and safety of semi-skilled operatives working in construction SMEs of Birmingham UK. This chapter focuses on fulfilling the fourth and fifth objective of the study. "To discuss and validate the relationships between motivation and health and safety of operatives, and to make improvements to the original conceptual framework and present a modified model of motivational factors that impact health and safety of semi-skilled operatives working in Construction SMEs,". The main factors of the discussion consist of the following themes: Extrinsic motivational factors and intrinsic motivational factors.

7.1 EXTRINSIC MOTIVATIONAL FACTORS

Extrinsic motivation was the first key theme that was found to impact operatives' health and safety outcome and motivation in the workplace. There were four main extrinsic motivational sub-themes identified to be the root causes of poor H&S outcome in the selected organisations. The sub-themes found to be significant consist of the role of the manager, working conditions, respect, and training. Factors are discussed in detail in the following subsections.

7.1.1 Manager Role

The role of the manager was found to be the key extrinsic factor impacting the health and safety outcomes of construction operatives. Across all of the interviews, the semi-

skilled operatives perceived their managers as demonstrative of little or no interest in the health and safety of the workers. The operatives perceived an absence of safety policies and safety culture to help reduce accidents and managers were considered to be more concerned about their own financial earnings and often neglected health and safety rules and regulations. On the other hand, this perception is only one-sided, i.e., the semi-skilled operatives. Safety policies could have been in place without the operatives being aware. For example, participants indicated that managers' focus was on getting the job done as quickly and as cheaply as possible, without the presence of any safety representative and often without site supervision, which led to a reduction in motivation levels and in some cases to negative consequences. When asked about the consequences, participants identified increased exposure to physical injuries (Participant K), high stress levels regarding excessive workloads (Participant B), incorrect postures and musculoskeletal disorders due to lifting or moving heavy weighted objects (Participant E), a lack of work motivation (Participant G), along with psychological and cognitive issues such as reduced concentration.

Moreover, according to the findings, the managers appeared unaware of roles and duties regarding the H&S of their operatives. The participants believed that their managers had no safety knowledge around the need for health-related issues. This was believed to cause an increase in the H&S risks at the organisation. Managerial figures were perceived to not consider construction tasks as risky and difficult, instead, they assumed it as simple and repetitive. It emerged that the small and medium construction firms were considered to have a notable lack of safety rules and regulations, along with relevant policies and safety officers who could help in the establishment of a safer working environment for the construction operatives. Similarly, Enshassi *et al.* (2015)

also states that lack of safety regulations and legislation, absence, and lack of supervision at the workplace and uncontrolled health and safety protocols cause an increase in safety related risks for operatives. The participants identified that managers have multiple projects in progress at the same time is documented as a chief reason of poor regulations, absence on site, and poor supervision. For example, it was revealed that it gets difficult and hard for managers to know what work to prioritize, and how to support and effectively manage operatives' working activities, workload and health and safety without a proper plan and team for managing multiple projects.

Furthermore, the interviewees noted that the managers did not support the semi-skilled construction operatives in terms of H&S, which further deteriorated the outcomes. Cameron and Duff (2007) similarly state that maintaining safety records, safety managers' actions, and safety considerations such as interaction, work engagement and communication are crucial elements in enhancing safety at the workplace. The managers, according to construction operatives, failed to provide sufficient support to their operatives. In accordance with the response of a number of participants, they were often injured and could not perform their duties for several months. During such time where support was needed, their managers' actions caused psychological stress and financial difficulties. This lack of support from managers led to a deterioration in the H&S outcomes and motivation of the selected workforce. This disregard on behalf of the managers often caused negative perceptions with participants viewing their managers as incompetent and unconcerned about their safety. These issues have been previously reported by Alhajeri (2011), who stated that a poor degree of risk awareness, and a perception that H&S are unimportant problems within the sector gives rise to a greater intensity of health hazards for workers. However, there is a range of solutions

that construction SMEs of Birmingham, can adapt to resolve the issues faced by their semi-skilled operatives. The authorities at a SMEs could provide incentives and rewards to their managers for showing good performance related to workers' H&S. With the help of rewards, managers will be able to fulfil their safety regulations for earning personal gains (Barg *et al.*, 2014). In addition, a range of strict policies and procedures are required as well. By assessing the H&S practices of both managers and the workforce at construction SMEs, a balance can be maintained in risk mitigation.

7.1.2 Working Conditions

Working condition was the second extrinsic motivational factor that was found to be impacting H&S outcomes of the workforce. Almost all of the respondents agreed that their working conditions had a crucial impact on their H&S and motivation levels. In most cases, the respondents stated that their job required them to work at height but often they were not provided with protective equipment such as full body harnesses and helmets, leading to an increase in the risk of falls and on-site accidents. These unsafe working conditions suggest that the managers do not implement sufficient safety methods and a lack of regulations. This is supported by Raheem and Hinze (2012), who state that there is dire need of specific safety regulations and health and safety consciousness among all stakeholders in the construction sector.

A significant issue for the operatives was their concerns regarding insufficient lighting at their worksites, leading to eye strain, stress, partial disability, and a greater potential to make mistakes while performing duties. Low lighting levels can also increase the likelihood of accidents, due to poor visibility of their worksite and machinery.

According to a response given by participant (D), he had been involved in a fall from the first floor of the worksite, which was caused by poor lighting. The participant had not even been provided with the PPE, which was necessary in that situation. As a result, he had been hospitalised for around three months and incurred a partial disability. This disability from a worksite accident caused the operatives' motivation to suffer a significant drop. The operatives blamed their managers for their loss and felt highly demotivated to continue working again at the firm. In addition, the participants identified the deficient enforcement of safety, lack of safety equipment's and proper awareness and education on PPE is recognized as a major cause of accident and absence of PPE. For example, if operatives do not understand why PPE is needed or have no way to choose it, they are more likely not to use it. Evaluations of safety are the key towards enforcing safety protocols in the working environment. However, the outcomes indicate that a high number of construction SMEs fail to carry out these inspections. Subsequently, it is expected of such organisations to have a higher number of injuries and accidents, along with H&S violations. Managerial figures must conduct inspections, in order to become familiarised with the current H&S conditions.

Moreover, high workloads were considered to be a regular issue by the construction operatives. Such workloads are characterised by inadequate rest periods, long working hours, along with low wages. The participants stated that they often felt exhausted from working long hours, and that they did not get sufficient breaks. This caused them to become de-motivated and unfocused on their task, which increased the levels of risk related to their health and safety. Further, the participants added that managers were often found to disregard national H&S regulations, which required a specific set of working hours to be determined by the managers. Insufficient rest periods, when

combined with inadequate health and safety training, resulted in a greater level of fatigue and negative H&S performance of the operatives. Chaudhari *et al.* (2020) add that the poor competence of construction workers indicate that their managers have inadequately trained them related to H&S.

From a general perspective, the workplace environment impacts the H&S motivation of semi-skilled operatives in the construction sector. The working conditions were found to have a major impact on the H&S performance of the operatives. construction SMEs often do not regularly evaluate the working conditions. Some of the main reasons may include a lack of health and safety knowledge, small workforce of experts, insufficient financial resources, extraordinary focus on financial gains instead of workers' safety, and potential incompetence of the managers. It is crucial for construction SMEs to regularly assess the working conditions that they provide to their operatives, so that the rate of on-site accidents can be reduced, a healthy workplace environment can be created, and the overall work motivation and safety of the operatives can be improved.

According to Abdel-Hamid (2020), the safety and productivity of labour decreases if an appropriate workplace environment is not provided to them. This is clearly apparent in the responses from the participants. The better the workplace environment is in terms of health and safety, the more motivated the operatives are likely to be, which results in improved health and safety outcomes. It must be noted that the managers were considered to be a significant factor in this case, as they were responsible for providing safer working conditions to the operatives, as well as a healthier environment at the

workplace. Managers can be encouraged by their employers to continually assess the working conditions and report back on the necessary changes. They could be encouraged through incentives, rewards and performance appraisals. If the managers perform effectively in improving the working conditions by providing safer workspaces to the operatives, they will be rewarded. On the other hand, if the performance appraisals reveal inefficient operations, the managers will be given deadlines to improve.

7.1.3 Respect

Respect was the third extrinsic motivational factor that was found to have significant effects on the operatives' health and safety outcomes and motivation levels. A majority of the participants had experienced disrespectful behaviour at the workplace, in one way or another. This disrespect was manifested in various ways including racism, unfair treatment (Participant G), body odour and bad breath (Participant C), and language and religious issues (Participant B and I). This was found to have significant effects on operatives' health and safety motivation, and this had direct consequences on their health and safety behaviours. Low morale caused by a lack of respect at the workplace was often linked to the engagement in risky behaviours and poor safety practices. Furthermore, the workers felt unsafe while at the workplace due to such disrespect. Leape *et al.* (2012) state that the organisation's leader or management is responsible for introducing respect in the workplace. In most cases of a disrespectful workplace, managers create a culture of discrimination. In discriminatory cultures at the workplace, not only are the managers engaged in disrespectful behaviour, but so are other workers themselves. Racial or religious majorities are often the root cause of this phenomenon.

Moreover, discrimination was found to be common in construction SMEs. Most discrimination was based on race and religion. Immigrant workers such as those from Pakistan, India, Bangladesh, Arab and Romania were the most prominent victims of discrimination. These semi-skilled operatives were not only exposed to discrimination and disrespect by their managers, but they also faced such actions from their mainly white colleagues. In addition, discrimination based on religion was extremely common amongst the responses attained from the participants. Muslims, Hindus and Sikhs were highly vulnerable to religion-based disrespect at the workplace. Managers were found to impose unfair prayer restrictions over the participants. These restrictions were a sign of unequal and unfair treatment for the operatives, which directly and negatively impacted their emotions, mental health and physical health. This disrespect conflated the stresses caused by the poor working conditions and low wages, and as a result, the health and safety of the operatives were compromised. Respect is extremely necessary in cross-cultural environments and a system of respect would enhance the workplace environment in construction SMEs. In the present case, respect is lacking at the workplace.

According to the responses, a disrespectful culture at the workplace resulted in anxiety, poor self-esteem, high stress, mental health issues, and a decreased morale amongst the construction operatives. These effects have negative consequences for the operatives in the long term, which includes impacts on both physical and mental wellbeing. Workers are unable to work at their full potential when they are under such high levels of stress. Hence, because of this discriminatory behaviour and resultant high levels of stress, the construction operatives become vulnerable towards making mistakes at the workplace. When the risk of making mistakes increases, it deteriorates the standard of H&S that

the construction operatives may benefit from. In simple terms, if the manager does not show respect to their subordinates, which is a basic human right, then nothing more can be rationally expected from them regarding the H&S of the workforce. Similarly, Emuze and Mollo (2019) state that poor working conditions and lack of respect, which arises from the perception that construction workers may have limited rational thinking abilities, negatively impact the wellbeing of the workers.

Additionally, the present study suggests that the manager must play their role in instilling a respectful culture at the worksite, as they have high levels of authority. It can be done so by ensuring that all workers are treated the same way, not benefited for unjustified reasons, not harmed or discriminated, and maintaining culture of equality and justice. The managers must ensure that they treat all workers as the same and do not practice discrimination. They must also adapt justice and collaboration and encourage others to do the same. Such an environment can be developed through establishing a system of respect and equality at the workplace. The workers must only be judged based on their performance, and all of their needs should be fulfilled by the management. When the workers are evaluated and recognised for their performance, their motivation levels improve as well (Barg *et al.*, 2014). The managers must disregard any differences in race, religion and culture, and keep an objective perspective related to their subordinates.

7.1.4 Training

The lack of health and safety training delivered to semi-skilled workers at construction SMEs were found to be the fourth most critical factor affecting the H&S outcome and

motivation of the workers. The participants state that health and safety training programmes are absent at their workplace. This absence resulted in worsening health and safety motivation. Accidents and injuries at the workplace increase when poor health and safety training are conducted or are absent altogether. The stress levels of the construction operatives also heighten due to such issues. The participants were asked regarding the causes and effects of inadequate health and safety training, to which most of the responses revolved around an incompetent management, and increased risks of accidents at the workplace, respectively. Not following the correct protocols for on-site safety often resulted in serious injuries, and even fatalities in some cases. The responses indicated that improved health and safety training would make their workplace environment safer. Similarly, Jafari *et al.* (2014) contend that safety training has proven to enhance the safety climate of construction sites, as well as mitigate demographic factors that may enhance the risk of injuries at the workplace.

The rate and risk of injuries at the construction sites increased due to a lack of safety training for the operatives. The participants claimed that unsafe acts are involved with the usage of dangerous equipment without any prior safety training or the presence of the manager. They also stated that unsafe loading and unloading of heavy objects, manual handling of equipment, along with incorrect posture of the workers increase the chances of injuries to body parts such as the neck, back and head (Participant C), cuts (Participant H), and musculoskeletal disorders (Participant M). Empirical evidence from the interviews also indicate that untrained operatives are more vulnerable towards getting injured while performing duties. Furthermore, untrained operatives with a lack of safety equipment or knowledge about its usage are even more susceptible to workplace injuries (participants C and F). According to Muiruri and Mulinge (2014)

the lack of safety reinforcement at construction sites is a major cause for concern in terms of the wellbeing of workers, and that further training is necessary for enhancing workplace safety.

