

Development of Conceptual Motivational Framework to Improve Construction Labour Productivity in the U.K.

John Kojo Tawiah Hayford^{1*}, Timothy Eccles¹, Daniel Fong¹ and John Obas Ebohon¹

¹Centre of Integrated Delivery of the Built Environment, School of Built Environment and Architecture, London South Bank University, UNITED KINGDOM

hayforj2@lsbu.ac.uk; ecclest@lsbu.ac.uk; fongd@lsbu.ac.uk; ebohono@lsbu.ac.uk

* Corresponding author

Abstract:

The theoretical study presents vital motivational factors influencing labour productivity and understanding the relationship between motivation, social compliance, and labour productivity for decision-making. Labour motivation is essential because the quality of labour performance depends upon motivation. Labour who put forth more effort makes a big difference in company productivity. The construction industry in the U.K. is to become Europe's largest construction market by 2030. However, the trend of construction industry productivity in the U.K. has been low relative to other industries resulting in a skilled labour shortage, project delays, high construction costs, and low productivity growth as foreign migrants execute most projects. The U.K. serves as a security for the concerns of Middle Eastern and other war-torn countries, including the effects of the Ukraine war. It is the largest market for U.S.A. service exports, thus accepting more migrants. Therefore, demands for housing projects are ever-increasing, leading to a rise in construction projects that present opportunities for research to improve productivity through motivation by enhancing social compliance. The findings indicate that motivation mediates social compliance and labour productivity and that the essential way to motivate labour is by upholding social compliance. The present study conducts a comprehensive literature review to identify motivational factors influencing labour productivity. The findings developed a conceptual motivational framework that indicates a positive relationship between motivation, social compliance, and labour productivity. The next level is to test the framework on construction sites empirically through pragmatism philosophy with quantitative and qualitative approaches.

Keywords:

Construction productivity, motivational factors, motivation framework, productivity, social compliance

1 Introduction

The effective management of labour is key to achieving higher labour productivity. The bond between motivation and labour productivity is widely accepted and highly significant. Enhancing labour motivation is vital to maximising labour productivity (Kazaz *et al.*, 2008; Khan *et al.*, 2011). To effectively manage and ensure that labour is productive enough, it is imperative to understand factors which have an edge on motivating labour. The essential way to motivate labour is safeguarding social compliance (Razzaue and Eusuf, 2007). The construction industry is essential and affects every country's GDP. The industry contributes to the economy by about 6–10% in many countries (Naoum, 2016; Alaghbari *et al.*, 2019; AlAbbadi, 2020). In 2018 the industry contributed 6% of the U.K.'s total economic output (Rhodes, 2019). The U.K. is to become Europe's largest construction market by 2030 (Hairstans and Smith, 2018). To achieve this, the government has called to cut the cost of construction by 33% and to deliver 50% faster projects by 2025 (Rhodes, 2019; Noruwa, 2020). However, the U.K. serves as a security and greener pasture for the Middle East and other war-torn countries, including the Ukraine and Russia wars. It serves as the largest market in the world for U.S.A. service exports. Thus, accepting more migrants over the years; therefore, demands for housing

and investment projects are ever-increasing. That has led to a rise in construction projects which presents a significant opportunity to study to improve construction labour productivity.

Previous studies identified many factors influencing productivity; few considered motivational factors and how social compliance drives labour productivity. The technological advancements that have been the main driver behind improved productivity and reduced labour have been excluded from this study. The automation of construction tasks which could potentially increase productivity has yet to become a reality on construction sites. In the mean term, this seems unlikely except for prefabrication and powered tools due to a lack of capital investments. However, the trend of construction industry productivity in the U.K. has been consistently low relative to other industries resulting in a skilled labour shortage, project delays, high construction costs, and low productivity growth as foreign migrants execute most projects (Abdel-Wahab *et al.*, 2008; Jarkas and Radosavljevic, 2013). To assess the challenges faced by the industry, several researchers targeted many challenges and classified them as information technology (El-Mashaleh *et al.*, 2007; El-Mashaleh 2007), project delays (Sweis *et al.* 2008) and health and safety (El-Mashaleh *et al.* 2010; Alkilani *et al.* 2013). The studies on productivity focused mainly on external factors such as health and safety issues, weather conditions, material availability, and technology (Sweis *et al.*, 2008; Sweist *et al.*, 2013). There are many solutions to improve labour productivity, such as enhancing social compliance. Therefore, the proposed study attempts to fill the above knowledge gap by identifying the motivational factors that influence labour productivity to develop a conceptual motivational framework to improve construction labour productivity in the U.K. To identify the motivational factors which influence labour productivity in the U.K. construction industry, to examine and understand the relationship between motivation, social compliance, and labour productivity, and to examine the motivational factors that could improve labour productivity. Essentially part of projects, these factors are worth researching because they may lead to a deep understanding of improving skilled labour shortage, project delays, high construction costs, and low productivity growth.

