ARCOM Doctoral Workshop

Culture in Construction

A workshop linked with the first seminar in the ESRC Seminar Series – Culture Perspectives and Projects

Department of Civil and Building Engineering
Loughborough University
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CONTENTS

Page

i

WORKSHOP PROGRAMME

Time	Description	Speaker
09.30 - 09.45	Arrivals and Registration	
09.45 – 10.00	Welcome and Introduction	Professor Paul Stephenson ARCOM
10.00 – 10.45	Keynote address: Doing Research Across Cultures	Professor Geert Hofstede Maastricht University
10.45 – 11.30	Keynote address: Culture in Construction – A Quest for Methodological Rigour	Professor Richard Fellows Loughborough University
11.30 – 12.15	Questions and Discussion	
12.15 – 13.15	*Lunch and Networking*	
13.15 – 13.45	An Investigation of Problematic Issues Associated with Site Management – A Case Study of the Great Man-Made River Project in Libya.	Mohammed Alzohbi Sheffield Hallam University
13.45 – 14.15	Perceptions of Status and Work Group Cooperation: Implications for Project Governance	Dr Aaron Anvuur University College London
14.15 – 14.45	Factors Influencing the Success of Projects in the Libyan Construction Industry	Mahdi A. Ali Sheffield Hallam University
14.45 – 15.00	*Break*	
15.00 – 15.30	Priorities and Influences in Decision-Making in the Built Heritage Practice in UK	Ruchit Purohit Kingston University
15.30 – 16.00	Improving the Culture of Training in the UK Construction Sector through Skills Training Strategies	Ezekiel M. Awe Sheffield Hallam University
16.00 – 16.30	Open Discussion	All Participants
16.30	Summary and Close	

INTRODUCTION

The operating characteristics of construction organisations and the complexity of construction projects involve the work and interactions of a diverse number of project participants. It is therefore essential to consider and understand the interests and contributions of the various participants and other project stakeholders in order to ensure optimal project performance, and equally, successful project completion.

While culture might be described as how things are done, there are numerous and more in-depth issues that influence outcomes related to human actions, interactions, and behaviour. Moreover, the implications of these are not always clear, and often less certain, yet can impact greatly on both ogranisational performance and project success.

This ARCOM workshop is linked to the first seminar in the ESRC seminar series - Culture Perspectives and Projects. The workshop focuses on culture in construction and examines the existence of project cultures and the influence and impact on projects and project participants.

The keynote address by Professor Hofstede on 'Doing Research Across Cultures' provides the ideal setting for researchers embarking upon research into culture. Coverage is given to the three meanings of culture and the different levels and aspects of mental programming covering, practices, values and norms. Consideration is highlighted on the levels of culture and its transfer in relation to time, and how unconscious values are acquired at an early stage in our lives with the learning of practices constantly taking place. Professor Hofstede further views national versus organizational cultures and indicates the differences and implications from a management perspective. This further extends into considering differences between nations and the comparison of national cultures generally. Levels of analysis are viewed from a social science perspective including levels and studies through management, political science and economics. Cross-cultural research is also featured and consideration is given to variables and correlations at different levels. This also includes the dimension structure of cultures in terms of the level of analysis, and dimensions of national and organisational culture. The dimension of individual perceptions is also featured with concluding comments on the issue of managing with culture.

The keynote presentation and paper by Professor Fellows provides further insights into culture in construction, and highlights its relative newness as an area of research. He identifies its obscure nature as a construct and its deep-seated existence within the industry. This is further extended to consider culture and its origins within construction. Definitions presented from various authors indicate variations on their thoughts and understanding. The aspect of research methods is highlighted and methods identified that have been adopted and adapted by previous researchers. The importance of the application of appropriate methodologies is also addressed and the particular importance of initially applying rigorous exploratory research. Professor Fellows concludes with some thought provoking issues and questions surrounding aspects of validity, reliability, and, 'what is worthwhile' in terms of research.

