Contribution of women managers towards construction industry development: Methodological perspectives

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Abstract

This paper endeavours to explain the methodology for researching the contribution of women managers to the construction industry development. The research is concerned with gender segregation in the industry and its impact on skills shortages. It further identifies how an increased number of women managers in the construction industry will help to change the gender segregation pattern and how this may contribute to the development of the industry by resolving the problems within it. This paper therefore mainly focuses on the research methodology that has been adopted in this research. Justifications are made for the most appropriate choice of methodology in terms of its philosophy, strategy and techniques. This paper further elaborates the chosen methodology, by explaining the data collection and analysis techniques, the research design and the design tests.

Keywords: Research philosophy, Research strategy, Research techniques, Research design, Research tactics.

1. Introduction

A research, in simple terms, is defined as something that people undertake in order to find out things in a systematic way, thereby increasing their knowledge [1, p.3]. The overall research process contains several activities such as topic selection, literature review, scoping, choice of research methodology, data collection, data analysis, provide findings and drawing conclusions. The appropriate selection of research methodology is very important in order to achieve valid and reliable findings. Thus, the choice of methodology plays a vital role in the overall research process. This paper endeavours to justify and explain the methodology for researching the contribution of women managers towards the construction industry development. The first section provides the overview of the study within which the background, research problem, aim, and research questions are briefly discussed. The next section justifies the selection of
appropriate methodology followed by a further elaboration on the chosen methodology including the design tests.

2. Overview of the study

This section provides an overview of the research study. Before deciding the methodology it is important to understand the subject area as it will help us to choose the appropriate methodology. In this context, the background for the study, research problem, aim, research questions, focus of the research and the conceptual framework are detailed in this section.

2.1 Background for the study

Construction in the UK is one of the pillars of the economy. UK construction at its best, including its capability to deliver the most difficult and innovative projects, matches that of any other construction industry in the world [2]. Nonetheless, there is a deep concern that the industry as a whole is under achieving. It needs to modernise in order to tackle the severe problems such as low and unreliable rates of profitability, little investment in research and development, crisis in training, dissatisfaction among clients, and fragmented culture [2, 3]. With all these, the shortage of people with the technical and managerial skills to fully utilise the new technologies has been a problem in the construction industry for many years [2, 4, 5]. This skill and labour demand may be a threat to the long term growth of the industry and it may also challenge the industry’s capability to deliver the projects on time, within budget and of the desired quality. Gender segregation within the construction industry could also be seen as a problem as it restricts individual’s choices. This gender segregation damages the UK’s economy by contributing to skills shortages and to the gender pay gap [6].

Although, the issue regarding the lack of women in construction has been a concern for many years, it has been made more prominent due to the potential skills shortage facing the industry. The constant reliance on a limited recruitment base, disadvantages the industry by disregarding half the population and the diversity of skills these people have to offer. By restricting the possible workforce, the industry is limiting the choice of applicants, which in turn may lead to the recruitment of lower quality employees. Currently, construction employers recruit and rely increasingly on workers from overseas, either inside or outside the European Economic Area (EEA) giving rise to immigration issues and an increasingly diverse labour force [7]. Increasing the number of women in the construction workforce may also contribute to solving the skills and labour shortage problems. Davey et al. [8] identify that increasing the number of women working in construction may go some way to improving the current status of the industry, firstly by utilising the full range of skills available in the population, and secondly by assisting construction organisations to become more efficient and adaptable to the needs of its customers. Women are of benefit to construction organisations because they are, by nature, good with people, less confrontational and are more likely to listen to the opinions of others, which will be beneficial when dealing with clients [9]. More women working in construction will improve the industry’s image and will go towards improving the current skills shortage by also aiding the recruitment of other under represented groups, not just women [10].
The low number of women in the construction industry illustrates the under utilisation of human resources based on gender patterns. As per the CITB [11], women account for 9% of the construction workforce, of which 84% hold secretarial posts, 10% are employed in a professional capacity in design and management areas and the rest are craft and trade level employees. In this regard, women who really perform construction specific jobs fall under either managerial jobs or craft and trade level jobs. The under-representation of women in managerial positions may discourage potential female candidates who want to choose a career in construction by limiting the number of role models. It may also be a challenge to convince employers to consider the recruitment or promotion of women in the industry. Women gaining managerial positions will be a clear evidence to show that their career progression occurs in construction. Their presence in managerial positions is one of the most effective ways of ensuring their participation in decision-making. Thus, having more women managers will provide much inspiration for young girls interested in construction careers, reduce some of the barriers associated with recruitment practices and improve the culture in the long run. Further, women’s characteristics may be used to tackle the problems in the industry as they possess more diverse skills than the traditional male workforce.