2 Social compliance

Often, vital motivational factors identified by construction industry researchers are yet to make them socially compliant with company policies and practices to enhance motivation and higher labour productivity. Social compliance ensures labour rights prescribed by U.K. labour rights and practices and the international labour organisation labour rights convention (Fukunishi and Yamagata, 2013). It is defined as looking at wages and benefits, labour rights, discrimination against gender or vulnerable groups, health, and emergency planning. Social compliance refers to the policies and practices of the company connected to the psychological and physiological well-being of labour. Social compliance in this study refers to the motivation factors incorporated into company policies and practices to address concerns about working conditions, labour rights, fair labour practices, labour standards, environmental protection issues, and labour health and safety measures (Alam *et al.*, 2018). Upholding social compliance has been contemplated as one of the significant factors for competitiveness (Moazzem and Sehrin, 2016). Regulated companies from other industries have a compliance unit led by a compliance officer, who implements policy and ensures practices that guarantee compliance. However, compliance with motivational factors that could enhance labour motivation and lead to higher productivity has yet to become a reality on construction sites. Implementing social compliance policy and code of practices by practitioners could improve skilled labour shortage, project delays, high construction costs, and low productivity growth and upgrade the global image (Rahman and Hossain, 2010; Alam and Alias, 2018). Despite many advantages, construction practitioners place less importance on implementing social compliance policies and codes of practice on

sites. This study addresses how compliance with motivational factors establishes positive relationships with motivation and labour productivity to influence management decision-making leading to higher productivity in the construction industry.

2.1 Compliance and Non-compliance

Compliance ensures adherence to labour rights prescribed by industry-recognised quality management. Compliance in this study is an aspect of company management concerned with the extent to which a company operates by the terms and conditions of labour motivation policy and practices. The degree to which an employer has the right to monitor labour compliance is written as the parties' right or duty to ensure that the contractors adhere to legal and other mandatory obligations. This study's compliance with motivational factors can be understood as a process that concomitantly improves skilled labour shortage, project delays, high construction costs, and low productivity growth. The process of assessing compliance may involve verifying during pre-qualification assessment that any new labour meets the qualification standards specified. The contract compliance process includes employers creating an organised framework that enables contractors to report their activities in a manageable manner. Third-party Consultants may also look for potentially undiscovered lapses, find potential compliance gaps and ensure compliance. Noncompliance refers to failure to comply with the motivational factors incorporated into the company policies, rules and regulations by the authority having jurisdiction, the standards put forth by industry-recognised quality management, or rules presented by a particular company that controls workplace motivation. Noncompliance is the failure of individual labour to observe motivational requirements or the failure of individual managers to enforce adequate motivation behaviour. A company may be noncompliant with regulatory or quality standards if it fails to institute required motivation provisions as part of its corporate policies and practices. There are two types of compliance issues (1) recognition, which occurs as a result of compliance, and (2) penalisation, which occurs as a result of noncompliance. In the construction industry, some form of recognition of motivation compliance is necessary before a company is allowed to work. Companies also require that their suppliers and business partners hold recognised motivation compliance certifications as a prerequisite to contracting them. Certifications and other formal recognition types may be revoked if an individual or company becomes noncompliant. Individuals or companies that have become non-compliant will incur penalties. For labour, this likely means disciplinary action from a supervisor. For companies, this can result in an enforceable stop-work order. Failure to comply with the motivational standards can be part of motivation lawsuits brought by labour against their employer. Social compliance requires the implementation of codes of practice and policies that ensure the regulations on a day-to-day basis. If a company, wittingly or unwittingly, fails to adhere to a motivation regulation, it may be subject to punishment.

2.2 Proposed Conceptual Motivation Framework

The objective of motivation is to enhance labour productivity. It has been established from the theoretical review with an adequate discussion of labour productivity detailed in 2.3 to 2.8 that motivation influences labour productivity and motivated labour puts enough effort at work to improve productivity. According to the review, social compliance enhances motivation and improves labour productivity. Therefore, the construction industry may emphasise improving motivation by implementing social compliance policies and practices to enhance motivation and improves labour productivity. The developed framework is a conceptual motivational framework to improve construction labour productivity in the U.K. The previous studies in the construction industry failed to establish that socially compliance with the motivational factors in company policies and practices enhances motivation and improves labour productivity and

understanding of the relationship between social compliance, motivation, and productivity. In this study, 49 motivational factors influencing labour productivity from construction and other industries articles are examined by bringing them together in four groups based on the motivation theories, and the past studies' classifications constituted organisational, economic, physical, and physiological / socio-psychological factors. The grouping is to determine the most influential group among them statistically later on-site and determine which factors most significantly influence labour productivity. Each of these groupings interacts and influences one another, providing a harmonised compliance which enhances motivation and productivity. The factor groupings can be used separately to enhance motivation; together, will increase productivity. The groupings for this framework below, adapted from Kazaz et al. (2008), are the most cited groupings that relate to the current research work derived by Vroom (1964).