One of the most prominent themes across the interviews was related to the generally negative role that managers play regarding the H&S of construction workforces. Most of the respondents, when inquired about the possible causes of a lack of health and safety training, indicated that their managers themselves seem to be untrained about workplace safety. When such managers have authority over a group of construction operatives, they fail to understand the necessity of appropriate training sessions for safekeeping the H&S of the workers and also in preventing the occurrence of accidents at the workplace. These findings are comparable to those of Namian et al. (2020), who found that workers believe safety training is insufficient, ineffective, and infrequent, while managers believe workers fail to implement the training in real life.

There is a notably positive role of health and safety training at construction sites for the semi-skilled operatives. One of the main causes behind high rates of injuries at the workplace are often related to untrained staff members, along with an unconcerned group of managers. Due to the firm's unwillingness to put efforts in for the betterment of their workforce, the semi-skilled operatives are left untrained regarding their own H&S. Construction SMEs of Birmingham usually do not possess sufficient expert personnel and financial resources to conduct thorough health and safety trainings. The wellbeing of the operatives is negatively affected when they are not trained in using machinery or working with heavy objects. Furthermore, working at heights or with

hazardous materials, such as chemicals, without appropriate safety equipment, such as full body harnesses and PPE kits, puts the operatives at a greater risk of receiving serious or even fatal injuries. Cunningham *et al.* (2018) similarly believe that a targeted approach towards training members of the staff is vital, as the skillsets, abilities, and perspective of different groups of workers may vary. Construction SMEs must invest in health and safety training, by either using an expert employee or temporarily outsourcing trainers. The operatives should also be provided with safety equipment and the necessary skills to use them. The training sessions can be conducted once or twice a year to achieve the desired outcomes with as little expenditure as possible.

7.2 INTRINSIC MOTIVATIONAL FACTORS

Intrinsic motivation was the second key theme of the data collection and analysis that impact operatives' health and safety outcome and motivation in the workplace. The two main intrinsic motivational factors identified include psychological stress and job satisfaction.

7.2.1 Stress

Nearly all semi-skilled operatives felt stressed due to a range of causes related to their workplace. These reasons include low wages, long working hours, poor working conditions, substandard safety protocols, and disrespect at the workplace, along with a stressful environment. The high level of psychological stress among construction operatives is detrimental towards their motivation and health and safety. Stress increases the risk of making mistakes while at the workplace and heightens the chances of the operatives being injured. This aligns with Liang *et al.*'s research (2022) that

unsafe behaviours of construction workers and safety attitudes are significantly impacted by their stress levels. Furthermore, there are serious consequences of psychological stress on the health and wellbeing of the construction operatives, such as sleep disturbances (Participant A), depression (Participant E) and suicidal tendencies (Participant C). It was also revealed that suicidal thought is a direct result of depression amongst construction operatives, which is often caused by the aforementioned causes.

There are serious and long-lasting consequences of stress on the physical and psychological health of construction operatives. According to the findings of the study, the effects of stress lasted for over a year for the construction operatives. Participants revealed that due to high level of stress, they could not complete their tasks within the time allocated to them, which resulted in performance deteriorations. As a consequence of poor performance, managers began exerting even more pressure on them, creating a vicious cycle. Long working hours and low wages already significantly impact the stress and performance of construction operatives, while reduced work motivation exacerbates this. The operatives ended up experiencing symptoms of depression and eventually developed suicidal thoughts in some cases as well. Liang *et al.* (2018) claim that construction operatives not only experience physical symptoms due to stress, but also suffer from emotional symptoms, which further increases their stress level.

Furthermore, there are several causes that are associated with increasing the stress level of the workforce. The findings show that the lack of health and safety training for the operatives, the absence of managers at the worksite, low wages, long working hours, disrespectful behaviour, discrimination at the workplace, along with a range of factors

contribute towards instilling high levels of psychological stress amongst small and medium firms' construction operatives. Moreover, the lack of guidance from supervisors and managers, unsafe working conditions and absence of safety assessments related to workplaces and machinery are important causes behind psychological stress among construction operatives. The participants acknowledged that they felt unsafe while working due to not being provided with the necessary knowledge and equipment that would warrant their safety while performing certain tasks. Such a sense of insecurity increases stress, and results in a greater risk for developing conditions such as anxiety and depression. In this regard, Langdon and Sawang (2018) assert that absence of family and personal time due to long working hours, increase in living costs due to low wages, along with job insecurity contribute towards increased stress level.

The health and safety outcomes associated with high levels of psychological stress have been found to be highly negative. Due to stress, the construction operatives become uncertain about their job and responsibilities at the workplace, which reduces their engagement in safe and healthy practice. Furthermore, their performance deteriorates as well, which in turn becomes a cause behind increasing stress levels itself. Unpredictable and unknown situations cause stress at work, which are exacerbated due to the absence of managers and supervisory personnel at the worksite. These situations may include equipment becoming faulty, accidents and a new challenge in the physical worksite. The construction operatives are not even provided with sufficient resources to resolve their issues by themselves. In addition, the communication between managers and their subordinates has been discovered to be quite poor, resulting in an even poorer experience for the workers. It was revealed in the interviews that managers

are either absent or not do not communicate even when they are present at the worksite (Participant F). Leung *et al.* (2010) believe that the incidence of injuries, excessive workload, poor workplace environment, and unfair treatment from the managers cause stress among construction workers, and result in poor performance health outcomes.

In order to reduce the psychological stress experienced by construction operatives, managerial figures can take a range of steps. First of all, it would be essential for supervisors to be present at the worksite, as it would enhance a sense of safety among the employees. The supervisors should also effectively communicate with their subordinates and actively listen to their concerns. The difficulties that workers face regarding their health and safety should be resolved by the managers, and it would only be possible when they actively listen to their concerns. Furthermore, appropriate wages and suitable workloads would also help in decreasing stress levels (Anandh and Gunasekaran, 2018).

7.2.2 Satisfaction

According to the finding of study, the majority of construction operatives claimed that they experienced high levels of dissatisfaction with their job. Furnham and Treglown, (2017) stated that job dissatisfaction lead to unhappiness and less engaged in the workplace, leading to risky behaviours. The interview results show that job satisfaction is mostly affected by the sense of fulfilment that the operatives feel while performing their duties (Participant K), reduced work-life balance due to long working hours (Participant C), absence of supervisors (Participant N), along with the nature of the work itself (Participant P). Low wages are also a cause for job dissatisfaction, which

agrees with Salisu *et al.*'s (2015) research that salary and compensations are major constituents of job satisfaction among construction operatives.

Furthermore, it was revealed that majority of the workers were mainly daily wage labours without a permanent job contract with their employers but working hours up to 72 hours a week. Not surprisingly, they did not have much job satisfaction due to lack of work-life balance. They did not have a sense of fulfilment or happiness from their jobs. The managers do not provide adequate moral support or supervision, which takes a toll on the latter's emotional wellbeing and safety outcomes. This notion is discussed by Hosseini *et al.* (2014), by stating that job dissatisfaction is caused by the adverse impacts of work on the quality of life and personal health of construction operatives.

Moreover, job security and discriminatory behaviour at the workplace have significant effect on the job satisfaction levels of construction workers. According to Rotimi *et al.* (2021) the job satisfaction of migrant construction workers is influenced differently than that of native workers, and that personal characteristics and experiences at the organisation majorly impact their job satisfaction levels. The discriminatory behaviour at the workplace faced by ethnic minorities, along with differences based on religion, contribute towards a more negative experience for the semi-skilled operatives at work. Furthermore, work stress discussed earlier also impacts on the job dissatisfaction of the workers. Due to discriminatory experience of the workers, they fear that they may lose their job at any moment due to unfair treatment from the management. This phenomenon causes negative health and safety outcomes for the operatives as well

because they are demotivated. As a result, they do not engage sufficiently in safety protocols, increasing the risk of injuries as a consequence.

According to Bilau *et al.* (2012), job dissatisfaction levels are strongly associated with a sense of prosperity that workers feel while considering resignation from the organisation, along with personal performance at the workplace. The current study also focuses on these aspects. When construction operatives are dissatisfied with their job, they consider leaving the organisation, but in most cases, they fail to do so due to financial reasons. The semi-skilled operatives who perceive their workplace environment as enjoyable, meaningful, and less risky have been found to be relatively more satisfied with their job. On the other hand, construction operatives who are working on daily wage, not provided with adequate health and safety training and equipment, and work in unsafe workplace environments, are usually dissatisfied with their job. High level of stress also contributes towards job dissatisfaction, as the emotional, psychological, and physical health of the operatives are important factors too (Stranks, 2005).

The job satisfaction levels of construction operatives can be enhanced with the help of motivational strategies. Maslow's hierarchy of needs indicates that all necessities of the construction operatives must be fulfilled, including safety and job security. When such needs are fulfilled, the job satisfaction levels of employees are increased (Soliman and Altabtai, 2023). Furthermore, with the help of incentives, rewards and recognition for exceptional performance, construction operatives can be encouraged to be satisfied with their job (Chan *et al.*, 2018). The managers must ensure that their workers feel

encouraged and appreciated for their efforts, as it would allow them to be satisfied with their position at the organisation.

7.3 INTERACTION OF EXTRINSIC AND INTRINSIC MOTIVATION

One of the main propositions purported in the conceptual framework was the interaction between extrinsic and intrinsic motivational factors. In light of the collective insights elicited from the participants, it became clear that some of the extrinsic motivational factors, such as the manager's role, working conditions and a respectful working environment have significant impact on the work motivation and H&S outcomes of the workforce. A discussion of how extrinsic motivational factors and intrinsic motivational factors interact with one another, along with their impacts on the H&S outcomes of construction workers, are described in the following subsections.

7.3.1 Interaction of Managers Role with Intrinsic Motivation

According to the findings of the study, the managers significantly impact the H&S motivation of the workforce. The managers act as an extrinsic motivational factor for the operatives, which in turn impacts their overall motivational levels and behaviours. A supportive manager warrants that the experiences of the operatives will be relatively positive, while an unsupportive manager ensures that their workforce becomes unmotivated in terms of performing their duties at the organisation (Sims, 2002). Furthermore, the health and safety outcomes related to a manager that plays a poor role in supporting operatives are also quite negative. The participants' responses showed that some managers are not interested in their safety or experiences and are only concerned about project outcomes. Consistent with the findings of this study, Jensen

and Bro (2017) claim that managers who use effective leadership styles such as the transformational model, which aims to inspire subordinates and bring a positive change, are highly likely to enhance the intrinsic motivation of their employees.

The manager's role interacts with the psychological stress levels of operatives in a noteworthy manner. The findings show that many managers are either unavailable at the worksite or not interested in the H&S aspects of the operatives, disrespectful and discriminatory towards operatives belonging to different races and religions (Participant K), unresponsive when it comes to requests from the operatives related to health and safety equipment (Participant D), along with a range of other actions and inactions that make them seem incompetent to the participants. As a consequence of such negative behaviour and lack of support from the side of the managers, the participants indicated that their levels of psychological stress are increased (Langdon and Sawang, 2018). As the manager's role is an extrinsic factor, and psychological stress is an intrinsic factor, the overall work motivation and health and safety outcomes of the construction operatives are negatively impacted. When operatives are stressed, they are unmotivated to perform their duties (Participant K). Shin and Son (2016) add that in order to enhance the work efficiency of construction workers, activities to relieve their stress are necessary in order to motivate them at the worksite. On the other hand, no such practices were found in this research.

Apart from psychological stress, job satisfaction was discovered as another significant intrinsic motivational variable impacting the H&S outcomes of construction workers at the selected organisations. In this case, the manager's role has a strong influence on job

satisfaction levels of construction operatives. Specifically, when the managers disrespect their subordinates or treat them poorly, the job satisfaction levels of the workers are reduced. The interviews have suggested a range of causes and impacts of low job satisfaction among construction workers. The most prominent impact of job dissatisfaction among the selected target population consists of a notable lack of interest in safety precautions and protocols. Due to daily wage system, low wages and long working hours, along with a poor workplace environment, the operatives' work motivation was reduced, as well as the motivation to engage in appropriate activities to protect their health and safety. According to Enshassi *et al.* (2015), construction workers suffer from job burnout or dissatisfaction, physical and behavioural stress due to the stressors that their organisation or management inflicts upon them.