### 2.2 Research problem

The background of this study highlighted the problems in the construction industry and indicated the importance of having more women, and women managers in particular. These two concepts can be combined to investigate the ways women managers can contribute towards the construction industry’s development by tackling the problems that the industry faces. Organisations have paid attention to the leadership styles of the people who occupy managerial positions, holding the belief that leadership is an important factor in achieving business success [12]. One of the major issues raised by Egan [2] is the shortage of people at top management level with the commitment to being best in class and with the right balance of technical and leadership skills to manage their business accordingly. The real issue in leadership differences lies in the equity in selecting the right person with the appropriate skills and qualities to ensure the effectiveness and success of the organisation [13]. A very recent article by Stevens [14] proposes a leader-manager model as the effective one for construction. He believes the leader-manager skill is the new driver in the industry, as the reality of the construction industry demands dual roles. Thus, he concludes that in order to better serve the construction industry the leadership role is to be redefined as having a business management component. In view of that, the contribution of managers can hardly be studied without considering the leadership component. In this context the leadership component has been identified as the primary area to be studied. The following sub-section provides the aim, objectives and the research questions of the research.

### 2.3 Aim and the research questions

The aim of this research is to explore and investigate the ways in which the leadership styles of women managers may contribute to the UK construction industry’s development. To achieve this aim the following research questions have been formulated.
1. What are the characteristics of women managers?

2. What roles do women managers play in the construction industry?

3. What are the leadership styles exhibited by women managers in other sectors?

4. What are the leadership styles exhibited by women managers in the construction industry?

5. Whether or how may the leadership styles exhibited by women managers help to resolve the problems in the construction industry?

6. What benefits may women managers bring to the UK construction industry?

2.4 Research focus

Managers and professionals in industry can be categorised under four types as outlined below [9]. Women managers who fall under category 3 and 4 below will be taken into consideration for the purpose of this study.

1. Non management role: These positions are generally self-directed.

2. Supervisory role: These positions typically fulfil a supporting role to middle management.

3. Middle management role: These positions are mainly responsible for managing the whole process of a project and leading a project team.

4. Senior Management role: These positions are often the ones of power where company-wide decisions are made.

With an emphasis on leadership, the people recruited into construction, women managers in this case, need to demonstrate a strong base and offer the abilities that construction needs from them. Lack of empirical evidence on leadership styles of construction women managers shows the necessity to study it, in order to make a contribution to the existing body of knowledge. Hence, this research will focus on whether or how the leadership styles of women managers, at the top and middle level management in construction organisations, may contribute to the UK’s construction industry development. This in turn may highlight the necessity to have more women managers in the construction industry.

2.5 Conceptual framework

A conceptual framework explains, either graphically or in narrative form, the main things to be studied – the key factors, constructs or variables – and the presumed relationships among them.
The study aims to explore and investigate the ways the leadership styles of women managers may contribute to UK’s construction industry development. The primary objectives are to identify the characteristics and leadership styles typically exhibited by women managers and investigate the same in order to explore their contribution towards the development of the construction industry. It further identifies the appropriate leadership styles for construction women managers by learning lessons from other sectors. Figure 1 shows the conceptual framework of the study.

This section briefly introduced the research study. The following sections, which are the core of this paper, deal with the methodology that could tackle the above-mentioned research problem and could answer the formulated research questions.