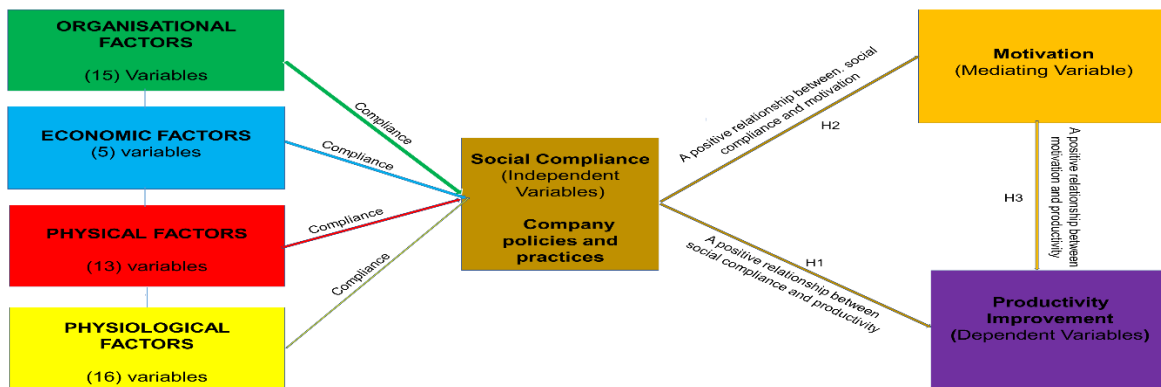


Figure 1.1. Proposed Conceptual Motivational and Productivity Framework

2.2.1 Organisational factors

An organisational environment refers to how work is organised, the culture of the organisation, and the nature of the leadership (Hoel and Salin, 2003). Productivity improvement has a link with the quality of management. What dictates a site to be productive is to what degree the management understands labour productivity and how it can positively influence it. The organisational factors have been explored to understand the role of organisations and their effect on motivation. There is much evidence in the past on the importance of motivation and its impact on labour productivity. The study identified 15 organisational motivation factors from previous articles. Socially compliance by incorporating these factors into company policies and practices will enhance motivation, as indicated in the framework. Combining these factors with economic, physical, and physiological factors will enhance motivation leading to high productivity. Table 1.1 detailed organisational motivation factors to be tested later on site.

Table 1.1. Organizational Motivational Factors

Item	Organisational motivation factors	Articles
1	Motivating workplace climates / work environment away from physical distractions)	(Aiyetan and Olotuah, 2006; Ogunlana and Chang, 1998; Alaghbari <i>et al.</i> , 2019; Doloi, 2007; Eze <i>et al.</i> , 2020; Ohueri <i>et al.</i> , 2018; Venkatesan <i>et al.</i> , 2009; Borcherding and Garner, 1981; Norbu and Wetprasit, 2021; Chandrasekar, 2011; Cherian and Jacob, 2013; Vavra <i>et al.</i> , 2021; Liu <i>et al.</i> , 2021; Njambi, 2014; Andrew-Martin, 2005; Lindner, 1998; Olcer, 2005)
2	Supervision approach / supportive environment	(Kazaz <i>et al.</i> , 2008; Ogunlana and Chang, 1998; Jarkas and Radosavljevic, 2013; AlAbbadi, 2020; Eze <i>et al.</i> , 2020; Hamza <i>et al.</i> , 2019; Ailabouni <i>et al.</i> , 2007; Hickson and Ellis, 2014; Jarkas <i>et al.</i> , 2015; Mahamid <i>et al.</i> , 2013; Gbate <i>et al.</i> , 2016; Rakib <i>et al.</i> , 2020; Afolabi <i>et al.</i> , 2018; Chandrasekar, 2011; Abukhait and Pillai, 2017; Lorincová <i>et al.</i> , 2019)
3	Training and employee well-being (orientation programme, learning environment, growth in job)	(Kazaz <i>et al.</i> , 2008; Ogunlana and Chang, 1998; Khan <i>et al.</i> , 2013; AlAbbadi and Agyekum-Mensah, 2019; Eze <i>et al.</i> , 2020; Ohueri <i>et al.</i> , 2018; Chandrasekar, 2011; Cherian and Jacob, 2013; Pratheepkanth, 2011; Abukhait and Pillai, 2017; Suryani <i>et al.</i> , 2020; Lorincová <i>et al.</i> , 2019; Olcer, 2005)
4	Material management (availability/shortage)	(Kazaz <i>et al.</i> , 2008; Jarkas and Radosavljevic, 2013; Alaghbari <i>et al.</i> , 2019; AlAbbadi, 2020; Jarkas <i>et al.</i> , 2014; Eze <i>et al.</i> , 2020; Hamza <i>et al.</i> , 2019; Shan <i>et al.</i> , 2016; Dai and Goodrum, 2011; Borcherding and Garner, 1981; Gbate <i>et al.</i> , 2016; Ugulu <i>et al.</i> , 2019; Rakib <i>et al.</i> , 2020; Afolabi <i>et al.</i> , 2018; Chandrasekar, 2011)
5	Schedule and requests delays /clear work schedule	(Hiyassat <i>et al.</i> , 2016; AlAbbadi, 2020; Jarkas <i>et al.</i> , 2014; Jalal and Shoar, 2019; Shan <i>et al.</i> , 2016; Dai and Goodrum, 2011; Hickson and Ellis, 2014; Mahamid <i>et al.</i> , 2013; Jarkas <i>et al.</i> , 2015; Rakib <i>et al.</i> , 2020; Afolabi <i>et al.</i> , 2018; Lorincová <i>et al.</i> , 2019)
6	Clear communication between workers and management, motivational communication	(Ogunlana and Chang, 1998; Hiyassat <i>et al.</i> , 2016; Jesumoroti and Draai, 2021; Eze <i>et al.</i> , 2020; Venkatesan <i>et al.</i> , 2009; Hamza <i>et al.</i> , 2019; Naoum, 2016; Hickson and Ellis, 2014; Mahamid <i>et al.</i> , 2013; Noah and Steve, 2012; Lorincová <i>et al.</i> , 2019)
7	Leadership style of site managt / Authoritarian versus authoritative style, positive leadership)	(Alaghbari <i>et al.</i> , 2019; Eze <i>et al.</i> , 2020; Shan <i>et al.</i> , 2016; Dai and Goodrum, 2011; Hickson and Ellis, 2014; Mahamid <i>et al.</i> , 2013; Ameh and Shokumbi, 2013; Noah and Steve, 2012; Nasr <i>et al.</i> , 2020; Andrew-Martin, 2005)
8	Appropriate welfare facilities	(Kazaz and Acikara, 2015; Ugulu <i>et al.</i> , 2019; Afolabi <i>et al.</i> , 2018; Chandrasekar, 2011)
9	Company's policy, corporate image, name/mission	(Aiyetan and Olotuah, 2006; Venkatesan <i>et al.</i> , 2009; Vavra <i>et al.</i> , 2021; Lorincová <i>et al.</i> , 2019)
10	Change order's / reduction of instruction changes	(Ogunlana and Chang, 1998; Jarkas and Radosavljevic, 2013; Jarkas <i>et al.</i> , 2014; Jarkas <i>et al.</i> , 2015; Mahamid <i>et al.</i> , 2013)
11	Availability of tools/equipment to carry out the work	(Shan <i>et al.</i> , 2016; Dai and Goodrum, 2011; Borcherding and Garner, 1981; Rakib <i>et al.</i> , 2020; Afolabi <i>et al.</i> , 2018)
12	Availability of logistics, Job aids and templates	(Alaghbari <i>et al.</i> , 2019; Eze <i>et al.</i> , 2020; Chandrasekar, 2011; Hossain and Roy, 2016)
13	Weather conditions / climate	(Hiyassat <i>et al.</i> , 2016; Hickson and Ellis, 2014; Jarkas <i>et al.</i> , 2015)
14	Site Conditions / layout	(Khan <i>et al.</i> , 2013; Gbate <i>et al.</i> , 2016; Chandrasekar, 2011)
15	Clarity and completeness of technical spec	(Alaghbari <i>et al.</i> , 2019; Jarkas <i>et al.</i> , 2014; Jarkas <i>et al.</i> , 2015)