He *et al.* (2021) believes that the interaction between leaders and construction workers impact the safety behaviour of the employees, along with the safety climate of the organisation. One of the most important aspects was to recognise how the interaction between extrinsic motivational factors and intrinsic motivational factors impact the H&S results. In accordance with the outcomes of the research process and the description of the results and themes, it can be stated that both psychological stress and job satisfaction are significantly impacted by the manager's role at construction worksites, which eventually have notable influences on the H&S results of construction operatives. Furthermore, if the manager does not play a positive role in safekeeping the H&S of the workforce, they become prone to stress related to their job. As a result of high stress levels, the satisfaction that the workers should feel with their job at the firm is deteriorated (Sutherland and Cooper, 2000). Lastly, when the operatives are not being managed appropriately, are highly stressed and dissatisfied with their job, they become

reluctant towards participating in health and safety protocols. Consequently, the rate and risk of accidents at the workplace are increased.

7.3.2 Interaction of Working Conditions with Intrinsic Motivation

Poor working conditions are related to unsafe practices at the workplace, lack of adequate equipment, along with exposure to pollutants and chemicals that may be hazardous to the health of the workers (Gowland, 2018). In the interview, questions were asked that aimed to understand how the extrinsic motivational factor working conditions interact with intrinsic motivational factors, such as psychological stress and job satisfaction of the operatives. In accordance with the results, the operatives' work motivation mediates the relationship that exists between working conditions and intrinsic motivation towards engagement in health and safety procedures at the workplace. The results indicate that the physical working conditions at the workplace need constant attention and improvement but are usually overlooked by the managers of the small and medium firms.

According to Timofeeva *et al.* (2017), construction operatives are at the highest risk of health and safety hazards due to poor working conditions. Similar implications are made by the findings of this study. The empirical evidence collected shows poor working conditions, including low lighting levels, untidy workplace environment, along with a lack of work-life balance. Stranks (2005) added that, specific job factors such as excessive workloads or lack of work life balance, bad lighting, noise, stress full workplace conditions (environmental-stressors) diminishes work quality and results into injury to health. It must also be highlighted

that manager often failed to conduct timely and scheduled safety assessments on the machinery, equipment, and worksites, which would warrant the safety of the construction operatives. Due to such a display of incompetence from the manager, the operatives' stress levels increased. In addition, some of the respondents highlighted this, but differences in perception of working conditions and their standards were also present.

In light of the interview responses, it can be assumed that the workers perceive standards of working conditions in a different manner than the managers do. Due to such differences in perception and relevant actions from the manager, the experience of the construction operatives deteriorates. As a consequence, the job satisfaction level of the workers is decreased as well. The worse the working conditions are for the employees from their perspective, the less they are motivated to perform efficiently due to high levels of stressors and fears related to safety, resulting in lower levels of job dissatisfaction (Cartwright and Cooper, 1997). Yet again, this highlights how the extrinsic motivational factor of working conditions affects the intrinsic motivational factor of job satisfaction. The health hazards present at worksites with poor working conditions include risks for various health issues, including musculoskeletal disorders. Similar to this study, Tunji-Olayeni *et al.* (2018) add that the most common health conditions found in construction workers due to poor working conditions are musculoskeletal, cardiovascular and respiratory disorders.

These findings demonstrate how extrinsic motivational factor of working conditions interacts with the intrinsic factors of motivation and influences the overall H&S

outcomes of the workforce at construction SMEs. In accordance with the findings, poor working conditions cause distress amongst the workers, and increase stress levels, while decreasing job satisfaction levels (Shonin et al., 2014). As a consequence, the operatives do not adequately engage in safety protocols that are designed for their own health and safety. Furthermore, it is also essential to note that poor working conditions include the absence of appropriate safety equipment for the construction operatives. When the operatives are not given sufficient equipment such as full body harnesses to protect themselves while working at heights, the operatives feel stressed and concerned for their safety. In turn, they are dissatisfied with their job, which alters their behaviours and reduces their work motivation. Low work motivation decreases participation in safety protocols (Neal and Griffin, 2006).

According to Yiu *et al.* (2019), the most important barriers towards safe working conditions at construction sites include cultural differences, high turnover of employees, inactive participation of managers, not prioritising operatives' safety and obstruction by sub-contractors. These barriers are also present at the construction SMEs whose employees have been interviewed. To create safe workplace situation, the managers and employees alike need to be trained and provided with adequate safety equipment (Roughton and Mercurio, 2002). Knowledge sharing would contribute towards increasing awareness regarding health and safety (Williams et al., 2023).

7.3.3 Interaction of Respect with Intrinsic Motivation

Respect was found to be crucial for enhancing the intrinsic motivation of construction operatives, as shown in section 7.1.3. As it has already been established, an

environment of respect at the workplace is an extrinsic motivational factor. This interacts with intrinsic factors of motivation like psychological stress and job satisfaction. When it comes to the consequences of this interaction, the H&S outcomes of the workforce is significantly impacted. This interaction begins with an environment of respect impacting the psychological stress and job satisfaction of construction operatives, which in turn impact the health and safety outcomes of the operatives. Operatives who undergo disrespect and discrimination are stressed which reduces their safety motivation (Participant K).

The findings show that construction operatives like when they receive appropriate levels of respect from their managers, and the phenomenon has positive effects on their work motivation along with intrinsic motivation. Liang *et al.* (2019) agree that working attitudes, self-adjustment, and individual character and inclination are crucial factors in enhancing the competence of construction workers. These factors are associated with the construction workers receiving respect at their workplace, which was supported by the empirical evidence in this study.

Moreover, Psychological stress, as discussed earlier, is an important intrinsic motivational factor that affects the H&S outcomes of the workforce. When it comes to interaction with a respect at the workplace, the operatives' psychological stress is reduced with a strong respectful culture. On the other hand, according to the responses, construction operatives rarely receive adequate respect while working at small and medium firms. Discriminatory behaviour towards racial and religious minorities, which negatively affects their intrinsic motivational levels (Messarra, 2014; Wrench, 2016).

In addition, the semi-skilled operatives experienced restrictions on their religious activities imposed by their managers. All of this creates a toxic workplace environment for the workers. Moreover, construction managers do not respectfully communicate with their subordinates, in turn reducing their motivation levels. Zhang *et al.* (2020) similarly state that supervisors and colleagues must respectfully deliver, regularly engage, actively listen, and consistently communicate regarding protocols and practices related to the health safety of the workers.

Apart from psychological stress due to disrespect and discrimination at the workplace, the job satisfaction of construction operatives is also affected by the extrinsic motivational factor of a culture of respect. When the construction operatives are properly respected by their managers, they feel like a part of the workplace family. A sense of fulfilment regarding the workers' job is instilled in them, which in turn improves their job satisfaction. On the contrary, when managers disrespect their subordinates, the sense of belonging is absent amongst the workforce. When the construction operatives do not feel like they belong to the workplace, and that they would receive disrespect at any instance from their managers, their willingness to effectively perform their job becomes disturbed. It is crucial for the managers to respect their operatives, so that they can feel positive emotions while working at the firm. As a consequence of positive emotions, the stress levels of the workers are lowered, enhancing job satisfaction. Rahman and Al-Emad (2018), in this regard, assert that managers or leaders at the workplace must be responsible, willing, honest, trustworthy and respectful towards their subordinates.

The outcomes of respect and intrinsic motivational factors interacting with one another consist of varying health and safety outcomes for the semi-skilled construction operatives. If there is a positive interaction among the aforementioned factors, there are positive health and safety outcomes for construction operatives. In other words, if respect is practiced at the construction worksite, the operatives are likely to have low psychological stress levels, along with better prospects of job satisfaction. As a result of these factors, the construction operatives become more motivated towards their work and responsibilities. Furthermore, the motivation of the workers towards engaging in health and safety behaviours is increased as well. Overall, the safety standards at the workplace are elevated too, with the help of a respectful culture. The findings of this study agree with that of Al-Emad and Rahman (2017), who state that the managers at construction firms must exhibit empathy with workers, reliability, sincerity, good communication skills and a respectful behaviour towards their subordinates. The present study also suggests that the managers play a vital role in instilling a respectful culture at the construction SMEs of Birmingham.

7.4 REFINEMENT OF THE CONCEPTUAL FRAMEWORK

The main aim of this research was to investigate the motivation of operatives in construction SMEs towards H&S with a view to improving the health and safety outcome as well as their overall engagement in appropriate safety activities. With the help of information collection through the interviews, the components and relationships purported by the conceptual framework was tested. Overall, the findings of the study indicate that the initial conceptual framework was a reliable representation of how construction operatives experience extrinsic and intrinsic motivational factors, and then how these impacts on their health and safety outcomes.

The aspects of construction operatives' motivation, in the initial conceptual framework, consisted of work environment, contextual variables, behavioural elements, in combination with both extrinsic and intrinsic factors of motivation. Moreover, the collected and analysed information supports a majority of the elements presented in the initial conceptual framework. However, there was a necessity for some minor changes which became apparent through the analysis and interpretation. Figure 9 presents the final model of motivation developed through this study which incorporates the following refinements made to the conceptual framework.

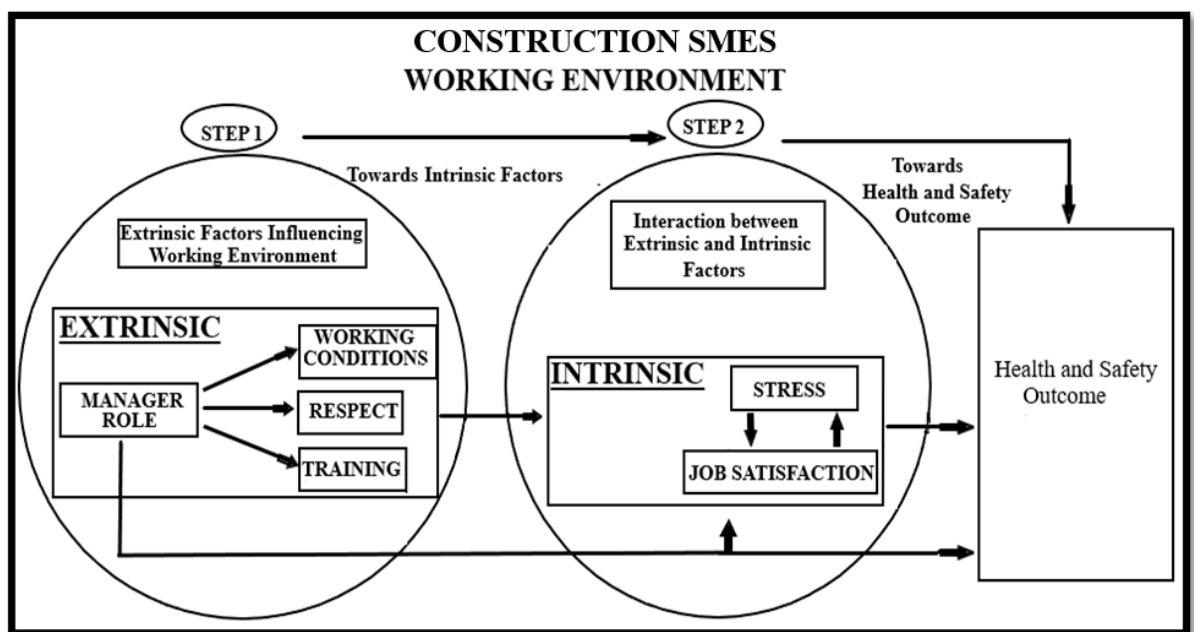


Figure 8: A Model of Motivational Factors that Affect Operative Health and Safety in construction SMEs.

The most prominent change to the conceptual framework was related to the extrinsic motivational factor of “respect” being added. Respect was found to be an important factor that motivates the H&S outcomes of the workforce at construction SMEs of Birmingham. In addition, most of the respondents determined that “respect” encourages

them and their performance, while helping them attain better H&S outcomes at the organisation. Not only this, but the participants also mentioned that the manager plays a highly critical role in impacting their health and safety outcomes. The manager turned out to have the most important role in the experience and motivation of construction operatives. Other factors, such as working conditions and health and safety training have remained the same.

Other modifications include the addition of a set of arrows representing the impact that the extrinsic and intrinsic motivational factors have on each other towards health and safety outcome. The first set of arrows indicates that the role of the manager, which is an extrinsic factor, has impacts on both other extrinsic factors and intrinsic factors. The extrinsic factors impacted by manager's role are working conditions, which in turn affect job satisfaction. The extrinsic factor of respect is also affected by the manager's role, impacting job satisfaction and in turn being influenced by it as well. Training is also affected by the manager's role. The intrinsic factors of stress and job satisfaction have notable impacts on one another, as depicted by arrows in the figure. Both extrinsic and intrinsic factors then impact the H&S results of the workforce. The H&S results are identified by indicators of stress, job dissatisfaction, working conditions, disrespect, and poor training.