The paper from Alzohbi et al. provides details of a case study of the great man-made river project in Libya. The research focuses on five projects within the scheme to identify the problems facing site management. Findings from the literature identify problem areas through external and internal constraints. This provides the background for the research into the case study projects and the use of a quantitative and qualitative research methodological approach. Ten identified areas provide a ranking order in terms of having the greatest impact on projects from a site management perspective. The research also identifies the importance of multi-cultural training as an essential requirement for managing Libyan projects successfully.

The paper by Anvuur represents a study of empirical research and considers the influence of pride and respect on individuals' behaviour within multi-organisation project workgroups. A mediation model is tested based on a survey sample of construction professionals from Hong Kong using statistical procedures and regression analysis. The results reveal both acceptance and rejection of hypotheses, indicating that respect will mediate with pride on in-role, compliance, and extra-role behaviours, but not on deference behaviour. The practical implications of the research related to motivation suggests that pride and respect are valid approaches for motivating actors to cooperate within workgroups in order to successfully achieve project objectives.

The research by Mahdi et al. focuses on factors that influence the success of projects in the Libyan construction industry. The work represents part of a study of exploratory research based on quantitative and qualitative research methods. Data collected from across the Libyan construction sector identifies some twenty four factors which influence the success of projects; with a further five factors being identified as direct barriers. Other findings relate to the selection of project participants, particularly project managers, and their lack of experience and knowledge (culture and language) as being problematic in achieving project success. The research identifies the correct selection of management teams to enable integrated team working, and the ability to deal with local external factors as important ingredients in achieving project success.

The paper by Purohit and Kaluarachchi provides an insight into the decision making process in the built heritage practice in the UK. The research focuses on the need to map the different factors and the role of stakeholders involved in the process, including the identification of other priorities and influences. A literature review maps relevant processes and enables criteria to be established which influences decision making. The methodological approach is based on case study research to analyse decision making in a selection of case studies. Findings from the research indentify that conflict still exists in heritage decision making, particularly where institutional sources engage in the role of guiding developments on heritage issues. The research also identifies the requirement for developing a model in order to embrace all relevant factors in the process.

The final paper in the proceedings involves the culture of training strategies. Awe et al. highlight the importance of skills in the industry and through the literature provides an assessment of the construction sector's training culture in the UK. Primary data collected

from training providing firms across various regions allows important issues to be identified. The research findings provide further insights into why some firms do not train operatives, and include: no understanding of obligations; cost of training; and firms seeking short term solutions to planning requirements on a project to project basis. Overall assessment calls for improvements and upgrading of the current approaches to training. Moreover, it is highlighted that the industry is giving insufficient attention to the culture of skills training, coupled with a lack of appropriate funding. The research findings also reveal that training strategies need major improvements in order to meet future labour demands within the construction industry.

From the papers presented at the workshop, it is clearly evident just how deeply embedded and diverse culture can be, and how it cuts across all aspects of construction and the built environment. The diverse and fragmented nature of the construction industry itself highlights the influence of culture and how it impacts at both organisational and project levels. The research presented here gives an insight into the influence and importance of continued future research into culture in construction.

Paul Stephenson
(Workshop Convenor)

RESEARCHING CULTURE IN CONSTRUCTION – A QUEST FOR METHODOLOGICAL RIGOUR

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Endeavours to research aspects of culture within the construction industry have occurred only quite recently. Previously, culture was occasionally identified as important but, more usually, as a label to try to explain differences between empirical results and expectations. A major problem with researching culture is that it remains a relatively obscure construct due to its 'deep seated', latent nature and so, must be investigated through (surrogate) manifest constructs and variables; indeed, just defining culture is highly problematic and myriad definitions exist. Levels of examination (national, organisational) are varied as are purposes (cultural (in-)compatibility, performance consequences, etc.) which compound the difficulties. Thus, a plurality of views pertain to appropriateness of paradigms, epistemologies, methodologies and methods, individually and triangulated, for researching into culture – what it is, how it operates and with what consequences. This paper adopts a narrative approach to tell a story of one pathway which has been trodden by the author (and several colleagues) in an endeavour to pursue and promote rigour in researching culture in construction. Of course, the story is hugely incomplete and many important and interesting challenges remain – how fortunate for the intellectual development of our discipline.