2.2.2 Economic factors

The construction industry plays a vital role and affects every country's GDP. The industry contributes to the economy by about 6–10% on average in many countries, promotes growth employment, and acts as a linkage between other industries and the economy (Dixit *et al.*, 2017; Alaghbari *et al.*, 2019; AlAbbadi, 2020). The construction industry in 2018 contributed £117 billion to the U.K. economy, representing 6% of the total economic output (Rhodes, 2019). Productivity improvement is the need of the hour which in this study leads to improved skilled labour shortage, project delays, high construction costs, and low productivity growth. The study identified four major economic motivation factors from previous articles. Socially compliance by incorporating these factors into company policies and practices could enhance motivation. Combining these factors with the organisational, physical, and socio-psychological factors will give higher motivation leading to high productivity. Table 1.2 details economic motivation factors that influence labour productivity to be tested later on the construction site.

Table 1.2. Economic Motivational Factors

Item	Economic Motivational Factors	Articles
1	Financial package (Incentive payments / Pay on time / Payment delay / Lack of income / salary-related, payment method, contractor's financial condition, Overtime Payment, Commission / sharing profit, Bonus / Holiday abroad with pay)	(Aiyetan and Olotuah, 2006; Kazaz <i>et al.</i> , 2008; Jarkas and Radosavljevic, 2013; Khan <i>et al.</i> , 2013; Zakeri <i>et al.</i> , 1997; Kaming <i>et al.</i> , 1998; Hiyassat <i>et al.</i> , 2016; AlAbbadi and Agyekum-Mensah, 2019; AlAbbadi, 2020; Jarkas <i>et al.</i> , 2014; Eze <i>et al.</i> , 2020; Gichunge and Musungu, 2010; Widanagamacchi, 2015; Ohueri <i>et al.</i> , 2018; Kazaz and Acikara, 2015; Ailabouni <i>et al.</i> , 2007; Jarkas <i>et al.</i> , 2015; Hickson and Ellis, 2014; Mahamid <i>et al.</i> , 2013; Afolabi <i>et al.</i> , 2018; Ameh and Shokumbi, 2013; Norbu and Wetprasit, 2021; Chandrasekar, 2011; Zameer <i>et al.</i> , 2014; Noah and Steve, 2012; Samuel and Chipunza, 2009; Pratheepkanth, 2011; Abukhait and Pillai, 2017; Sanpakdee <i>et al.</i> , 2019; Vavra <i>et al.</i> , 2021; Lorincová <i>et al.</i> , 2019; Nasr <i>et al.</i> , 2020; Njambi, 2014; Hossain and Roy, 2016; Parvin and Kabir, 2011; Lindner, 1998; Olcer, 2005)
2	Fringe Benefits (non-wage or salary), provision of transport, telephone services, social Insurance and free medical facilities	(Aiyetan and Olotuah, 2006; Ogunlana and Chang, 1998; Gichunge and Musungu, 2010; Kazaz and Acikara, 2015; Shan <i>et al.</i> , 2016; Dai and Goodrum, 2011; Afolabi <i>et al.</i> , 2018; Ameh and Shokumbi, 2013; Lorincová <i>et al.</i> , 2019; Njambi, 2014; Hossain and Roy, 2016)
3	Job security	(Ogunlana and Chang, 1998; Eze <i>et al.</i> , 2020; Gichunge and Musungu, 2010; Zameer <i>et al.</i> , 2014; Samuel and Chipunza, 2009; Lorincová <i>et al.</i> , 2019; Lindner, 1998; Olcer, 2005; Hossain and Roy, 2016)
4	Promotions	(Aiyetan and Olotuah, 2006; Zakeri <i>et al.</i> , 1997; Eze <i>et al.</i> , 2020; Ugulu <i>et al.</i> , 2019; Lindner, 1998; Samuel and Chipunza, 2009; Pratheepkanth, 2011)
5	Retirement benefits	(Widanagamacchi, 2015; Samuel and Chipunza, 2009; Vavra <i>et al.</i> , 2021)

2.2.3 Physical factors

The physical factors refer to the work itself, decent and respectful job, interest in work and many others detailed in table 1.3. The study identified 13 physical motivation factors from previous articles. As indicated in the framework, socially compliance by incorporating these factors into company policies and practices will enhance motivation. Combining these factors with the organisational, economic, and socio-psychological factors will give higher motivation

leading to higher productivity. Table 1.3 details physical motivation factors that influence labour productivity to be tested later on the construction site.