Furthermore, the refined model remains divided into three main components. The first component includes the extrinsic motivational factors that include training, the manager's role, respect and working conditions. The second component includes the intrinsic motivational factors, along with the interaction between extrinsic and intrinsic

motivational factors. It includes stress and job satisfaction, both of which have notable impacts on the H&S outcomes of semi-skilled workers at the selected Construction SMEs in the UK. The last component of the conceptual framework has remained the same in the refined model, consisting of health and safety outcomes. These outcomes consist of stress indicators, job dissatisfaction indicators, working conditions indicators, disrespect indicators and poor training indicators. The stress indicators consist of anxiety, depression, loss of concentration and motivation, poor performance, suicidal thoughts, and increased accidents. The job dissatisfaction indicators include a lack of interest and effort, irritability, mood swings and poor work motivation. It leads to working conditions indicators, which are accidents and injuries, musculoskeletal disorders, fatigue, adverse events, unsafe behaviour, hypertension due to excessive workload, as well as falling hazards due to bad lighting at the worksite.

The health and safety outcomes are continued across disrespect indicators, which include hostile working behaviour, anger and frustration, constant stress, conflict with managers, decline of motivation, dissatisfaction, and a lack of control over work. Lastly, indicators of poor training include a lack of understanding regarding job performance and safety knowledge, unawareness about PPEs, and physical and musculoskeletal injuries. This model has been refined with the help of empirical evidence, making it more reliable and valid than the original conceptual framework. The model can be applied on a wide range of semi-skilled operatives at construction SMEs, as it is not specific to Birmingham.

7.5 CHAPTER SUMMARY

This section has taken a critical perspective towards discussing the findings of the research study. The most important extrinsic and intrinsic motivational factors, related to the H&S of the selected workforce and organisations have been discussed in this chapter. The implications of the study have been compared with that of existing literature on the subject. Additionally, the conceptual framework has been refined. Some of the extrinsic and intrinsic motivational factors with comparatively little impact have been removed from the model, and only the most relevant ones with high levels of impact have been retained in the framework model. Furthermore, the impact levels of each identified extrinsic and intrinsic motivational factor have been determined in the framework model. Drawing on the empirical evidence attained from the interviews, along with existing literature, this chapter has shown a significant relationship between the extrinsic and intrinsic motivational factors of construction operatives with their health and safety outcomes. The next chapter will present the conclusions, summarise the research process and articulate the involvement to information arising from the research. Recommendations for future research arising from the study and for key construction stakeholders are then presented.

CHAPTER 8: CONCLUSION AND RECOMMENDATIONS

8.0 INTRODUCTION

The last chapter of the thesis presents the conclusions and recommendations arising from the research process. The recommendations generated in this chapter have been extracted from two main sources: the detailed synthesis of previous literature and the second main source is the data analysis from the interviews carried out. The chapter is arranged in the order of main conclusions, evaluation of the study against original aim and objectives, key research findings, contribution to knowledge, implications, practical implementation and recommendations, further research, and research limitations.

8.1 EVALUATION AGAINST ORIGINAL AIM AND OBJECTIVES

This research intended to answer, “*What are the motivational factors affecting the health and safety of semi-skilled operatives in construction SMEs in the Birmingham UK?*”. To answer this question, the research objectives were developed to support the purpose of the study. A review of these objectives now follows.

***Objective 1:** To critically review and examine the literature on workplace motivational theory towards developing an insight into the various motivational models.*

This objective was addressed in Chapter 3, which reviewed the workforce motivational theories and the impact on the H&S of the selected workforce within the firms of

interest. Moreover, the chapter exposed the key intrinsic and extrinsic factors which include policies and regulation, working conditions, training, and the operatives' attitude, unsafe behaviour, satisfaction and dissatisfaction, and the occurrence of suitable administration commitment and management which have impact on H&S and motivation at the workplace.

***Objective 2:** To critically review and examine the literature on factors affecting the health and safety of semi-skilled construction operatives in construction SMEs.*

Objective 2 was fulfilled in the second chapter, which reviewed the H&S literature and identified the specific challenges for Construction SMEs. Small and medium sized firms were found to have poorer H&S performance as indicated by a high prevalence of injuries, deaths, diseases, and accidents being reported each year. Detailed insights were gained as to how operatives working in construction SMEs face accident incidence, and their potential involvement in H&S risks. Completion of this comprehensive review reinforced the case for conducting the present study and signified the accomplishment of the first objective of research.

***Objective 3:** To develop a conceptual framework of motivational factors that impact semi-skilled operatives health and safety at construction SMEs.*

This objective was addressed in Chapter 4, where a conceptual framework to the research study was presented. This was developed through a synthesis of the concepts and theories of motivation together with the H&S considerations found in construction SMEs. The initial model included distinct phases as to how both specific extrinsic and intrinsic factors affect the H&S motivation and outcomes of semi-skilled construction

operatives at construction SMEs. This framework consisted of three phases, in which the first phase depicts how the extrinsic factors (working conditions, management, etc.) affect the workers' motivation. It is followed by the second phase, which show the same process in terms of intrinsic motivational factors, such as job satisfaction. The last phase is characterised by these factors impacting the H&S outcomes of the workforce at construction SMEs.

***Objective 4:** To ascertain the impact and relationship of motivational factors on semi-skilled operatives health and safety in construction SMEs.*

This objective was achieved by investigating the views and experiences of the selected semi-skilled construction operatives. Evidence was collected from relevant individuals through semi-structured interview, and then analysed using content analysis. This analysis was used to test the design of the conceptual framework and highlight any deviations.

***Objective 5:** To modify the framework using primary evidence to reflect the relationship between motivation and semi-skilled operatives health and safety.*

This objective was achieved by the chapters covering data analysis, results and discussion. The refined framework not only shows an exclusive selection of evidence-based extrinsic and intrinsic factors of motivation affecting the H&S outcomes of the workforce, but it also depicts an extensive list of health and safety implications for construction operatives, which were found through empirical evidence in the data collection and analysis procedures. The explanatory model shows five main categories of health and safety outcomes for semi-skilled operatives at construction SMEs of

Birmingham. These categories consist of indicators related to stress, job dissatisfaction, working conditions, disrespect, and poor training. The foundation of these indicators are extrinsic motivational factors that include the manager's role, working conditions, respect and training, and intrinsic factors that consist of stress and job satisfaction. A wide range of potential health and safety outcomes have been identified in the newly developed framework.

***Objective 6:** To draw conclusions on the motivation of semi-skilled operatives in construction SMEs towards health and safety and make recommendations on how this can be used to improve the engagement of construction SMEs towards improving their health and safety performance.*

The present chapter, i.e., Chapter 8, is focused on fulfilling the sixth research objective. As the research objective indicates drawing conclusions and providing recommendations for the study area, the present chapter is based on all of these sections. The key research findings are summarised and concluded, research implications are presented, while a set of recommendations are also presented.

8.2 KEY RESEARCH FINDINGS

The key findings arising from the study are presented below.

- 1) The H&S motivation and outcomes of semi-skilled operatives are not sufficiently addressed at Construction SMEs in the UK. Construction workers face a high risk of accidents at the workplace.

- 2) The managements of construction SMEs of Birmingham do not display an adequate level of commitment towards the health and safety of semi-skilled operatives. A lack of resources and safety training are key reasons behind this lack of commitment.
- 3) The main factors found to affect motivation include the role and commitment of management staff, the provision of suitable safety training, the need for appropriate working conditions and the importance of job dissatisfaction and stress levels. The results also reveal the importance of respect at the workplace and between managers and operatives. Poor working conditions and a lack of safety training was found to result in a range of negative health and safety outcomes for construction operatives.
- 4) A culture of disrespect and discrimination was found to be present at construction SMEs of Birmingham, which harms the morale of the workforce, further deteriorating their health and safety outcomes.

8.3 RECOMMENDATIONS

To improve the H&S management of workers in construction SMEs, the following measures are recommended:

- 1) Managers of small and medium sized construction firms must first consider the key extrinsic and intrinsic factors that can motivate employees towards implementation of health and safety procedures during work, and then assess the type of health and safety outcomes that their construction operatives are undergoing at the firm. This should include the following actions:
 - a. Managers must first increase their presence at the worksites including regular, preferably daily visits to the worksite before the work and discuss

possible health and safety risks associated with the activities planned for the day.

- b. Managers must also ensure that policies for health and safety are either developed specifically for the firm or are derived from similar construction organisations.
 - c. Managers should be tasked with clear objectives towards improving health and safety outcomes requiring them to demonstrate a clear commitment to achieving this.
 - d. Managers of construction SMEs should ensure the appropriate PPE is available and undertake regular checks to ensure operatives are using this equipment.
 - e. Managers need to ensure all work operations have sufficient lighting levels at the worksite.
- 2) Performance appraisals of operatives need to include directional questions including health and safety at the construction sites.
- 3) Owners and senior managers of construction SMEs must assess all risks that can possibly arise at the construction sites. These risks can pose danger to the safety of the workers at the construction site.
- 4) It is vital for operatives undergo safety training.
- a. Regular sessions on safety training must be conducted by trained professionals, which should also be attended by the managers.
- 5) Managers should identify the key indicators of H&S outcomes in their workforce and monitor these as part of their safety improvement plan.
- a. This should include consideration of possible intrinsic and extrinsic indicators as identified in the framework.

- 6) The H&S of construction workforces must be the topmost priority for an organisation, as they are the long-term human resources of the firm, who are used to achieve performance, productivity, and financial outcomes.
 - a. Managers must allocate financial resources to conduct scheduled training sessions for the safety and wellbeing of the workforce. Only through adequate and repetitive training sessions would it be possible for the workforce to improve their safety outcomes at the workplace.
- 7) The management needs to show greater commitment and efforts to establish an efficient health and safety system.
- 8) The management needs to make sure that health and safety regulations and policies are updated on a regular basis.
- 9) It is recommended to invest more financial resources in health and safety protocols and equipment, along with training session about health and safety.
- 10) An ethical approach must be taken by the management, including high morale based on socially acceptable standards.

8.4 CONTRIBUTION TO KNOWLEDGE

The present study has revealed deeper insights into the factors of motivation that influence the H&S of workforces, revealing how motivational factors can contribute towards improved H&S outcomes across the selected Construction SMEs, and their potential to lower H&S risks. This research has contributed to existing knowledge by:

- Respect has been identified as a significant factor in the context of H&S and motivation across construction SMEs. Whilst previous research has identified

respect as a contributing motivator, respect was found to be a very important part of their motivation and H&S outcomes.

- The role of site organisation has been identified as a key factor in the context of H&S and motivation across the selected organisations. If these firms want to improve their workforce's H&S and motivation, the key element is the role of the manager, their awareness, their capability and their input into the motivation and health and safety management. Because manager role does not only influence extrinsic factors, but behaviours of managers have also big impact on intrinsic ones.
- This research also provides a new model of factors of motivation and their influence on H&S, revealing how the extrinsic factors impact on the intrinsic factors and contribute towards semi-skilled operatives' H&S outcome across the workforces. This model makes it possible to evaluate critically motivational factors, and provides an extrinsic and intrinsic factors momentum, which acts as a guidance towards the establishment of a safety management structure in small and medium sized construction firms.
- The model provides new understanding regarding how intrinsic and extrinsic factors work together to influence health and safety outcomes. In the past, research has concentrated on studies that have considered intrinsic and extrinsic factors separately. This research cumulatively assessed the intrinsic and extrinsic factors to see how they interact with each other. This is the first study that draws attention to the relationship between intrinsic and extrinsic motivational factors and their influence on semi-skilled operatives' H&S outcome specifically in small and medium firm settings in the construction sector.
- The refined motivation model has highlighted the connection between extrinsic and intrinsic factors and demonstrated how these factors influence one another.

- Extrinsic and intrinsic factors of motivation are interlinked and have significant impacts on one other. These impacts, cumulatively, affect the health and safety outcomes and motivation of semi-skilled workers across small and medium sized firms in the construction sector.
- The management must work in conjunction with the workforce to ensure that both intrinsic and extrinsic factors are being managed appropriately for good health and safety outcomes.
- The framework has demonstrated that addressing the cumulative impact of the extrinsic and intrinsic motivational factors of the workforce in an organized manner is an efficient technique to increase workplace safety.

Overall, the extrinsic factors and intrinsic factors impact the motivation levels of workers towards H&S across construction SMEs of Birmingham. This study generates knowledge which may potentially help in further steps towards acquiring a safer environment construction SMEs. In short, this study contributes towards a roadmap for better H&S, an increased consciousness of H&S issues and towards helping construction SMEs to enhance their approaches to H&S management.

Practical Contributions

For several reasons, this study is important and has practical consequences for construction SME's as well as construction health and safety and motivation research.

- In the past, previous research has concentrated on studies that have considered motivational factors and workers health and safety separately. It is also evident that most studies only target large construction firms and their practice (Arewa, 2014), On the contrary, limited research was present related to construction

SMEs, the impact of intrinsic and extrinsic motivational factors and their impact on health and safety of semi-skilled construction operatives at construction SME's. Through this research study and the developed framework model of extrinsic and intrinsic motivational factors, which cumulatively assessed the relationship of intrinsic and extrinsic motivational factors and their influence on health and safety and motivation of semi-skilled operatives working in construction SME's has provided a framework for filling the gap in UK Construction SMES's body of knowledge on construction health and safety and motivational factors research. As a consequence, this study will help the country's health and safety and motivational research by providing data to authors of academic journals, conference papers, to students and researchers.