Keywords: culture, methodology, methods, research.

INTRODUCTION

All research should be rigorous – it's an inevitable fact that some research is more rigorous than others. Frequently, the view is expressed that quantitative research, through its necessarily express use of numerical data and (usually) statically-based analysis, is, necessarily, rigorous whilst qualitative research, through its employment of perceptions, opinions, observations, etc. cannot be (very) rigorous!

I'm going to endeavour to 'blow away' that myth. In doing so, I'll try to employ a narrative approach which relates to the development of my own research interests and the research communities of ARCOM and CIB as well as some considerations of construction (management) research in the context of more generic research, especially general management (as an application field) and social sciences (as a set of fundamental disciplines).

First, some background information. I began my academic career as a Quantity Surveyor with particular interest (not surprisingly) in economic and legal-contractual issues of

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construction projects and firms. Both of those interests have groundings in human behaviour, as manifestations, and in values, beliefs, morals and ethics to underpin them.

About late 1983/early '84, the Specially Promoted Programme (SPP) in Construction Management of the (then) Science and Engineering Research Council (SERC) held a conference at Heriot Watt University. In a 'break-out' meeting, organised by Roger Flanagan, the SPP coordinator, the group readily adopted the idea that an association should be formed to continue the ethos of the SPP to nurture and develop research and researchers in construction management – ARCOM was born! By the eighth ARCOM annual conference, held on the Isle of Man in 1992, ARCOM had grown into a rapidly maturing, active association with a large and extending membership. The annual conference was an active forum for presentation, discussion and informing about current research projects and for encouraging and assisting new, active researchers.

Like many colleagues, my research activities included applying for funding, supervising researchers and managing projects as well as carrying out research myself! There was (and still is) a lot of 'learning by doing' – including mistakes typical of experiential learning! The important thing is that expertise was developing rapidly and enthusiasm was rife – we researched because we really wanted to, not because we were required to do so in order to keep the job.

By this time, I had become friends with David Seymour, a sociologist who was working in construction management in the department of Civil Engineering at the University of Birmingham. In chatting to David on the last day of the conference, it was clear that we had both noticed, and were concerned that, a number of presenters had used Culture and a 'throw-away-excuse' for the results which they had obtained being different from what they had expected from theory and literature; we agreed that was a poor and unacceptable situation for a research community – Culture in Construction surely merited proper, rigorous investigation! We determined, there and then, to try to do something to address that deficiency.

The actions which we took followed two related pathways. The first was developing a research application to the SERC to investigate "The impact of culture on project performance under the New Engineering Contract" which we were awarded in 1994. A second application followed to the Engineering and Physical Sciences Research Council (EPSRC) in 1997 "Developing a Culture of Quality in the Construction Industry". The second pathway was to propose to the Conseil Internationale du Bâtiment (CIB), now re-named as the International Council for Research and Innovation in Building and Construction, that a new group be established within CIB to Research "Culture in Construction".

The new CIB group was established as a Task Force, TG-23, jointly coordinated by David Seymour and I with the express objectives:
- To identify and define concepts of culture in the international construction industry and to carry out research into their manifestations and effects.

- To discuss and develop appropriate methodologies for the study of culture in construction
- To determine and, where appropriate, adopt methodologies used in other disciplines, with special reference to the social sciences, for researching culture in the international construction industry.

TG-23 held its initial meeting at Cambridge University in September 1997, immediately following the 13th annual conference of ARCOM. The remit of TG-23 was extended and revised following publications, workshops and conferences. In 2006, The CIB Board acceded to a proposal for the conversion of TG-23 into a full working commission, of continuing existence, which seems to give formal recognition to the importance of culture in construction and the value of the output achieved by the members of TG-23. The working commission, W112 held its initial meeting in November 2006 in at its international conference held at the British University in Dubai. The next meeting is 21-23 November 2008 at Tongji University, Shanghai at the "International Conference on Multinational Construction Projects: Securing high Performance through Cultural Awareness and Dispute Avoidance" which is supported by several other CIB groups.