Table 1.3. Physical Motivational Factors

Item	Physical Motivational Factors	Articles
1	Work itself, interest in work / Decent and respectful job / type of work	(Aiyetan and Olotuah, 2006; Zakeri <i>et al.</i> , 1997; AlAbbadi and Agyekum-Mensah, 2019; Venkatesan <i>et al.</i> , 2009; Momade and Hainin, 2019; Pratheepkanth, 2011; Lorincová <i>et al.</i> , 2019; Njambi, 2014; Lindner, 1998)
2	Less repetition of work-reduced rework	(Ogunlana and Chang, 1998; Jarkas <i>et al.</i> , 2014; Eze <i>et al.</i> , 2020; Borcherding and Garner, 1981; Jarkas <i>et al.</i> , 2015)
3	Flexible working arrangement or hours / Shift systems	(Chandrasekar, 2011; Samuel and Chipunza, 2009; Abukhait and Pillai, 2017; Lorincová <i>et al.</i> , 2019; Parvin and Kabir, 2011)
4	Job enlargement and work rotation	(Kazaz <i>et al.</i> , 2008; Khan <i>et al.</i> , 2013; Andrew-Martin, 2005; Alam and Alias, 2018; Hossain and Roy, 2016)
5	Temporary nature of the job	(Doloi, 2007; Widanagamachchi, 2015; Jang <i>et al.</i> , 2011)
6	Work discipline (Early quit and unscheduled breaks)	(Kazaz <i>et al.</i> , 2008; Hickson and Ellis, 2014; Lindner, 1998)
7	Hard work or physical effort at work / and personal bests	(Widanagamachchi, 2015; Lorincová <i>et al.</i> , 2019; Andrew-Martin, 2005)
8	Fatigue / Under utilisations of skill	(Ogunlana and Chang, 1998; Jalal and Shoar, 2019; Jarkas <i>et al.</i> , 2015)
9	Exact definitions of tasks / Job content / job assignment	(Chandrasekar, 2011; Cherian and Jacob, 2013; Abukhait and Pillai, 2017)
10	Commitment and loyalty	(Hiyassat <i>et al.</i> , 2016; Noah and Steve, 2012; Lindner, 1998)
11	Appropriate works with labour skills / context of task	(Cherian and Jacob, 2013; Olcer, 2005)
12	Performance feedback information	(Chandrasekar 2011; Lorincová <i>et al.</i> , (2019)
13	Working at similar activities	(Kazaz <i>et al.</i> , 2008)

2.2.4 Physiological / Socio-psychological factors

Psychosocial factors, such as stress, have been linked to specific outcomes related to performance and health, such as job dissatisfaction, anxiety and depression among management and labour. The physiological needs include the basic needs required for any person's survival (Maslow, 1943). In this framework, the psychosocial factors refer to the relationship between workmates and management, work recognition, participation in decision-making, and many others, detailed in table 1.4. The study identified 16 psychosocial motivation factors from previous articles. Socially compliance by incorporating these factors into company policies and practices will enhance motivation. Combining these factors with organisational, economic, and physical factors will give higher motivation leading to high productivity. Table 1.4 detailed psychosocial motivation factors that influence labour productivity to be tested later on site.

Since the construction industry in the U.K. is labour-intensive, developing a motivational framework to enhance labour productivity is imperative. The theoretical review has led to understanding these factors that have led to the development of the conceptual motivational framework to enhance labour motivation and improve labour productivity. The motivational factor groupings such as organisational, economic, physical, and physiological / socio-psychological factors (social compliance) work as an independent variable, labour productivity as the dependent variable and motivation as mediating variable. From the theoretical development of the existing articles, it has been established that motivation mediates the relationship between social compliance and labour productivity. The next level is to empirically test the framework on construction sites to establish whether this is the case or otherwise to provide a better understanding of these variables for practising in the construction industry during decision-making to improve labour productivity by the management.