### 3. The justification of the methodology selection

Research methodology refers to the overall approach to a problem which could be put into practice in a research process, from the theoretical underpinning to the collection and analysis of data [16, 17]. There are many factors that determine the most appropriate methodology. The topics to be researched and the specific research question are the primary drivers in the choice of methodology [17]. In order to choose the most appropriate one it is important to understand the philosophical underpinning of this research. This section, which comprises three sub-sections, justifies the choice of methodology adopted to this research. Firstly, the positioning of this research within the overall philosophical continuum is explained. Secondly, the reasons for the appropriateness of a particular approach are illustrated. Thirdly, the techniques to be used with the data collection and data analysis are discussed.

#### 3.1 Research philosophy

The basic beliefs about the world will be reflected in the way the research is designed, how the data is collected and analysed, and even the way in which the findings are presented. Therefore, it is important to recognise and understand the personal paradigm as this will determine the entire course of the research study undertaken [16]. The term paradigm refers to the progress of scientific practice based on people’s philosophies and assumptions about the world and the nature of knowledge [16].
The two contrasting views on how a research should be conducted can be labeled as positivism and social constructionism/phenomenology [18, 16, 17]. The key idea of positivism is that the social world exists externally, and that its properties should be measured through objective methods, rather than being inferred subjectively through sensation, reflection or intuition [18]. The positivist philosophical stance assumes that the researcher is independent of, and neither affects nor is affected by, the subject of the research [17]. Unlike the positivist, the phenomenologist does not consider the world to consist of an objective reality instead focuses primarily on subjective consciousness. Thus, the phenomenological paradigm assumes that the reality is not objective or external but is socially constructed and given meaning by people [18].

This research intends to explore and investigate the ways leadership styles of women managers may contribute to the UK’s construction industry development. Leadership characteristics and styles mean different things to different people [19] and the extent of women’s contribution towards industry development is highly subjective. Thus a socially constructed idea should be obtained in order to explore the contribution of leadership styles of women managers towards the construction industry development. In this context, it could be argued that this research takes the overall phenomenological stance.

The research philosophy that is adopted contains important assumptions about the way in which one views the world. These assumptions will underpin the research strategy and the methods a researcher chooses as part of that strategy [1]. The three major ways of thinking about research philosophy are ontology, epistemology and axiology [1, 16]. These ontological, epistemological and axiological assumptions are concerned with the nature of reality, the acceptable knowledge in the field of study and the values respectively. These three assumptions will help to position the research within the philosophical continuum.

### 3.1.1 Ontological assumption

Within the ontological assumption, the researcher must decide whether to consider the world is objective and external to the researcher or is socially constructed and only understood by examining the perceptions of human actors [16]. The first aspect is objectivism or realism and the second is subjectivism or nominalism [1, 20]. Within these two extremes the intended study could be positioned more towards the subjectivism because the perceptions of people in the society have a greater influence over the behaviour of leadership. Therefore the meanings given to leadership behaviour and the ideas on its effectiveness in addressing the problems in the construction industry are subjective. But this research does not take the extreme subjectivist view where there may be no social world apart from that which is inside the individual’s mind [16]. Thus it takes the ontological positioning where the social world is created by individuals, through language, actions and routines, and the meanings sustained through process of human actions and interactions.

### 3.1.2 Epistemological assumptions

The epistemology involves an examination of the relationship between the researcher and that which is being researched. On one hand, being a positivist the researcher is working with an
observable and measurable social reality by taking an independent and objective stance. The positivist assumes that there is a reality that exists independently of the observer and the job of the researcher is merely to find out this pre-existing reality. On the other hand, the social constructionist viewpoint does not assume any pre-existing reality; the aim of the researcher is to understand how people invent structures to help them make sense of what is going on around them [18]. Accordingly this research takes up the social constructionist viewpoint where it intends to find out how may the leadership qualities of women can contribute to the development of the construction industry. However it considers only the leadership practices as an issue for industry improvement, though there are several other factors contributing. In this regard this research avoids the extreme constructionism perspective of the epistemological continuum where the multiple realities are taken into consideration.