- Furthermore, the developed framework model, identified extrinsic and intrinsic motivational factors will help all the construction SME's in the UK. This is due to the fact that, if companies consider the identified factors and implement it in the workplace, the model can potentially be a useful framework that construction SME's and managers can use to lessen the risks, reasons of the accidents and injuries in the workplace, enhance health and safety and work performance, enhance operative's motivation and well-being, and save money, Consequently, the firms' profits will be maximized.
- Also, for supervisors, owners and managers of construction SME's, the model will make it possible to evaluate critically motivational factors, and provides an extrinsic and intrinsic factors momentum, which will be useful in managing and keeping the operatives and worksite safe and free of hazards. To accomplish

this, supervisors, owners, and managers of construction SME's must diligently apply the framework model and identified intrinsic and extrinsic factors on site prior to the start of projects and while projects are ongoing, adhering to the structure and use of the model. The model will thus serve as a guide for construction SME management in the country to use in order to prevent injuries and accidents, as well as to improve health and safety performance and motivation on their worksite.

8.5 IMPLICATIONS

The findings of the study can prove to be exceptionally beneficial for improving the H&S outcomes of semi-skilled workers at construction SMEs. It must also be mentioned that the framework was developed in the context of the UK construction sector and may not be applicable in other international settings.

The research findings imply that the H&S outcomes of construction workers will be significantly improved if greater attention to the management of H&S in construction SMEs is undertaken. The model highlights specific activities and a clear focus for where this attention needs to be focussed. The results will be associated with a lowered level of stress in the workforce, increased job satisfaction, improved working conditions, development of a respectful culture, and enhanced safety training protocols. These factors have separate indicators related to the health and safety outcomes of a construction firm, which are depicted in the model as well. If used effectively, the outcomes of the study can help construction firm managers in identifying indicators

that may be present at their workplace and negatively affecting the H&S outcomes of the workforce.

Another important implication of the study is that the extrinsic and intrinsic factors that affect the H&S motivation of construction workers at SMEs can be identified and addressed. It is possible that the job satisfaction levels of construction operatives are low at certain construction SMEs without the knowledge of the management, resulting in a lack of effort to enhance those levels. With the help of the study, managers can identify the internal factors of their workforce. It would allow the managers to gain deeper knowledge regarding potential issues and implement relevant strategies to improve the motivational levels of the workforce. A similar approach can be taken in the context of stress. Through the indicators of stress, managers can easily find out if the workforce is facing psychological hindrances and implement relevant motivational techniques to enhance their H&S outcomes.

The extrinsic motivational factors impacting the H&S outcomes of semi-skilled workers at construction SMEs can be addressed by managers of Construction SMEs. The findings can be used to highlight to managers the importance of their actions, efforts, and why their commitment to safety is so important. The study will assist managers in addressing the health and safety outcomes of their workforce and discover whether or not their safety training sessions are sufficient. If insufficient, efforts should be made to providing additional training, in order to lower the risk of worksite accidents. The working conditions will be improved in a similar way. The framework

will also help in encouraging managers to respect their workforce and instil a respectful culture.

8.6 FURTHER RESEARCH

Further research is vital as to how the findings of the study can be used at real-life construction SMEs for the improvement of the H&S aspects of construction workers.

In the future, different and wider approaches can be used to answer the present study's research question. The extent to which each factor affects the H&S outcomes at construction SMEs can be discovered with the help of a more thorough approach. In addition, this study can be further extended by considering the health and safety aspects of big construction companies in the construction industry. With sufficient research, the study will be able to address SMEs as a whole in the UK.

8.7 LIMITATIONS OF RESEARCH

As with any study, the present research also has several limitations. They are discussed as follows.

- 1) The sample size in the study was relatively small with results derived from only 20 semi-structured interviews. While saturation was reached through the interview process, further quantitative research is recommended to further validate and test the findings.

- 2) Due to restrictions caused by the Covid 19 pandemic, interviews were restricted to being conducted in only Birmingham Construction SMEs.
- 3) Interviews were only conducted with semi-skilled operatives and as such these could skew the findings. The managers, administrators or owners of construction SMEs were not interviewed. Their views could potentially help to develop a wider perspective of the issue.

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APPENDICES

APPENDIX A – CONSENT FORM

You have been asked to participate in a research project as a volunteer. Before you give your consent, it is must that you read the following information and ask any questions you may have in order to ensure that you understand what you will be asked to do.

Right to Withdraw: Please note that you can withdraw from the study at any point until analysis of the data has started which will be at the beginning of 1st June 2021, without having to give a reason. Furthermore, you are not required to answer any questions that make you feel uncomfortable during the interview. Withdrawing and leaving from the study and interview will have no effect on you. If you leave and withdraw from the study, we will not keep the information and data you have provided thus far, unless you agree and happy for us to do so.

Anonymity and Confidentiality: All of your responses will be kept strictly confidential and will not be shared with any third party, willingly or not. To protect your identity, all data and information analysed will be anonymized, and all information collected will be securely destroyed upon successful completion of the award.

Consent Statement: There are three sections in consent statement. Please take some time to read the below sections and *if there is anything that is not clear or if you would like more information*, feel free to contact any member *of the team*. Contact details of research team members can be found below.

SECTION ONE- TITLE OF STUDY AND CONTACT DETAILS

Title of study: The Impact of Motivation on Health and Safety of Semi-Skilled Operatives in Construction SMEs

Contact details of Research team members: This research is being undertaken by Sunan Khan (sunan.khan@mail.bcu.ac.uk) and is being supervised by Professor David proverbs (David.Proverbs@bcu.ac.uk) and Dr Hong Xiao (Hong.Xiao@bcu.ac.uk). In

the first instance, you need to contact my supervisors Professor David Proverbs (David.Proverbs@bcu.ac.uk) and Dr Hong Xiao (Hong.Xiao@bcu.ac.uk) who should refer the matter to the Faculty Academic Ethics Committee.

SECTION TWO – INFORMATION

Please mark the appropriate boxes below with a tick (✓) to indicate your response to the following questions. Thank you for taking the time to fill out this consent form.

Question	Response	
	Yes	No
Have you read and understood the letter/information sheet that came with your invitation to participate in this study?		
Do you agree to participate in the School of Engineering and the Built Environment's proposed PhD research?		
Have you had the opportunity to ask further questions about the research study?		
Do you understand that you have the option to discontinue participation in this study at any time and without explanation?		
Do you agree to allow Sunan Khan and the research team's supervisors David Proverbs (David.Proverbs@bcu.ac.uk) and Hong Xiao (Hong.Xiao@bcu.ac.uk) access to your anonymised responses and/or data/information?		
Do you agree that all information and data gathered will be anonymized, securely stored during the research period, and securely destroyed at the end of this study?		
Any further thoughts:		

SECTION THREE – AGREEMENT

I, hereby agree to participating in the study. I understand possible uses of my data and agree to all conditions of the project.

Signed: _____

APPENDIX B – PARTICIPANT INFORMATION SHEET

This study aims to address the impact of motivation on health and safety of semi-skilled operatives at construction SMEs in the Birmingham UK. It includes a set of semi-structured interview questions, all of which are directed towards considering the internal and external factors that affect the health and safety motivation and performance of the workers. A framework will be developed after data collection and analysis, showing how these factors affect one another and produce health and safety outcomes.

APPENDIX C – INTERVIEW QUESTIONS

The interview questions investigated the operatives' extrinsic motivational factors, intrinsic motivational factors, as well as the interaction among both extrinsic and intrinsic motivational factors, in the context of health and safety conditions at construction SMEs of Birmingham United Kingdom. The main factors that were inquired by the researcher during the interviews consisted of workplace accidents, psychological stress, job satisfaction, respect, health and safety training, the role of the manager, the working conditions and the management's commitment towards the prevention of accidents at the workplace, and the impact of various extrinsic motivational factors on intrinsic motivational factors. For instance, the impact of the manager's role was discovered on psychological stress, job satisfaction and overall intrinsic motivation. Similarly, the impacts of working conditions, respect, and health and safety training on psychological stress, job satisfaction and intrinsic motivation in general were inquired about during the interviews. These questions were aimed to clarify the real experiences of the recruited participants in the study, so that a complete

view could be generated regarding the impact of motivational factors on health and safety conditions of semi-skilled operatives at construction SMEs of Birmingham. The main questions included in the interview process include the following.

- Do you have any experience with any workplace accident, have you witnessed any workplace accident, or have you been indirectly involved in any workplace accident?
- What is by far the most stressful situation you have faced at work?
- How would you describe your level of satisfaction in terms of health and safety at the workplace?
- Have you experienced any kind of disrespect at the workplace?
- Have you received any health and safety training from the employer?
- Does your employer provide personal protective equipment for safety, such as safety gloves, shoes, helmets, and other items at the workplace?
- Can you describe the condition in your workplace regarding safety guardrails, safety warnings, and other measures for on-site safety protection?
- What steps has your manager taken towards the prevention of accidents at the workplace?
- What steps would you recommend for improving the health and safety motivation at the workplace?
- What are the impacts of the manager's role on psychological stress/job satisfaction/intrinsic motivation?

- What are the impacts of the working conditions, such as poor lighting, messy work environment and workload, on psychological stress/job satisfaction/intrinsic motivation?
- What are the impacts of a respect on psychological stress/job satisfaction/intrinsic motivation?
- What are the impacts of health and safety training on psychological stress/job satisfaction/intrinsic motivation?

Health and Safety Training

The main question regarding health and safety training was, “have you received any health and safety training from the company?”. There was a probe of yes, and a probe of no. If the interviewee responded in no, the following questions were asked.

- Why do you think you did not receive any health and safety training?
- What problems do you see in the company that make it difficult to conduct health and safety training?
- How has the absence of health and safety training impacted your work and safety motivation?

If the interviewee responded in yes, the following questions were asked.

- Kindly explain how helpful were the health and safety training sessions in reducing accidents at the workplace?

- What type of health and safety issues are discussed during the training?
- How often does the training happen?
- Have you been involved in any training regarding safe use of workplace tools, machinery, and protective clothing?
- Have you been involved in any training regarding fire safety and emergency procedures?
- Did you receive any information on accident reporting procedure?
- Who conducts the training? Can you specify anyone?

Working Conditions

The main question regarding the working conditions of semi-skilled operatives at construction SMEs of Birmingham was, “can you describe the condition in your workplace regarding safety guardrails, safety warnings, and other measures for on-site safety protection?”. The following questions were asked as well, which were aimed to divulge even deeper into the subject of working conditions at the selected firms.

- How often does your company check for mechanical failures or any broken parts in your machinery or equipment?
- Does your company check if the tools or equipment are safe to be used before you actually use it?
- Does your company provide or adequately apply lighting at the workplace to make you feel safe and improve visuals while working in the dark?

- Is there any protection against workplace environmental hazards such as chemicals, asbestos, dust, fumes, biological agents, which may cause exposure by inhalation, splashing into eyes, or ingestion?
- How do you feel about protective equipment such as gloves, helmets, glasses for eye protect and safety clothes? Do you wear all the body protective equipment every time you enter the construction site?
- Has your company provided any equipment that enhances your sense of safety while working, especially in the dark?
- What was the impact of poor working conditions on your health and safety?
- What was the impact of poor working conditions on your work motivation?

Safety Management

The main question in this category was, “does your manager provide personal protective equipment for safety, such as safety gloves, shoes, helmets, and other items at the workplace?”. If the participants responded in the negative, no more questions were asked from this category except how the poor safety management had impacted their work motivation, and health and safety. If the participants responded in a yes, then a series of other questions were asked before inquiring about the impact of safety management on their health and safety and work motivation. The questions aiming to extract specific information regarding the safety management at firms included the following.

- What steps has your manager taken to implement the usage of safety equipment, such as PPE kits, for protecting the workers' health and safety?
- Has your manager punished any operatives for not following the health and safety procedures, regulations and policies?
- How has the poor managerial role in terms of health and safety impacted your work motivation?
- How has the poor managerial role impacted your health and safety?

Manager Commitment

The main question in this category was, "what steps has your manager taken towards the prevention of accidents at the workplace?". The following probes were established for this question.

- How often does your manager review your safety work procedures before you start working on a construction site?
- How can you move and transport heavy objects in the workplace?
- Have you faced any musculoskeletal disorders (upper limb, back, hip or lower limb injuries) in the workplace from manual handling, such as heavy lifting)?
- How do you manage the risks on working at height? Are you using any safety equipment to minimise the risk of fall?
- Are first aid kits, respirators, fire extinguishers and other safety equipment available at the workplace?

- Is there an occupational medicine clinic or first aid station at the workplace?