Table 1.4. Socio-Psychological Motivational Factors

Item	Socio-psychological Motivation Factors	Articles
1	Relationship among workmates and management	(Aiyetan and Olotuah, 2006; Ogunlana and Chang, 1998; Zakeri <i>et al.</i> , 1997; Yisa <i>et al.</i> , 2000; Kaming <i>et al.</i> , 1998; AlAbbadi and Agyekum-Mensah, 2019; Venkatesan <i>et al.</i> , 2009; Jarkas <i>et al.</i> , 2015; Mahamid <i>et al.</i> , 2013; Afolabi <i>et al.</i> , 2018; Samuel and Chipunza, 2009; Olcer, 2005)
2	Work Recognition	Aiyetan and Olotuah, 2006; Ogunlana and Chang, 1998; Zakeri <i>et al.</i> , 1997; Yisa <i>et al.</i> , 2000; Eze <i>et al.</i> , 2020;Widanagamachchi, 2015; Momade and Hainin, 2019; Norbu and Wetprasit, 2021; Samuel and Chipunza, 2009; Lorincová <i>et al.</i> , 2019; Njambi, 2014; Hossain and Roy, 2016)
3	Health and safety conditions (health care / personal protective equipment/Good safety regulations)	(Aiyetan and Olotuah, 2006; Ogunlana and Chang, 1998;Kaming <i>et al.</i> , 1998; Eze <i>et al.</i> , 2020; Kazaz and Acikara, 2015; Jang <i>et al.</i> , 2011; Ghate <i>et al.</i> , 2016; Ugulu <i>et al.</i> , 2019; Ameh and Shokumbi, 2013; Chandrasekar, 2011; Samuel and Chipunza, 2009; Vavra <i>et al.</i> , 2021)
4	Participation in decision making, love and sense of belonging	(Ogunlana and Chang, 1998;Yisa <i>et al.</i> , 2000; AlAbbadi and Agyekum-Mensah, 2019; Jarkas <i>et al.</i> , 2014; Momade and Hainin 2019; Ameh and Shokumbi, 2013; Samuel and Chipunza, 2009; Sanpakdee <i>et al.</i> , 2019; Lorincová <i>et al.</i> , 2019)
5	Challenging tasks / Job enrichment	(Ogunlana and Chang, 1998; AlAbbadi and Agyekum-Mensah, 2019; Eze <i>et al.</i> , 2020; Cherian and Jacob, 2013; Zameer <i>et al.</i> , 2014; Samuel and Chipunza, 2009; Pratheepkanth, 2011; Alam and Alias 2018; Hossain and Roy, 2016)
6	Level of skill availability, experience, and competence	(Ogunlana and Chang, 1998; Alaghbari <i>et al.</i> , 2019; Eze <i>et al.</i> , 2020; Hamza <i>et al.</i> , 2019; Naoum, 2016; Ailabouni <i>et al.</i> , 2007; Mahamid <i>et al.</i> , 2013; Ghate <i>et al.</i> , 2016; Rakib <i>et al.</i> , 2020)
7	Achievement / feelings of accomplishment	(Aiyetan and Olotuah, 2006; AlAbbadi, 2020; Oheri <i>et al.</i> , 2018; Johari and Jha, 2020; Venkatesan <i>et al.</i> , 2009; Momade and Hainin, 2019; Nasr <i>et al.</i> , 2020; Njambi, 2014)
8	High responsibility job / empowerment	(Aiyetan and Olotuah, 2006; Yisa <i>et al.</i> , 2000; AlAbbadi and Agyekum-Mensah, 2019; Norbu and Wetprasit, 2021; Pratheepkanth, 2011; Njambi, 2014;)
9	Fair treatment / equal opportunity	(Venkatesan <i>et al.</i> , 2009; Vavra <i>et al.</i> , 2021; Parvin and Kabir, 2011; Lorincová <i>et al.</i> , (2019; Hossain and Roy, 2016)
10	Team Spirit / teamwork	(Hiyassat <i>et al.</i> , 2016; Eze <i>et al.</i> , 2020; Cherian and Jacob, 2013; Lorincová <i>et al.</i> , 2019; Olcer, 2005)
11	Gaining respect / Prestige / Status	(Johari and Jha, 2020; Pratheepkanth, 2011; Lorincová <i>et al.</i> , (2019)
12	Work appreciation	(AlAbbadi and Agyekum-Mensah, 2019; Njambi, 2014; Lindner,1998; Olcer, 2005)
13	Work autonomy / freedom for innovative thinking	(Samuel and Chipunza, 2009; Vavra <i>et al.</i> , 2021)
14	Psychological stress /Negative thoughts	(Cherian and Jacob, 2013)
15	Work satisfaction (role congruity - agreement or harmony)	(Chandrasekar, 2011; Nasr <i>et al.</i> , 2020)
16	Setting job performance target	(Samuel and Chipunza, 2009; Lorincová <i>et al.</i> , 2019)

2.3 Motivation

Motivation is a process which activates productivity. Motivated labour is highly productive and enhances additional value to the company. Griffin and Moorhead (2011), cited in AlAbbadi (2020), describe motivation as a force that causes a person to engage in a particular behaviour. Motivational factors differ; therefore, labour is motivated by different motivators (Lunsford, 2009). There are two types of motivation, intrinsic and extrinsic. Intrinsic motivation is by performing tasks that lead to a feeling of satisfaction, as detailed in Herzberg’s two-factor motivation-hygiene theory (1966 cited in AlAbbadi, 2020). Conversely, effective incentives achieve extrinsic motivation (Herzberg, 1966; Deci and Ryan, 1975). Extrinsic motivators consist of financial reward-salary, bonuses, and benefits. Labour is extrinsically motivated when involved in achieving goals apart from work itself. Labour is intrinsically motivated when seeking self-expression, satisfaction, challenging work, enjoyment, or exciting work. It can be a driving force or desire that performs a job without external incentive (Herzberg, 1966; Islam *et al.*, 2018). Identifying motivational factors to incorporate them into company policy and practices for compliance could be challenging where many factors are involved. What motivates one labour will not necessarily motivate the other; hence, this study focused on motivational factors that influence labour productivity on construction sites in the U.K. to establish the link that motivation has with social compliance and labour productivity.