3.1.3 Axiological assumptions

In axiological assumptions, positivists believe that science and the process of research is value free, where they further believe that the objects they are studying are unaffected by their research activities [16]. These assumptions are less convincing in the social sciences research which is concerned with the activities and behaviour of people. Thus at the other extreme, phenomenologists consider that the researchers have values which help to determine what are recognised as facts and the interpretations which are drawn from them [16]. The understanding about axiology, positions this research more close to the value-laden end as the researcher is involved with that which is being researched and the researcher’s own values play a role in all stages of the research process.

3.1.4 Research positioning

Based on the foregoing discussion, Figure 2 shows the positioning of this research within the philosophical continuum in terms of ontological, epistemological and axiological assumptions.

Figure 2: Positioning the research within the philosophical continuum
3.2 Research strategy

A research strategy may be thought of as providing the overall direction of the research including the process by which the research is conducted [17]. The type of research questions posed, the extent of control an investigator has over actual behavioural events and the degree of focus on contemporary as opposed to historical events are the three conditions that govern the choice of an appropriate strategy [21]. In addition to the research questions and objectives, the choice of research strategy will be guided by the extent of existing knowledge, the amount of time and other resources available and our own philosophical underpinning [1]. The commonly used research strategies in business and management research are experiment, survey, case study, action research and ethnography [1, 17, 18]. This section justifies the choice of research strategy used for this study.

The overall philosophical positioning of this research, as outlined above, takes a social constructionism stance. Experiments are generally governed by positivist epistemological undertakings and an ontological assumption tilted towards objectivism with value neutral research. Ontological assumptions of strong ‘pre-existing reality’ in experiments, require a high extent of control over the environment by which the investigator directly, precisely and systematically manipulates the reality [21]. These can basically be conducted in a laboratory where the extent of control the researcher has over the environment is high. The leadership styles cannot be manipulated in a real life context. Therefore, this strategy is not compatible with this research. In action research, the researcher tries to solve the problem by becoming a part within the problem environment, with the goal to change the status quo of the participants [22]. The action research operates in a partly controlled environment and the aim of the research may be to have a direct and immediate impact, and hence it attempts to change the environment. Ethnography is defined as the study of people in naturally occurring settings or ‘fields’, by means of methods which capture the social meaning and ordinary activities, involving the researcher participating directly in the setting, if not also the activities, in order to collect data in a systematic manner [23]. According to the aim of this research, an immediate change does not need to be incorporated into the research process as it merely intends to explore and investigate the contribution of leadership styles of women managers to construction industry development. Further, both these approaches need high participative observation from the researcher. As this research doesn’t take these qualities, it disqualifies actions research and ethnography from being an appropriate strategy.

Hence, it leaves both survey and case study strategies as the suitable choice for this research. The survey does not require high control over the environment and it is designed to address the ‘what’ type of exploratory questions and they can be applied in social science research [21]. This research intends to explore the contribution of women managers towards the UK’s construction industry development and identify the appropriate leadership styles for construction women managers by learning lessons from other sectors. It also intends to explore whether or how the leadership styles exhibited by women managers can address the problems that persist in the construction industry. The perceptions of subordinates, superiors and peers towards the women’s leadership characteristics and styles within their real life context, are also
to be captured in order to make sure that their contribution is beneficial towards the construction industry’s development. Accordingly this research requires an in-depth analysis of the construction industry. Therefore case study approach is more suitable compared to the survey.

Thus this research proposes the case study is the most suitable strategy. The case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident [21].

### 3.3 Research techniques

Research techniques refer to the specific methods used to collect and analyse the data. Data collection and analysis are developed together in an interactive process in a case study [24]. The following sub sections discuss the data collection and data analysis techniques used within the case study approach.