Since its initial meetings, the Culture in Construction group has held a meeting approximately annually and, in addition to conference proceedings, has published two individual CIB publications – "Culture in Construction – Part of the Deal?" (Tijhuis, 2001) and "Perspectives on Culture in Construction" (Fellows and Seymour, 2002). Recognition of the importance of culture to the construction industry, and its performance, by both academics and practitioners has led to members of the group being invited to give keynote addresses, specialist papers and to contribute chapters in books and reports – thereby extending awareness of culture, its consequences and appropriate study methods.

So, given that background narrative, I will move on to discuss some specific issues regarding culture and researching culture in construction.

CULTURE

I'm a firm adherent to the notion that the starting point for any study, which endeavours to include measurements of any type, must be to define the variables to be measured. We cannot measure constructs directly but may do so by measuring and weighting their constituent variables. Further, I consider that rigorous exploratory research, often exclusively qualitative, must be carried out first to identify the constructs which are important. I think that such a step-by-step, integrated continuum is essential for good research and to make it intelligible and communicable.

So, what is "culture"? Initially, culture may be described as "how we do things around here" (Schneider, 2000). However, the Oxford English Dictionary (2008) (OED) defines a "definition" as "A precise statement of the essential nature of a thing…" which indicates Schneider's description to be somewhat deficient. Kroeber and Kluckhohn (1952) discovered 164 definitions of culture which led them to define culture as, "…patterns, explicit and implicit of and for human behaviour acquired and transmitted by

symbols, constituting the distinctive achievements of human groups, including their embodiment in artefacts; the essential core of culture consists of traditional (i.e. historically derived and selected) ideas and, especially, their attached values; culture systems may, on the one hand, be considered as products of action, on the other as conditioning elements of future action". That indicates the dynamism of culture as a fundamental social construct as manifested in 'acculturation' (persons adapting to new cultures) and 'cultural intelligence' (awareness of and ability to relate to different cultures).

Arguably, the best-known definition of culture is that of Hofstede (1980; 1994a; 2001) which has been employed in his seminal works, "…the collective programming of the mind which distinguishes one category of people from another", which he employs at both national and organisational levels. Following the definition, Hofstede (1980) determined four dimensions of national cultures from combination of theory bases and empirical, questionnaire-based research amongst employees of IBM to which factor analysis was applied. A fifth dimension was added (Hofstede, 1994b) following research in South-East Asia which detected important aspects of "Confucian Dynamism" (The Chinese Culture Connection, 1987). However, although adopted extensively, the methods employed to determine those dimensions, and the dimensions themselves, especially the fifth dimension, remain contested in the literature (e.g. McSweeney, 2002).

The essence of a good definition is that its use facilitates clear demarcation; in the case of culture (national/organisational), culture can be separated from climate and from behaviour – both of which are of particular importance in studies of organisations and, especially, effecting/managing organisational change. Culture is a deep-seated phenomenon comprising belief, values and manifestations; behaviour is a manifestation of culture whilst climate is an intermediate concept.

Robust dimensions provide details of constructs towards their constituent variables, thereby facilitating measurements and comparisons to help effect understanding. However, a problem which may arise is the notion that if something can be defined and measured, it can be changed by human intent and endeavour, perhaps on the part of an individual. That is hugely questionable in relation to social constructs (and their constituents) which arise out of collectivities and is manifest in the debate between positivism and social constructivism. The idea that culture can be used as a 'tool' of management seems to demonstrate a lack of appreciation of what culture is! (That is, of course, a challengeable statement which is debated quite frequently by persons adopting different paradigms – notably, culture as context.) Here, the story of car seat belt legislation and behaviour is a valuable example.