2.4 Labour Productivity

There are many definitions for productivity; however, they all broadly say the same thing. It is the input and output, where output implies the product produced and input implies resources such as capital, labour and materials consumed to produce the outputs (Saha and Mazumder, 2015). Productivity is the efficient use of resources in manufacturing goods. An empirical technique, productivity, is an economic concept defined as a ratio of the volume measure of outputs to a ratio volume measure of inputs (Yi and Chan, 2014; Hiyassat *et al.*, 2016). Construction companies depend on both inputs and outputs to complete projects successfully. The industry needs various inputs to generate a value-driven output (Too and Weaver, 2014). The combination of labour, material, equipment, capital, and technology are the inputs that drive construction companies to generate outputs (Saha and Mazumder, 2015; Ying, 2004). The primary resource or input for producing the optimum value of productivity in the construction industry is labour (Jarkas, 2010; Kisi *et al.*, 2017). labour input is one of the fundamental inputs

practitioners of labour-intensive industries use to generate an efficient and value-driven output (Jarkas, 2012; Swies *et al.*, 2013). Despite the advancement of technology in order industries, the construction industry remains labour-intensive (Jarkas *et al.*, 2014). The construction industry is naturally labour-intensive (Yi and Chan, 2014; Ghoddousi *et al.*, 2014). Because of the labour-intensive nature of the industry, labour is an essential productive resource. However, the measurement of labour productivity is one way to evaluate and assess the overall performance of the construction industry (Hwang and Soh, 2013). The study shows the value of gross output per work, referred to as man-hour or work hour (Yates and Guhathakurta, 1993). The simplest way to measure construction productivity is to compare the estimated labour per hour and cost per hour. In many countries, construction labour costs account for about 30% to 60% of the total project costs (Fayek, 2011; Jarkas and Radosavljevic, 2013). Because the construction industry is labour-intensive, labour productivity is vital to the industry's success. Therefore, focusing on labour productivity is essential for higher levels of successful project completion (Jarkas, 2012). For these reasons, coupled with the lack of capital investment for the automation of construction activities, the study focuses on labour productivity to improve skilled labour shortage, project delays, high construction costs, and low productivity growth. The developed framework establishes how social compliance and motivation improve construction labour productivity.

2.5 Assessing the Relationship Between Motivation and Labour Productivity

The relationship between motivation and labour productivity has been established. However, the earlier studies could not confirm a direct connection. Motivation and labour productivity are related, and motivation is the cause of the performance of labour (Petty *et al.*, 1984; Olusadum and Anulika, 2018). Satisfaction occurs when motivators exist at work that increases motivation (Herzberg, 1959). Therefore, labour productivity depends on motivation (Khan *et al.*, 2012; Dina and Olowosoke, 2018). Lack of motivation negatively influenced productivity (Jalal and Shoar, 2019). If labour is motivated, they perform with higher determination, which increases productivity (Ajalie, 2017). Labour's level of motivation can be intrinsically and extrinsically based. Positive job characteristics are essential in forming the relationship between motivation and labour productivity (Hackman and Oldham, 1976). For instance, when specific work features are present in the company, labour is well-motivated to improve productivity. Job characteristics involve particular attributes and dimensions that explain various tasks (Griffin *et al.*, 1981). The five job characteristics are from (Maslow's 1943, Alderfer's 1972) self-actualisation and growth need theories, and Two-Factor Theory from Herzberg 1959 (Hackman and Oldham, 1976). These job characteristics are feedback, skill variety, identity, task significance, and job autonomy. The labour scoring high on the five characteristics shows high work motivation, satisfaction, and productivity (Brass, 1981). Therefore, the theoretical development confirmed that motivation is linked with productivity (Jalal and Shoar, 2019; Johari and Jha, 2020). The enhancement of motivation leads to higher productivity. From the theoretical review, productivity is dependent on motivation and hypothesised that:

H3: There is a positive relationship between labour motivation and labour productivity.

2.6 Assessing the Relationship Between Social Compliance and Motivation

Motivated labour is highly productive and enhances value to the company. The motivational factors that could improve the companies' value differ in many countries, and individuals are motivated by different motivators (Lunsford, 2009; Vroom, 1964 cited in Alabbadi, 2020). The essential way to motivate labour is to uphold social compliance (Razzaue and Eusuf, 2007;

Alam and Alias, 2018). Social compliance in this study is the motivational factor incorporated into company policy and practices. Labour is motivated by social compliance factors such as better wages, timely payment, non-discrimination, hygienic welfare facilities, medical facilities, and a suitable working environment (Baral, 2010; Ferdous, 2015). Implementing social compliance policy of motivational factors could motivate labour on construction sites. And that enhancement of social compliance could lead to higher motivation. From the theoretical review, motivation is dependent on social compliance and hypothesised that:

H2: There is a positive relationship between social compliance and labour motivation.

2.7 Assessing the Relationship Between Social Compliance and Labour Productivity

In the construction industry, labour is likely to feel associated when supported by the company. Labour involves themselves intensely with their company when associated with welfare facilities (Glavas and Godwin, 2013). Companies engaged in social compliance policies and practices earn a positive image and attract skilled labour (Umeokafor *et al.*, 2014). Therefore, a company can improve its trustworthiness amongst labour, reflected in higher productivity through better social compliance. Previous studies have provided theoretical claims for positive relationships between social compliance and labour productivity (Siegel, 2009). Social compliance contributes to the foundation by positively influencing a company's associations with its labour (Perrini *et al.*, 2009). Therefore, improved social compliance enhances trustworthiness and reinforces the relationships with labour which could improve skilled labour shortages, project delays, high construction costs, and low productivity growth. Implementing social compliance in the construction industry may have expenses; it could enhance motivation and labour productivity. Furthermore, the enhancement of social compliance could lead to higher productivity. Thus, from the theoretical development, it is hypothesised that:

H1: There is a positive relationship between labour productivity and social compliance.