Policies

The questions related to this category are already presented in the preceding subsections. The policies related to the health and safety of semi-skilled operatives at the selected construction SMEs of Birmingham are another form of an extrinsic motivational factors. If the policies and regulations urge the operatives to adapt high standards of health and safety while performing their duties, their motivation levels to engage in such behaviours would increase as well. Therefore, it is vital to address what the manager is doing in a formal manner, in order to promote the adaptation of high health and safety standards at the company. The questions targeting this issue are attached in the previous sections and are revisited as follows.

- What steps has your company taken to implement the usage of safety equipment, such PPE kits, for protecting the workers' health and safety?
- Has your company punished any operative for not following the health and safety procedures, regulations, and policies?

Respect

The main question was, "have you experienced any kind of disrespect at the workplace?".

- If yes, give a brief description of the incident in your own words?

- What do you think about the primary cause behind the disrespect?
- What were the impacts of the disrespect on your health and safety?
- What was the impact of the disrespect on your work motivation?
- How did you react to the disrespect?

Psychological Stress

The main question in this category was, “what is by far the most stressful situation you have faced at work?”. The follow-up questions in this category are attached below.

- What is the main reason behind your stress?
- Can you describe a time when your stress resulted in making errors at work?
- How did you handle the stressful situation?
- How do you prevent a situation from getting too stressful to manage?
- How does the stress impact your health and safety?
- How does the stress impact your work motivation?

Interaction of Psychological stress with Extrinsic Factors

The following questions were asked regarding how extrinsic motivational factors affect the psychological stress of semi-skilled operatives at operatives at construction SMEs of Birmingham.

- What was the impact of poor managerial role on psychological stress?
- What was the impact of poor working conditions, such poor lighting, messy workplace environment and excessive workload on psychological stress?
- What was the impact of culture of disrespect on psychological stress?
- What was the impact of poor health and safety training on psychological stress?

Attitude

The main question asked in the category was, “do you have any experience with any workplace accident, have you witnessed any workplace accident, or have you been indirectly involved in any workplace accident?”. If the participants responded with a yes, the following set of questions were asked.

- If yes, can you give a brief description of the incident in your own words?
- Why did the accident happen?
- What do you think was the primary cause behind the accident?
- What were the impacts of the incident on your health and safety?

Behaviour

The following question was asked regarding this category.

- According to you, what steps can be taken to improve your safety and motivation at the workplace?

Interaction of Behaviour with Extrinsic Factors

The following questions were asked to target the interaction among the aforementioned motivational factors.

- What was the impact of poor managerial role on your intrinsic motivation?
- What was the impact of poor working conditions, such poor lighting, messy workplace environment and excessive workload on your intrinsic motivation?
- What was the impact of culture of disrespect on your intrinsic motivation?
- What was the impact of poor health and safety training on your intrinsic motivation?

Job Satisfaction

The main question in this category was, “how would you describe your level of satisfaction in terms of health and safety at the workplace?”. Following the response to the first question, a series of question was asked as well, which are attached below.

- If you are satisfied, could you explain why? What support have you been receiving or not receiving, which impacts your job satisfaction?
- If you are dissatisfied, could you explain what has been by far the most dissatisfactory situation that you have faced at work?
- Why do you feel dissatisfied with your job?
- What was the impact of job satisfaction on your work motivation?

Interaction of job satisfaction with Extrinsic Factors

As job satisfaction is an intrinsic motivational factor, it is largely affected by extrinsic motivational factors. The extrinsic motivational factors that were investigated as being affective towards job satisfaction consist of managerial role, working conditions, culture of disrespect, and health and safety outcomes. The following questions were asked in this regard.

- What was the impact of poor managerial role on your job satisfaction?
- What was the impact of poor working conditions, such poor lighting, messy workplace environment and excessive workload on your job satisfaction?
- What was the impact of culture of disrespect on your job satisfaction?
- What was the impact of poor health and safety training on your job satisfaction?

APPENDIX D – COPY OF MY PUBLISHED MATERIAL RELATED TO THIS THESIS



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The motivation of operatives in small construction firms towards health and safety – A conceptual framework

Operatives in
small
construction
firms

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Abstract

Purpose – Health and safety in small construction firms is often neglected by owners leading to poor health and safety performance and unacceptably high fatality and injury rates. A body of knowledge has established significant links between the motivational behaviours of operatives towards health and safety. Motivation is also considered as a key tool for improving operative productivity as when operatives experience safe worksites, they can carry out their work in a more productive manner. The purpose of this research is to develop a framework to examine the motivational factors that affect operative health and safety in small construction firms.

Design/methodology/approach – A critical review and synthesis of the body of knowledge incorporating motivational theory, health and safety literature and the factors which characterise small firms, is used to develop the framework.

Findings – Key components of the framework include the presence of intrinsic and extrinsic components, appropriate health and safety policies and procedures, the type of work environment, the operatives (i.e. attitude, experience and training) as well as the presence of appropriate management and supervision. The study revealed that operatives in small firms are less likely to be extrinsically motivated due to the absence of training, management commitment, policies and the wider working environment.

Research limitations/implications – Failure of motivational support can result in increased danger and risk in exposing operatives to injury in the small firm environment. In this context, the damage caused to operative's health and safety in small construction firms is dependent mainly on the extrinsic factors.

Practical implications – The framework provides a basis for improving our understanding of how to motivate operatives to act safely and will help to improve the health and safety performance of small firms. It is therefore vital to emphasise enhancement efforts on these extrinsic strategies in the small firms' environment especially in the initial stages of the project (or activity), so that the health and safety of operatives in small firms can be improved.

Originality/value – This study proposes a contribution in developing an understanding of the motivational factors and their influence on the health and safety of operatives in small construction firms. The study revealed that operatives in small firms are less likely to be extrinsically motivated and have only intrinsically motivated elements in their workplace. The study proposes an indirect link between the extrinsic and intrinsic factors that affect motivation.

Keywords Health and safety, Motivation, Extrinsic, Operatives, Management

Paper type Research paper

1. Introduction

The construction industry is beset by serious difficulties as operations are carried out in an environment that is exposed to a variety of risks. The industry is characterised by fragmentation, multiplicity of operations and an industrial culture which in turn contributes to unfamiliar hazards and unsafe behaviour of workers (Nejati, 2013). The UK Health and Safety Executive (HSE, 2019) report that injuries and fatality rates are four times higher in UK construction than in all other industries. Achieving high levels of workplace health and safety is a main consideration for most construction firms. Over the last century, workers' health and safety in construction has improved significantly, yet recently progress has stalled and it remains the second most dangerous industry, with around 40 fatalities each year and costing the UK economy £1.1 billion (Bagnara *et al.*, 2019). Despite their importance, small firms tend



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to have poorer health and safety performance. In 2019 alone, it was recorded that 147 workers in the UK has lost their lives to injuries stemming from the workplace (HSE, 2019). Nearly 25% of workplace injuries happen in UK construction firms (HSE, 2020).

In the UK, 99% of the construction firms are small size firms, which accounts for nearly 60% of employment of the entire private sector (BPE Statistics, 2018). Studies have shown that many small firms recognise the potential benefits of good occupational health and safety systems (Rainnie, 2016). However, the nature of small firms is unlikely to support focused and dedicated health and safety supervision of staff regardless of good intentions to protect operatives and processes at the workplace (Walters and James, 2009). In addition, small firms tend to have poorer health and safety performance due to a variety of reasons. For example, small firms lack full-time professional health and safety advisors, often have poor working conditions, are commonly financially insecure and have limited knowledge and resources to implement health and safety management activities such as risk assessments, training, audits and site inspections (Çalışkan, 2014). Furthermore, Hayman (2017) found that small firms have been characterised as a sector notoriously resistant to training and found that smaller firms provide less formal training than larger firms and are less likely to participate in government training initiatives. It was explained by Jamieson *et al.* (2012) that owners of small firms do not know the importance of health and safety because the managers themselves do not have any safety knowledge and they observe that their work is simple and repetitive. Consequently, they tend to undervalue worker health and safety and they consider hazards to be an accepted part of the work.

In addition, health and safety in construction industry is a very complicated issue and there are many factors (such as, e.g. legal, physical and personal) were reduced by addition of new requirements but health and safety continue to be the poorest in the construction industry. However, attention has been paid by both academic and expert domains to how operatives behave and work regarding workplace well-being and safety matters. Smith (1987) study found that the popularity of behavioural related health and safety programs are one example of this consideration and attention. In addition, some other researchers suggested that improvements of health and safety in the workplace will achieve if operatives change their behaviours and also suggested that motivation is one of the key one for the operatives to create a healthy and safe work environment (Reese, 2018). It is therefore important to establish motivational interventions and factors to support small firms in order to strengthen their health and safety systems (Kazak *et al.*, 2008).

Motivation is an essential factor in determining how operatives behave (Reese, 2018). Herzberg (2008) found that motivation of workers is known to be key to them working more safely. In addition, Kazak *et al.* (2008) argue that small firms need to consider motivational interventions and factors to strengthen operative's health and safety in the workplace. The intervention may be in the form of training initiatives, providing safe working conditions, H&S management interventions, adoption of proper management commitment and external motivation to improve safety in the workplace (Wirth and Sigurdsson, 2008). Reese (2018) further found that motivating workers to work securely is known to significantly help prevent worksite safety incidents. This is because motivation is known to be critical in explaining the behaviour of workers. Herzberg (1959) concluded that a good leader will address motivators in the workplace. Many studies confirmed the relationship among workplace injuries and motivation. However, while there has been much research on health and safety performance, it seems that little research has focused on motivational factors that affect health and safety performance for small firms.

The present study contributes in an area where the specific literature on motivational factors and health and safety of construction operatives is limited and rare to a small body of knowledge, particularly in small firms (Barg *et al.*, 2014). Diugwu's (2008) study suggests that small firms show dismal compliance to health and safety policies, rules and regulations and

have a higher number of deaths and accidents than larger firms. Cooney (2016) found that small firms faced many fatalities and injuries and lack management commitment, proper working conditions, policies to enhance operative's health and safety performance. Future research must be required to examine how to enhance health and safety within small construction firms. As Moon *et al.*'s (2019) study suggests, key to operative's (and therefore the firm's) health and safety performance is therefore to keep them motivated externally and internally. Many studies confirmed the relationship among workplace injuries and motivation. However, while there has been much research on health and safety performance, it seems that little research has focused on motivational factors that affect health and safety performance for small firms. Therefore, this research seeks to develop a framework to examine and investigate the motivational factors that affect operative health and safety in small construction firms. The framework will present an important advancement of understanding in our attempts to improve health and safety in small construction firms.

2. Health and safety in small construction firms

Small construction firms represent an important sector and have a significant impact on the UK economy (BPE Statistics, 2019). Statistics illustrates that in the UK, 93% of the construction firms are small firms, approximately 43% of firms have one staff, 50% with nine or more staff (Statista, 2019). Small firms account for nearly 48% of employment of the entire private sector with a shared yearly income of £1.5 trillion, representing nearly 37% of all private sector income in the UK (BPE Statistics, 2019). Despite the large number of small businesses and their significant contribution to the construction sector, Kheni *et al.* (2005) found that studies on health and safety with a specific emphasis on small construction firms are rare. In addition, Barber *et al.*'s (2016) study found that small firms consistently identify more barriers than larger firms and have significantly different characteristics from large firms in terms of their financial, training, management system, infrastructure, supervision and staffing capabilities. Small firms frequently seem to be unaware of their legal obligations (McKinney, 2002). One survey revealed that, for various small firms, there is a deficiency of awareness of what exact health and safety regulation is related to their business (Vickers *et al.*, 2003). Strategies might be problematic to put into practice due to their uncertain legal responsibilities. Other factors were revealed by Goss (2015) and stated that small firms are also deficient in policies and administration, lack of training and motivation, have limited resources and are at higher risk of bankruptcy than large firms.

Moreover, small firms' commitment to health and safety remains a cause for concern. Authors have continually shown that small firms have more risky working environments and more work-related injuries and illnesses than large firms (Sørensen *et al.*, 2007). Kheni *et al.* (2005) further stated that injuries and accidents are more prevalent in small construction firms. Mostly, small firms are not dedicated and committed to health and safety because small firms do not have the appropriate legislation, training, management culture in terms of motivation towards safety, however they can be compliant with health and safety guideline and rules (HSE, 2018). In addition, McKinney (2002) found that small firms are unaware of their legal policies and responsibilities, do not understand the risks of poor and bad practice and have inadequate resources to dedicate to operative's health and safety. Raines (2019) stated that owners or managers in small firms also work as a safety manager, which can render the health and safety management system unproductive and ineffective. Koo and Ki (2020) found that small firms have a high rate of accidents at their workplaces that affect the well-being of workers and their safety. Nearly 25% of workplace injuries happen in UK construction firms (HSE, 2020). The HSE (2018) statistics shows that thirty million working days were lost because of workplace injuries. Getting operatives to ensure they work in a safe

way in difficult situations remains a key challenge for small construction companies. According to HSE (2018), a total of 144 workers were killed at work in Great Britain in 2017/18, representing an increase of nine fatalities from 2016/2017. It is observed that the construction firms have the peak accident rate among all other industries as well as the peak rate of injuries and fatalities (HSE, 2020). Therefore, there is no doubt that the importance of health and safety needs to be remained a dominant impact.