The debate over what culture is, what are appropriate dimensions and how cultures may be examined/measured remains quite hotly contested. That debate lies within the social science domain primarily and has not percolated into the construction management arena very extensively! However, such issues are of fundamental importance to researchers concerned with culture due, *inter alia*, to their importance for research methodologies and methods. Understanding the main issues pertaining to methodologies and methods for

researching culture in construction was an important objective of TG23. Essentially, debate focuses on the gamut of issues relating to whether cross-sectional studies can be employed – and, if so, how – or whether it is essential to undertake longitudinal or ethnographic work. There are further issues concerning appropriate levels and units of analysis.

Rather unsurprisingly, the outcome seems to be that cross-sectional studies (via surveys, usually using questionnaires) can be helpful but tend to give a superficial picture and so, are of limited value. However, they are indicative and useful, provided the shortcomings/limitations are acknowledged adequately; Cameron and Quinn's (1999) questionnaire has been adopted by TG-23/W112 as the instrument underpinning the assembly of an international inventory of Culture in Construction. Longitudinal / ethnographic studies do provide superior depth and insights but, themselves, are not without criticism for potential researcher bias (ethnocentrism) etc. This suggests that caution is vital and that triangulation is likely to be productive for validity and reliability of results.

Given that the topic of culture is variously contested – what it is, levels of conceptualisation and analyses, constituents which yield dimensions, research methodologies, data collection and analytic methods, etc. – it is not sufficient to merely be aware of (some of) the basic ideas and constructs. Some papers still address only the initial four dimensions of Hofstede (1980) whilst others fail to justify the methodology and methods adopted. Still others seem in 'blissful ignorance' of the refining of dimensions – notably, the Individualist/Collectivist dimension into horizontal and vertical components (see, e.g., Chen, Meindl and Hunt (1997); Triandis and Gelfand, 1998).

So, what such experiences reinforce is the need to be 'up-to-date' with the theory and literature, only then can the individual be 'on top of their subject'. However, that must not be pursued blindly such that seminal works are summarily dismissed because they are 'old' – one of the most cited papers from Construction Management and Economics was published in 1984 and remains highly relevant today (Cherns and Bryant, 1984); as do the Tavistock reports of the 1960s. Also, for most, indeed, probably all, subjects it is essential to search beyond the construction-oriented literature; personally, it seems most insightful to consult the fundamental disciplines (for me, that is, usually, psychology) as well as the more 'generic application' literature of general management etc. Good research requires much more depth than addressing the 'technical application field' alone.

So, in addressing many issues in construction management, I believe that there are three primary aspects which should be addressed – generic business, often focussing on economics and finance; technological, the particulars of the industry and its operations; and relational, considering the interactions between persons (individuals and groups) and their consequences. It seems to me that, especially in the current environment, the technological aspects are means to ends where the ends are relational and business – and where the business aspects usually dominate!

RESEARCH METHODS

My interest in research methodologies and methods *per se* began in earnest during the time I worked as Construction Management Coordinator for the SERC. It was commonly expressed in Committee meetings that there was no shortage of good research project ideas but, even amongst senior, experienced applicants, the methodology and methods section was often addressed inadequately for funding to be granted. Those observations prompted me to focus on methodology and methods much more in making applications for research funding and in teaching research methods to postgraduate students.

A further opportunity arose when I was allocated the Research Methods module to produce for the University of Greenwich MSc programme, including a distance learning mode, in only a few weeks. That formalisation of work soon led to the production of a manuscript in collaboration with Dr Anita Liu for the first edition of our book, *"Research Methods for Construction"* – the 3rd edition was published in July (and will be published in China, in Chinese, soon). End of 'plug'!

Like all emerging disciplines, research methodologies and methods in construction, perhaps construction management in particular, have been adopted and adapted from other, established, and, more importantly, fundamental disciplines. In the early days, emphasis was very much towards quantitative methods. Over time, as the discipline has gained maturity, and the researchers gained expertise and confidence, qualitative approached have gained ascendancy such that, following oscillations of preferences, particularly amongst funding agencies' representatives (in 'gate-keeping' roles), a somewhat uneasy dynamic equilibrium seems current with, if any emphasis, it being on triangulation – for data sources, methods, disciplines and institutions (although some funding programmes seem to be at variance with that move).