2.8 Relationship Between Motivation, Social Compliance and Labour Productivity

Good social compliance motivates labour towards higher productivity. The availability of social compliance could intensify motivation and increase labour productivity (Alam and Alias, 2018). A strong relationship between a positive work environment and labour productivity has been established (Battisti and Iona, 2006). Labour become motivated when they find their rights are protected. Social compliance ensures that all labour rights and practices are adhered to (Fukunishi and Yamagata, 2013). Improving labour productivity and high wages raised living standards, motivating labour to work more (Fukunishi and Yamagata, 2013). Enhancement of social compliance leads to higher motivation and productivity. Social compliance, motivation, and labour productivity are related. Motivation and productivity depend on social compliance, while motivation mediates social compliance and productivity. Thus, it hypothesised that:

H4: Motivation mediates the relationship between social compliance and labour productivity.

3 Research Methodology

This research study adopts pragmatism philosophy because pragmatism recognises that there are several methods of interpreting reality and conducting research and that no single view could give the whole picture. This study is essential for a pragmatistic philosophy combining

positivism and interpretivism (Farrell, 2016). Unlike positivism, critical realism or interpretivism, pragmatism philosophy combined quantitative and qualitative methodology in this study to achieve the desired outcome (Bryman and Bell, 2013; Creswell and Clark, 2011).

3.1 Research Design

The research design consists of four main stages; 1) the literature review to gain secondary data on motivational factors that influence labour productivity, 2) a questionnaire survey to get opinions on motivational factors that influence labour productivity in the UK construction sites, 3) conceptual motivation framework is tested based on the opinions of the respondents and 4) semi-structured interview to validate the workability of the conceptual framework. The study developed a thorough flow diagram figure 1.2 that describes the research process. The review process was governed by search and selection criteria adopted by Sadiq et al. (2021) that helped arrive at the most pertinent research works and established the gap. The data collection methods for this study include quantitative and qualitative techniques.

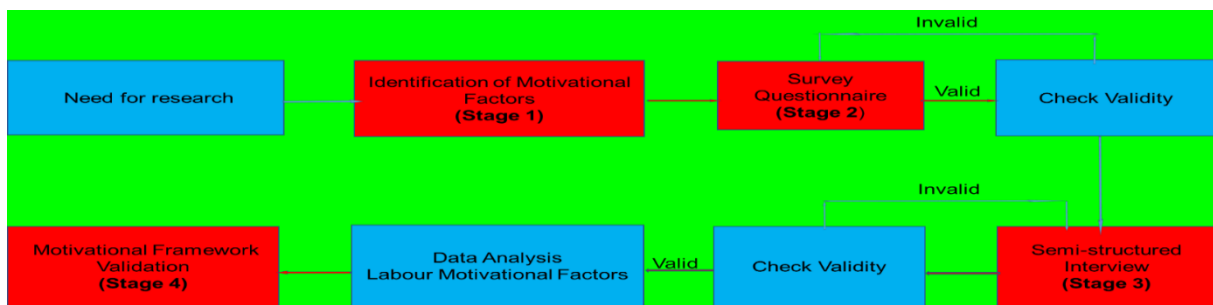


Figure 1.2. Proposed Research Flow Diagram

The U.K. projects use minimal advanced technologies with a variety of skilled labour intensive, which account for the accuracy of data collection for this study. The sampled population are skilled and unskilled labours: Labour is because they are physically and directly involved in executing works on site. Additional samples are the experience site management who oversee the labour tasks. This set of workers plays a supervisory role in skilled and unskilled labour. A mixed research design method is proposed for this study, using quantitative and qualitative data collection to understand the depth and breadth of motivation and productivity (Patton, 2002; Creswell and Clark, 2011). The study proposed a survey questionnaire for quantitative and semi-structured interviews for qualitative data collection. The semi-structured interview is proposed to gather data from experienced site management teams to validate the framework's workability. A web and a self-administered survey for skilled and unskilled labours are proposed for quantitative data collection. Criteria for selecting respondents are set to ensure quality data and reduce bias. The respondents must have at least 5years of work experience, have been involved in the execution of at least two projects and be currently involved in an active site (Spradley, 1979; Eze et al., 2020). A pilot study tests the research instruments to ensure internal reliability and consistency. A Cronbach's alpha is proposed for all factors identified (Ohueri et al., 2018). Factor analysis is a relatively straightforward technique and is psychometrically appropriate to adopt. Factor analysis will examine how the variables would group into related factors and reduce data (Pallant, 2007; Eze et al., 2020).

4 Findings and Discussion

The theoretical review findings are that upholding social compliance is essential to motivate labour. And that motivation influences labour productivity (Kazzaz et al., 2008). Social

compliance positively influences motivation (Van-Woerkom and Meyers, 2015). The conceptual framework provides a clear understanding of motivation and the relationship between social compliance and labour productivity. The theoretical development suggests a positive relationship between motivation, social compliance, and labour productivity and that motivation mediates the relationship between social compliance and labour productivity.

5 Conclusion and Further Research

The theoretical review developed a conceptual motivational framework to improve labour productivity which will be tested later on the construction site. The framework shows the importance of social compliance and how compliance drives motivation, which drives productivity. The framework explains labour motivation and how it mediates between social compliance and labour productivity. This framework will encourage the construction management team to implement social compliance in the workplace to improve labour productivity. Implementation of social compliance could lead to improved skilled labour shortage, project delays, high construction costs, and low productivity growth. The improvement in labour productivity allows more money for labour. Improving labour productivity and high wages raised living standards, motivating labour to work more. The framework will give a tremendous advantage to U.K. construction companies when competing against others in practice for decision-making. The study critically examined the role of motivation in the relationship between social compliance and labour productivity. The next stage in this study is to empirically test the framework on the construction site in the U.K.

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