2.1 Role of health and safety executive in construction industry

The responsibility of Health and Safety Executive is to enforce health and safety guidelines and regulations for workers at work to reduce work-related death and serious injury in the workplace (Clarke and Cooper, 2004). HSE's role includes reviewing, shaping and implementing regulations in construction industry. Many studies observed the implications of health and safety during the initial design stage (Walters, 2010). It appears that decisions are made upstream from the construction site significantly impact operative's safety. A clear relation has discovered among design for construction safety and operatives' losses at the site. Existing research has shown that the high rate of injury in the construction industry is primarily due to inadequate or non-existent HSE systems (Lin and Mills, 2001). This shows the key role of HSE in ensuring safety at the construction site. The HSE must discover a system to successfully monitor and impose safety procedures and regulations. It was suggested by Books (1997) that HSE must come up with motivation incentive programs that encourage and boost small firms to prioritise health and safety for workers, so that the firms' performance could be enhanced.

2.2 Role of standard form of contracts in construction industry

Standard form contracts involve standard conditions which form the basis upon which parties to a contract agree (Mosey, 2009). Fenn *et al.* (1997) stated that UK construction firms generally use three standard forms of contracts named Joint Contracts Tribunal (JCT), New Engineering Contract (NEC) and GC/Works. GC/Works are primarily for government contracts, JCT are most common and used for commercial development projects. The NEC Engineering and Construction Contract is a framework developed by the United Kingdom Institution of Civil Engineers that guides the drafting of documents on civil engineering and construction projects to obtain tenders and to administer contracts. This principle is consistent with Construction (Design and Management) Regulations. CDM regulations exist to improve the health and safety record on construction workplace by requiring all parties involved in a construction project to take responsibility for health and safety standards. The CDM regulations apply to all construction projects of any type, including domestic, any duration and any size. Small builders and individual trades need to know about CDM just as much as the big corporations. Hence, standard form contracts and agreements can be useful in construction project initial stages and form the extrinsic elements to provide a platform for expressing health and safety contractual provisions (Potts and Ankras, 2014).

3. Motivation

Motivation is an internal drive that provides the energy to do what is needed to accomplish a goal (Thomas, 2009). Herzberg (1966) studied motivation for many years and defined motivation as the driving force behind all our actions. Smith (1987) defined motivation as literally the desire to do something. Brody (2013) found that motivation is goal-directed, not random, motivation is the energy that drives workers to engage in a course of action. Within the context of work, Pinder (2014) said that motivation is a force that exists within workers in the workplace to initiate work-related behaviour and to determine its form, intensity, direction and duration. Motivation is an essential driver of workers' behaviour and

performance. Marques *et al.*'s (2007) study concluded that motivation is a critical factor for today's firms to consider because motivation drives human activity and behavioural aspects in the workplace. As the old proverb "You can lead a horse to water, but you can't make it drink" demonstrates, motivation is not something that can be commanded. One of the significant functions and purposes of a firm is to produce the "right" type of motivation.

3.1 Motivation types

Various authors view motivation as a two-dimensional construct, being intrinsic motivation and extrinsic motivation (Herzberg, 1959; Benabou and Tirole, 2003; McLean, 2003). Motivation can be classified as intrinsic and extrinsic motivation (Herzberg, 1959). It was stated by Thomas (2009) that operatives work hard for one of two reasons; first, because operatives are involved in the work itself (i.e. intrinsic motivation); or two, because they are caused by the external environment (i.e. extrinsic motivation). In the workplace, Herzberg offered a clear way for managers to use extrinsic and intrinsic motivation in the practice to increase safety among workers (Herzberg, 1959). Bergström *et al.* (2016) study revealed that supervisors and managers observe a strong effect of intrinsic and extrinsic motivation on operative's engagement in the workplace. Benabou and Tirole (2003) study found that there are many ways to improve workers performance in the firm (such as leadership, diversity, training) and that managers and supervisors should focus on intrinsic and extrinsic factors as these can significantly improve operative output. Al-Haadir *et al.* (2013) found that better safety behaviour using extrinsic and intrinsic motivation methods can be effective once factors are carried out in the setting of a positive safety climate. Baranek (1996) suggested that extrinsic and intrinsic motivation impact operatives' purposes, goals, their intentions concerning behaviours and activities. Extrinsic and intrinsic motivation is now briefly explained below.

3.1.1 Intrinsic motivation. From many decades a huge number of researchers examined the concepts of extrinsic and intrinsic motivation. Evans (1998) found that motivation is intrinsic if an activity is undertaken for an operative who wants direct pleasure and satisfaction in the work. Thomas (2000) argue that motivation is intrinsic when an operative performs an activity for itself which provides them both pleasure and satisfaction. Gagné and Deci (2005) further found that intrinsic motivation can contain involvement in behaviour patterns, action and activity for their own importance. Some researchers found that intrinsic motivation refers to personal factors, internal to the operative and include psychological aspects, and these usually have greater influence on the health and safety behaviour of operatives (Herzberg, 1959; Moody and Pesut, 2006). Herzberg (1959) states that intrinsic factors improve and enhance job satisfaction which contributes to psychological growth. Intrinsic factors include psychological issues, attitude, satisfaction, responsibility and recognition (Herzberg, 1959; Leithwood and Beatty, 2007; Clark and Cooper, 2004).

In addition, Coon and Mitter (2010) found that intrinsic motivation is an important enabler of creativity because intrinsic motivation is the desire of awareness, interest and the pleasure and satisfaction of work that is performed. DeVaro (2020) suggested that every firm must provide a source of intrinsic motivation that energises the workers to work hard to advance the mission. Wiley (1997) further explained that intrinsically motivated tasks, activities and behaviours lead naturally to external consequences that support the behaviour and give useful information for improving the operative's behaviour. It was found by Ryan and Deci (2000a) that operatives who are motivated intrinsically have high confidence, interest and excitement in the workplace.

As many scholars have described, the concept of intrinsic motivation refers to personal factors, that comes from within an operative. Intrinsic motivation also provides operatives

more pleasure and satisfaction in the work. When operatives are intrinsically motivated their job satisfaction and pleasure for work enhances and increases.

3.1.2 Extrinsic motivation. It was found by Ryan and Deci (2000a) that extrinsic motivation gives an external value. Extrinsic motivation can also be a positive factor in workers safe behaviour and working environment (Hardre and Reeves 2003; Baker 2004). It is an external force used by firms. It was proposed by Deci (1975) that extrinsic motivational factors always come first in work in order for improved performance. The reason why people look first to external reasons is that external forces are clearly noticeable and hence more reliable. Extrinsic factors include working conditions, company policy and administration, training, management commitment, supervision and H&S management systems (Herzberg, 1959; Brown *et al.*, 1982; Kuria and Nzuve, 2015; Geller, 2016; Hyman, 2017). A study by Sansone and Harackiewicz (2000) indicated that there is an important association among extrinsic motivation and work performance. Many studies showed the significant influence of all extrinsic factors on operatives' performance (Majau and Wanjohi, 2019). Stranks' (2007) study found that H&S management system acts as an extrinsic factor and is considered an essential approach to control safety risks in the workplace. Rowlinson (2004) further found that safety management systems do not only influence safety outcomes (e.g. injuries and accidents) by controlling hazards but also by improving the physical working conditions.

In addition, James (2005) found that extrinsic motivation is a good predictor of safe work performance in firms. The effects of extrinsic factors on health and safety, safety behaviour and safety awareness were measured in Jordanian firms and found that improper training, poor health and safety management and improper policies at work were found to affect health and safety behaviours and safety awareness (Al-Refaie, 2013). Stella (2008) clarified that high performance and motivation for successful firms can be accomplished by many extrinsic factors such as training, policies, management commitment, H&S management, supervision and working condition.

As from the above discussion, it can be concluded that extrinsic motivation is motivation that points to external forces such as training, safety management, good working conditions and policies. Managers and supervisors can use this external force in the workplace for their operatives. If a supervisor and manager observe that an operative is not motivated as required, they can use external factors to increase and enhance the operative's extrinsic motivation in the workplace. This will also lead to creating a safe and healthy work environment.

3.1.3 Relationship among extrinsic and intrinsic motivation. It was suggested by Ryan and Deci (2000a) that the intrinsic and extrinsic motivators are interconnected. Prior studies proposed several extrinsic factors and approaches, such as training, safe working condition, policies implementation and safety management system to improve an operative's intrinsic motivation (Hartman and Sternberg, 1992; Amabile, 1993; Pelletier *et al.*, 2007). Woods (2011) found that blending intrinsic and extrinsic motivators in the workplace in an organised way can produce a well-organised and safe workplace. It would be inappropriate to label such behaviours as either exclusively intrinsically or exclusively extrinsically motivated; both forces are clearly at work.

In order to manage projects effectively, it is essential to decide how the activities of the lifecycle steps are to be achieved and making the right things to happen in the right way and at the right time. The more comprehensive the initial starting process, the less firms would face issues later. Figure 1 is constructed and supports the argument of Woods (2011) that using an intrinsic and extrinsic motivator in an organised way in the workplace can produce a well-organised and safe workplace. In Figure 1, extrinsic and intrinsic motivational factors are arranged into three steps based on their appearance in the firm for achieving better health and safety performance in the workplace.

In the first step, the figure shows that extrinsic motivational factors arise before intrinsic factors in a project. The figure shows a task with observed risk on the site, which means that firms need to observe the working environment and all the risks involved before any physical work activity in the starting stage of the project. Stella (2008) found that better performance of operatives and firms can be accomplished by many external factors such as training, policies, management commitment, H&S management, supervision and working condition. All the extrinsic motivational factors need to be considered first before starting any physical labour work in a construction project. This supports the statement of Deci (1975) that extrinsic motivators always come first. As stated, these external forces are clearly noticeable and hence more reliable. After proper implementation of extrinsic factors, intrinsic motivational factors need to be taken into consideration.

In the second step, personally motivated operatives overlap with the extrinsic motivation. After this step, the overlapping of intrinsic and extrinsic motivation occurs. This overlapping would occur over the whole project. The output from external motivational factors becomes the input of intrinsically motivated operatives and vice versa. Decker *et al.* (2009) stated that extrinsic factors such as training, managerial behaviour and policies in the workplace move intrinsic motivation. In addition, Jolly (2003) stated, if a foundation of competencies is determined, a proper H&S planning, management system and risk valuation process would develop which will lead to enhanced control across major risks in the workplace and hence, operatives would achieve their work in a safer way as shown in step 3.

3.2 Extrinsic and intrinsic factors impact on operatives

Herzberg (1959) found that a good leader will address both extrinsic and intrinsic motivators in the workplace because both intrinsic and extrinsic motivation have an impact on operatives. Christian *et al.*'s (2009) study found that both intrinsic and extrinsic motivation can provide effective methods of energising behaviour. Herzberg (1959) further found in the two-factor theory that intrinsic factors enhance and improve job satisfaction at work and extrinsic factors decrease job dissatisfaction at work. Either of these motivational strategies can be used to get an individual to perform a task, and both intrinsic and extrinsic rewards can bring satisfaction to the individual (Geller, 2016; Lingard, 2002). Both Herzberg (1987) and Knoop (1994) concluded that extrinsic and intrinsic motivation are significant and can help as having a motivating consequence in the work. This study presents the significant factors that affect the operative's health and safety in small construction firms. These factors are briefly explained below.

3.2.1 Training. Training is a systematic approach that comes under the category of an extrinsic factor (Geller, 2016). Some studies simply acknowledged training as an extrinsic factor (Harris *et al.*, 2005; Catania and Randall, 2013). Green (1997) stated that firms provide



Figure 1.
The Intrinsic and
Extrinsic motivational
pathway

training for a variety of reasons, such as improved quality of work, a decrease in injuries, increased working performance (Chow *et al.*, 2008). In addition, Scaduto *et al.* (2008) found that there is positive relationship between training and motivation in terms of health and safety. Barrett (2003) found that training proved to be a tool to motivate the operatives. Training is used to enhance the skills, efficiency and knowledge of operatives and familiarises operatives with the organisation's goals, rules and regulations and the working conditions. Barrett (2003) acknowledges that it is critical that operatives are trained so that they can identify and behave appropriately against hazards related to their workplace and further result into better or improved health and safety performance. Scaduto *et al.* (2008) also found that training showed an important positive effect on operative's job satisfaction, attitude, job involvement and firm commitment. Barrett (2003) concluded that training is a proven tool to motivate operatives which further results into better or improved health and safety performance.