The pressures and problems of the current (UK) situation for researchers seem to be movingly documented in Sparkes' (2007) paper "Embodiment, academics, and the audit culture: a story seeking consideration". Fascinatingly, that paper also demonstrates the power of journalistic, narrative styles – the approach of 'story-telling'. In cultural studies, especially relating to the development of organisational cultures, the presence and circulation of stories about key personnel and critical incidents which have impacted on the development of the organisation are well-recognised as key to the evolution of the current organisational culture. However, in the (more) academic traditions of overtly collecting and analysing data and reporting the results, (mere) story-telling is denounced as lacking requisite rigour. That, of course, should lead us immediately and directly to enquire what is 'rigour', how is it secured/ensured, and who decides?

Given my limited understanding of social sciences, my mind is attracted by the maxim of auditing – that the information reported gives a 'true and fair view'. In application (for research as well as financial accounting), it seems that the pragmatic of fairness often dominates the absolute requirement of truth.

That perspective prompts the questioning of the appropriateness of methodologies and methods which may be adopted for a study from the array of possibilities which are available. Selection involves two primary considerations:

       1. Which is best from an academic / theoretical perspective?

       2. Which is best from a practical perspective – notably, to facilitate collection of the data?

In determining the methodology and methods, those questions may have to be addressed repeatedly. Of course, certain research projects may benefit from opportunities of triangulation of methods, sources and types of data and analyses (or 'multi-method' approaches) – of obvious help if results are congruent but generating further difficulties if results conflict!

A particular issue is that researchers should be open minded and critical universally, "The scientist is not the person who knows a lot but rather is the person who is not prepared to give up the search for truth" (Popper, 1989: 334, reporting Marx and Engels). Unfortunately, some individuals remain wedded to particular approaches and others expect application of the 'value-free' methods which they employ to yield proof of what is true!

Our beliefs and values are fundamental components of ourselves. Very many methods of data collection and analysis are value-laden; we select methods which have been devised by other (value-influenced) people. Although, philosophically, we may regard 'truth' in a positivistic sense to be some universal absolute, reality is different as it relates to people and their perceptions – 'my reality is different from your reality'. So, that suggests that 'absolute truth' is extremely difficult to identify – the criterion is hugely more rigorous than that applied in civil or in criminal law! It seems to me to be appropriate to regard most research results and conclusions as indicators – of varying merit and with (preferably, quantified) reliability. In this type of consideration, I am attracted to the notions articulated by Blockley (1980) in that only theories with high information content – making them exact/specific – can achieve high levels of corroboration.

A few months ago, there was an interesting debate on the cnbr network – essentially regarding the 'well-rehearsed' topic of research's and researchers' relationship to industry/practice and to academia. Of course, the debate considered direct and indirect 'paymasters', collection of data, sovereignty of research agendas, etc. My view is that good research – by which I mean research which is rigorous to produce valid and reliable results – is what is required, coupled with similar requirements for publication in journals. If we, as members of a research sub-community really do 'get our house in order', then dissemination to and adoption by industry/practice will ensue (developments and applications will be inevitable, if not obvious initially).

Unfortunately, some of the research has not been founded so well – understandable under currents pressures of RAEs etc. – but hardly, condonable. This does have a bearing for those publishing research outputs (notably, reviewers/referees and editors) – they do set and maintain standards and so, have huge responsibility. "…structuration (Giddens, 1984)…" is NOT A SPELLING MISTAKE (laziness or incompetence by the referee?).

All too often, write-ups of surveys do not identify and discuss the population or sampling rationale; sample sizes of less than 20 for usable responses from questionnaire surveys are, almost inevitably, too small to be statistically valid. Other issues relate to lack of theoretical bases in papers and only descriptive statistics being presented but 'passed off' as analyses.

All that is understandable in an environment of 'publish or be sacked' but it is not good for research, for fostering the community, or how it is perceived and, ultimately, advance of the subject and the industry with which it relates.