#### 3.3.1 Data collection

According to Yin [21], evidence for a case study may come from six sources; documents, archival records, interviews, direct observation, participant observation and physical artifacts. In order to identify the leadership styles of women managers, a questionnaire will be distributed among the women managers, their superiors, peers and subordinates. For this purpose the Multifactor Leadership Questionnaire (MLQ) will be used. The MLQ offers researchers the most validated and efficient measure of transformational leadership, as well as a full range of leadership behaviours [25]. MLQ, which measures, explains and demonstrates a broad range of leadership styles, has been widely used throughout the world in many, diverse cultures and organisations, and has shown to be reliable [26]. Further, the Personal Attributes Questionnaire (PAQ) by Spence et al. [27] will be used to measure the degree to which a person can be classified according to masculine or feminine adjectives. It is a 24 item self-report questionnaire in which people are asked to indicate the extent to which they can be characterised in terms of various adjectives. The analysis of the PAQ will help to find out the personal characteristics of an individual in terms of masculine, feminine, or androgynous qualities. These characteristics will also help to determine the leadership styles. Semi-structured interviews have also been chosen as one of the techniques to get the perceptions of the industry personnel to explore and investigate the ways the leadership styles of women managers may contribute to the UK’s construction industry development. This has the advantage of being a ‘halfway house’ between the rigid layout of a structured interview and the flexibility and responsiveness of an unstructured interview [28]. In addition to these, expert interviews are preferred to identify the leadership styles that could address the problems that persist within the construction industry. These expert interviews are not covered within the case study approach.

#### 3.3.2 Data analysis

Data analysis consists of examining, categorising, tabulating, testing or otherwise recombining both quantitative and qualitative evidence to address the initial propositions of a study [21]. The
objectives and the research questions of this research are developed through the identification of theoretical propositions. It is important to have a data analysis strategy as it will guide the researcher to select the appropriate data analysis tools, to make sure that the evidence is treated well, and to generate sound and convincing analytical conclusions while discarding the alternative interpretations [21].

The data collected through expert and semi-structured interviews will be analysed using content analysis. As per the process outlined by Miles and Huberman [15], qualitative analysis involves three activities: data reduction, data display, and conclusion drawing. The first stage of analysis identified is data reduction, which is the process of selecting, focusing, and simplifying the interview transcripts by extracting the most relevant data for all of the questions and from the responses to additional probes. This process will identify a number of issues addressed under the major subjects of the research. The second stage in the analysis process is data display. This will be done by producing a data matrix through tabulating the interview data; with the respondents listed as columns and the questions as rows. The final stage of analysis will be to display the data and draw conclusions. In addition, the quantitative analytical techniques adopted with the MLQ and PAQ will be used to analyse the data collected through MLQ and PAQ surveys respectively.

This section provided the justification for the selection of research methodology in terms of its philosophy, strategy and techniques. The next section further elaborates the chosen research strategy explaining its design together with the tactics used in order to ensure the quality of the research.

4. Case study design and tactics

4.1 Case study design

In the most elementary sense, the design is the logical sequence that connects the empirical data to a study’s initial research questions and, ultimately, to its conclusions. It can be understood as a logical model that helps the researcher to collect, interpret and analyse the relevant data in order to effectively find out the answers for the research questions. The case study approach may potentially fall into at least four basic types of study, in terms of the differences in design within each type [21]. They are single (one case) or multiple (more than one case) studies and can be holistic (single unit of analysis) or embedded (multiple unit of analysis) design. Case studies can also be classified as exploratory, descriptive or explanatory.

A research design should include three basic components: ‘study questions’, ‘its propositions’ and ‘its unit of analysis’. This section explains the research design for the case study bearing these components in mind.

The first component - the research questions - sets out in this research to cover both ‘what’ type of exploratory questions and ‘how’ type of explanatory questions. However, the overall objectives are of an exploratory nature. Thus an exploratory type of case study is adopted for
this research. The second component - study proposition - directs attention to something that should be examined within the scope of study. In this regard, it is assumed that the leadership styles of women managers may contribute to the construction industry development. The third component - the unit of analysis - is related to the fundamental problem of defining what the ‘case’ is. A case can be an individual, an entity, an issue, or an event. As this research focuses on the women managers’ contribution, it takes the ‘individual’ as the case for the purpose of this research. The rationale for a single case is when it represents the critical case, extreme case or a unique case or when the case is the representative or typical, revelatory or longitudinal case [21]. Since the case in this research is the ‘women manager’, the selection of a multiple case design is preferred over single-case designs as it provides analytic benefits from having two or more cases. Analytic conclusions independently arising from two cases will be more powerful than those coming from a single case alone [21]. Furthermore, the proposition would still be needed to help identify the relevant information about the individual, as it is simply impossible for a researcher to cover ‘everything’ about an individual. The more a study contains specific propositions, the more it will stay within feasible limits. Accordingly this research considers the ‘leadership styles of women managers’ as the unit of analysis in order to analyse their contribution to the construction industry. Hence it takes a holistic type. All in all, this research adopts an exploratory, multiple, holistic case study design.