3.2.2 Management commitment. The commitment of management to the safety of operatives in this research study can be understood as management's active participation and involvement to confirm a safe firm environment and provision of work-related safety practices and policies (Vredenburg, 2002). Previous research has further found that management commitment implies the direct contribution in critically important features of firms which contributes to the health and safety of workers, work environment and providing safe external support to achieve the desired work outcome in the firm (Hon *et al.*, 2014). Effective accident and hazards prevention approaches are based upon the support of good management (Labodová, 2004), which is mostly reliant on strong management commitment. Many studies have rated management commitment with high impact and concluded that strong management commitment is important for building a positive safety culture and for the prevention of hazards (Hon *et al.*, 2014; Panuwatwanich *et al.*, 2017). Finally, Labodová (2004) found that management and operatives' commitment and involvement in the workplace contributed to satisfaction with health and safety.

3.2.3 Working conditions. Working condition is defined as the conditions such as working hours, stress, degree of safety or danger that affect the operative in the workplace. Brown *et al.* (1982) found that working condition is an extrinsic factor as it deals with all features of the strategy and management of the work system and how the system interacts with employees and their places of work. Rahim *et al.* (2014) found that providing safe working condition is important for operatives for avoiding injuries and increasing well-being and comfort in the workplace. In addition, Dollard *et al.* (2007) found that in the working environment, several negative health-related psychosocial factors were identified. Factors include work overload, physical danger, role conflict and problems in relationships at work. Kheni *et al.* (2005) supported the statement and found that small firms lack resources, safety information and guidance, skilled labour and machineries and equipment. They also have a low literacy rate of workers and these characteristics cause demotivation, poor working conditions, bad working attitudes and other negative psychological factors. It was concluded by Emeka *et al.* (2015) that good working condition boosts an operative's motivation in terms of their health and safety performance in the workplace.

3.2.4 Safety management system. The primary function of a safety management system is the identification of workplace hazards (Manu *et al.*, 2014). Safety management systems work as an extrinsic factor intended to manage health and safety aspects in the workplace such as safety regulations, policy and procedures (Clarke and Cooper, 2004). Construction projects are among the environments that are most conducive to work hazards (Manu *et al.*, 2014). This is because of the construction site environment, physical working conditions, use of heavy equipment and the dynamic nature of the work (Menzel, 2010; HSE, 2019). Based on these dangerous situations at work, effective implementation of health and safety management

system is highlighted as a crucial condition to ensure safety for operatives in the workplace (Bartusik, 2008). Furthermore, Kheni (2008) found that the presence of a safety management system leads to better health and safety performance in firms as this leads to the consideration and understanding of the operative's psychological factors and attitudes which can give rise to workplace hazards, accidents and health and safety failures. Health and safety management systems include those set out by the Construction (Design and Management) Regulations 2015 (CDM, 2015) or other health and safety management systems. Key aspects are identified for decreasing workers accidents and improvement in planning, implementation and evaluation stages (Mrugalska and Stawińska, 2014; HSE, 2019).

3.2.5 Job satisfaction. Leithwood and Beatty (2007) revealed that job satisfaction is an intrinsic motivational factor. The level of job satisfaction is associated with positive behaviour of the firm, for example, employee retention and growth in worker performance. Job satisfaction has a connection with psychological aspects, good quality job, job security, promotion and growth and training facilities available to employees. Satisfied employees will commit to their jobs, come to work early, work overtime, beat deadlines and achieve high work goals (Kreitner and Kinicki, 2007). On the contrary, dissatisfied employees are characterised with lateness, absenteeism, low morale and low productivity at work (Moos and Schaefer, 1987). However, empirical studies seem to agree on work motivation measures that can be taken by the management to ensure employees are satisfied with their jobs. Job satisfaction results from work motivation factors such as compensation, training, recognition and working conditions (Slocum and Hellriegel, 2009). A good work environment and good work conditions can increase employee job satisfaction and the employees will attempt to give their best which can increase the employee work performance.

3.2.6 Psychological factors. Intrinsically motivated behaviours are associated with psychological factors (Ryan and Deci, 2000b). Operatives in construction firms are 1.7 times more prone towards psychological health issues like psychiatric disorders involving stress-related problems as compared to other industries workforces (Clark and Cooper, 2004). Longenecker *et al.* (2009) found that there are some psychological factors (attitudes, workload, deadlines and the relationships with superiors) that have the greatest relevance to small firms' workers and impact their performance in the workplace. Semmer (2003) found that the occurrence of these psychological factors is due to bad job design, poor management and a poor and unsafe work environment. Bonde (2008) found that psychological factors can lead to harmful and negative psychological issues in the workplace such as work-related mental health, stress, depression and wellbeing. Idrees *et al.* (2017) concluded that mental stress, job security, workload and job satisfaction are the psychological areas to be focused upon to increase operative's perception to their health and safety.

4. Conceptual framework

Many studies have confirmed the relationship among workplace injuries and motivation. For many decades researchers have found findings and results that were sometimes challenging one another because of the authors have focused on different aspects, firm types, variables and countries. It is observed that no clear solutions and answers have been made on what specifically motivates operatives in terms of their health and safety and satisfactory performance at their workplace. This is due to the fact that motivational factors are applied differently according to the firm size and type. However, it seems that extrinsic motivational factors are more important than intrinsic motivational factors in the project initiation stage within the project or activity life cycle.

Figure 2 presents the main conceptual framework of this research. A critical review and synthesis of the body of knowledge incorporating key health and safety features and the extrinsic and intrinsic motivational factors, which characterise small firms, has been used to

develop the framework. The framework consists of intrinsic and extrinsic motivational factors and how they impact on a small construction firm's environment. The framework is presented in two stages representing firstly, that operatives in small construction firms are influenced by extrinsic factors (as per Figure 1). Secondly, representing the extrinsic factors indirectly influencing the intrinsic factors. All the parameters shown are considered to produce a conceptual framework of motivational factors that affect operative's health and safety in small construction firms. The following sections explain the relationships between the parameters shown.

4.1 Extrinsic factors influence work environment

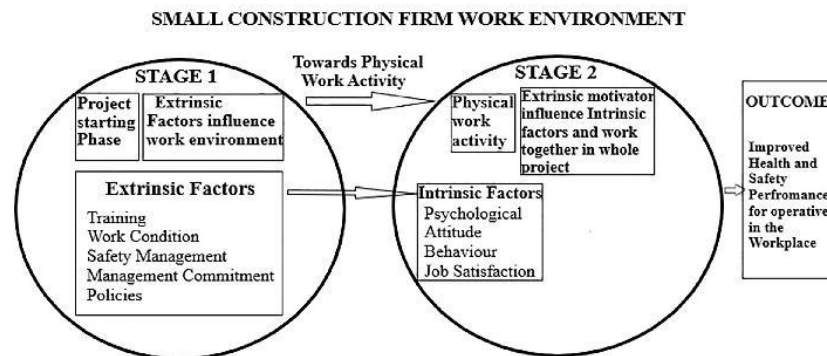
The framework indicates that training, working conditions, policies, health and safety management and management commitment are the key external motivators that influence a firm's environment and operative's safety performance in the workplace. The framework indicates that unhealthy work conditions are prevalent and are a strong de-motivating factor for operatives. Mental and physical health problems such as depression, stress and other negative outcomes result in injuries for operatives in the workplace. Studies also found that training also influences operatives safe working performance and motivation in the workplace. This is because properly trained operatives become familiar with the organisation's goals, rules and regulations and the working conditions. These operatives are more likely to behave appropriately against hazards related to their workplace and this further reduces the chance of suffering from injuries and results in creating a positive health and safety culture.

The influence of a safety management system and management commitment were other extrinsic factors which are identified to have an influence on operative's health and safety. This is because these systems help to establish procedures, policies and regulations for operatives in the workplace and are known to decrease worker accidents and lead to improvements in the planning, implementation and evaluation stages. In addition, it is concluded that extrinsic motivational factors constitute a key part in the workplace, serve as a guidance for operatives and help to create a safe and favourable working environment where operatives feel safe and can working comfortably in the workplace.

4.2 Extrinsic factors indirectly influence intrinsic factors in the workplace

The framework identifies psychological factors, operative's behaviour, attitude and satisfaction as the intrinsic factors influenced by extrinsic factors. These external features

Figure 2.
A conceptual framework of motivational factors that affect operative health and safety in small construction firms



act as an input to intrinsic motivation. Working conditions and management commitment to safety influence an operatives' psychological factors and attitudes. The presence of a safety management system is known to lead to better health and safety performance in the firms. This leads to the consideration and understanding of the operative's psychological factors and attitudes that contribute to workplace hazards, accidents and health and safety failures. In addition, unsafe working conditions and poor safety management leads to work-related mental health, stress, depression in the workplace and which leads to operatives' injuries. Those operatives who were purely motivated extrinsically experienced much greater distress when faced with psychological factors at work. Lunau *et al.* (2017) study revealed that psychosocial risks are mostly lower in countries with more developed safety management systems. The framework also indicates that training is influencing operatives' attitude and satisfaction in the workplace and that training is an important aspect in creating positive attitudes. These further influences safety performance and job proficiency, while poor training results in poor attitude to safety performance, with dissatisfaction during work and could results into injuries and poor working performance. Hence, extrinsic factors are shown to influence intrinsic factors in the workplace and so can help improve operative's safety. The failure or absence of these extrinsic factors support can result in an increased danger and risk in exposing operatives to injury in the firm environment.

4.3 Summary

This framework represents a contribution to the study of health and safety of operatives in the context of small construction firms. The framework represents the challenges and factors that affect operatives in the workplace. Included in the framework are extrinsic and intrinsic factors that influence the outcome for improving health and safety in small construction firms. Extrinsic motivators include training, safety management system, management commitment, policies and working environment. These are the key factors that directly influence the work environment and indirectly the intrinsic factors and act as an input to intrinsic motivation and results in establishing the safety culture in the workplace. The framework supports the statement of Reeve (2006) that an extrinsic motivator can enhance intrinsic motivation for specific tasks in the workplace and improves worker safety. Failure of motivational support can result in increased danger and risk in exposing operatives to injury in the small firm environment. In this context, the damage caused to operative's health and safety in small construction firms is dependent mainly on the extrinsic factors.

5. Methodology

This paper applied a literature review of theoretical background. A search of literature was performed on health and safety in small construction firms in the UK with an objective to find out the motivational factors affecting the safety of semi-skilled construction operatives in small construction firms. The main factors are retrieved from literature as presented in the conceptual framework.

6. Result

The conceptual framework is representing the results of this research study. Conceptual framework highlighted and explain the key extrinsic and intrinsic motivational factors (such as training, policies, health and safety management commitment, attitude, behaviour and working conditions) that influence a firm's environment and operative's safety performance in the workplace.

7. Conclusion

A conceptual framework for improving the health and safety in small construction firms has been discussed and presented. The conceptual framework presented is considered to be of key importance to improving the understanding of health and safety in small construction firms. The literature review revealed that very little research has been conducted on the motivational factors and their impact on health and safety in small construction firms. This study proposes a contribution in developing an understanding of the motivational factors influencing health and safety in small construction firms.

The framework results show that all the key barriers are extrinsic motivational factors, thus small construction firms have limited to no control over them. Lack of safety training, policies, health and safety management commitment, bad attitude, behaviour and working conditions that influence a firm's environment and operative's safety performance in the workplace. However, it is something than can be addressed by looking at the barriers and factors in small firms as many small firms have only intrinsically motivated elements in their workplace. Alternatively, semi-skilled construction operatives in small firms are less likely to be extrinsically motivated and are mainly influenced by the training, management commitment, policies and working environment. It is therefore vital to emphasise enhancement efforts on these extrinsic strategies to consider in the small firms' environment especially in the initial stages of the project (or activity), so that the health and safety performance of operatives in small firms can be improved.

8. Recommendation

Health and safety within small construction firms is known to be very important as many small firms have only intrinsically motivated elements in their workplace. Besides highlighting the extrinsic and intrinsic factors, small construction firms should acknowledge that emphasise on motivational factors will lead to a reduction in construction operatives' injuries. It is therefore vital to emphasise enhancement efforts on these extrinsic strategies to consider in the small firms' environment especially in the initial stages of the project (or activity), so that the health and safety performance of operatives in small firms can be improved. Furthermore, the government must come up with incentive plans that reassure the small construction firms to focus on health and safety of operatives.

9. Future work

This kind of a new framework on the motivation for health and safety can be a significant contribution to a knowledge. The framework can be seen a blueprint for further investigation in the specific topic area and serve as a basis to be further developed. In seeking clarification as operatives real-life workplace experience and collecting more empirical evidences, in order to say that the framework is a true representation that how operatives experiencing the situation (such as the work environment, behavioural elements, contextual variables and the extrinsic and intrinsic motivational factors) in the way that theorised in the framework. So, this does support the qualitative study and reinforces its suitability for further research to get empirical evidence about the physical setting in small construction firms with the help of qualitative research with an interview as a research method to collect the empirical evidence by knowing operatives field experience and their perception towards health and safety and motivational factors at work.

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