4.2 Case study tactics

This section identifies the case study tactics that are used to judge the quality of the research design. Table 1 lists the four widely used tests and the recommended case study tactics, together with the respective phase of research when each tactic is to be used.

<table>
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<tr>
<th>Tests</th>
<th>Case Study Tactic</th>
<th>Phase of research in which tactic occurs</th>
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<tbody>
<tr>
<td>Construct validity</td>
<td>Multiple source of evidence</td>
<td>Data collection</td>
</tr>
<tr>
<td>Internal validity</td>
<td>Pattern matching</td>
<td>Data analysis</td>
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<tr>
<td>External validity</td>
<td>Replication logic</td>
<td>Research design</td>
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<tr>
<td>Reliability</td>
<td>Case-study protocol and database</td>
<td>Data collection</td>
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Construct validity and reliability are tested during the data collection stage. In order to satisfy the construct validity, which is concerned with establishing the correct operational measures [21], multiple sources of evidence will be used. Any findings or conclusion in a case study will be much more convincing and accurate if it is based on several different sources of information. This will be achieved by using theory triangulation and methodological triangulation. Theory triangulation uses the 360 degree review method in order to get different perspectives to the same data set. Accordingly, the information about the ‘women manager’ would come from her subordinates, peers, and superiors in the organisational hierarchy, as well as from any other
external stakeholders who can provide the relevant information about her. This will ensure that
the data is from a rich pool of people from different levels. The use of both quantitative (MLQ,
PAQ) and qualitative (semi-structured interviews) data collection methods ensures the
methodological triangulation. Further, the principle of the case study protocol and developing a
case study database will be employed to address the reliability of the design test and to
demonstrate that the operation of the study can be repeated with the same results. Internal
validity refers to establishing causal relationships, whereby certain conditions are shown to lead
to other conditions, as distinguished from spurious relationships [21]. This is tested during data
analysis stage by using pattern matching; a technique which compares the theories and observed
data [21]. Accordingly, this research will compare the data collected through expert interviews
and semi-structured interviews with the theoretically predicted one. If the patterns coincide, the
results can help a case study to strengthen its internal validity. External validity means
establishing the domain to which a study’s findings can be generalised and it is to be tested
during the research design stage. The findings from one case study will be replicated by
conducting the second, third and additional studies. The cases could either predict similar results
or contrasting results but for predictable reasons. Hence, using replication logic in multiple-case
studies satisfies this external validity.

5. Conclusions

This paper explains the methodology for researching the contribution of women managers to the
construction industry development. It introduces the subject area in which the researcher intends
to undertake a study. It further justifies the selection of the appropriate methodology to achieve
the objectives of the study. The topic to be researched and the research questions are the
primary drivers in the choice of methodology. In addition, the researcher’s knowledge,
availability of time and other resources, and accessibility of information sources are also to be
considered as they have an influence over the choice of methodology. Based on these factors an
exploratory, multiple, holistic case study has been chosen as the most appropriate research
strategy. Semi-structured interviews, expert interviews, questionnaire survey are the data
collection methods adopted for this research. The data collected through interviews will be
analysed using content analysis whereas quantitative analytical techniques associated with MLQ
and PAQ will be used to analyse the data collected through MLQ and PAQ respectively.
Multiple sources of evidence, pattern matching and replication logic in multiple case studies
will satisfy the construct, internal and external validities respectively. Case study protocol and a
case study database will be developed in order to ensure the reliability of the research. In
summary, this paper will be a supportive resource to any reader interested in defining a
methodology for a specified research study.
References