DISCUSSION

In a recent presentation at Tsinghua University, Roger Flanagan used an illuminating analogy for organising academics as 'herding cats'! Yes, we probably are difficult to organise but, given the essentials of independence, freedom of thought, and unbounding the thoughts, long may such a 'problem' remain. That perspective seems, to me, to be infinitely preferable to the notions of herding cattle (compliance) or herding sheep (follow the crowd) although, unfortunately, pressures, and tendencies, towards both are evident!

Will Hughes, and colleagues, through the forum of Construction Management and Economics, have been championing the establishment of a body of theory for construction management. Whilst that is laudable, it is not, in my opinion, vital. What is vital is that we use and contribute to the development of good theory and other forms of knowledge. That requires us to be rigorous, aware, and self-critical – complacency is a temptation but our greatest enemy – continuous improvement applies to us at least as much as it does to Toyota.

In considering the recent debate on cnbr – thanks to another stimulant from Ron McCaffer – I am reminded that such debate has been continuous over the last thirty years at least! In their book on research methods, Göran Runeson and Martin Skitmore bemoan that most first degree courses focus on aspects of practice whereas courses in other disciplines expose students to research methods and latest findings from the outset – there begins the 'divide' which tends to be maintained and, frequently extended. Göran extends his argument in the cnbr discussion and, because his views are well-reasoned, they are compelling – even if, by his own admission, he is a "grumpy old man"!

Equally, my dear friend and colleague, Dave Langford advances sound and somewhat novel perspectives in the rather positivistic-dominated arena of the built environment. The questions of ownership of the research agenda, its development and results of research remain contested – as, perhaps, they should as part of the wider questions of 'ownership of knowledge'. Isn't access to information, express knowledge, a generic civil right? One problem is that through media and the associated businesses, knowledge in the form of publication has become a good. Whilst copyright protection is appropriate to discourage plagiarism, the various needs to purchase knowledge have, in some

instances become restrictive – as 'business profit centres'. That applies to charging high royalties for minor and properly attributed materials as well as issues of students' fees.

The issues of funding research, along with the more pervading issues of education funding and control, tend to promote short term programmes and 'deliverables' of immediate use. It also seems to encourage the notion of 'proving' something – a hypothesis – rather than scrutinising the work for validity and reliability of results which, usually more appropriately, should be regarded as indicators, rather than definitives. For that to happen, the methods and data must be understood well and the validity, reliability and limitations made explicit through clear discussion in the output documents.

Some of our research in Culture in Construction has enjoyed funding to facilitate longitudinal and ethnographic study – an approach which may be facilitated through the rolling programme arrangements centred at Loughborough, Salford, and Reading. However, much of the other culture research has used well tested, cross sectional instruments (questionnaires) to obtain indicators of cultures in construction in various locations. While funding is not a necessary and the only constraint, it is a significant one in most cases such that there does seem to be some correlation between funding and research method idealism. If methodological triangulation plus data triangulation represent some ideal, then that does require a large resource base. Personal commitment is invaluable but without resource support, achievements of the most committed researcher are likely to be limited.

All that seems to lead back to the pervading quantitative / qualitative debate. In my view these are both different and individually valid epistemologies but, preferably, complimentary via multi-method or triangulated studies. However, many new researchers are deluded about them. Quantitative methods are seen as rigorous and difficult because they involve numbers, mathematics and statistics and so, are viewed as, necessarily, exact and rigorous! Qualitative methods are seen as vague and loose, easy to use and flexible. If anything, the opposite is the case! Many errors occur by people loosing sight of the scale of measurement adopted when analysing data obtained on, say, a Likert scale – they forget the nature of the scale and treat it as a ratio scale – thereby producing potentially invalid results. Just one, minor example of an all-too-common researcher delusion.

CONCLUSIONS

Despite certain misgivings, there is a huge volume of very good research which is produced. Publishers, despite commercial pressure tend to be sympathetic and helpful – although I do have grave reservations over the Thomson-administered listing of journal impact factors through its content limitations, increasing influence and, consequent, distortion of research publication fora.

In determining research agendas and, thence, funding, the question, "What will advance our business?" is to the fore at present. However, it seems to me that, from a longer term

perspective, the questions must be, "What will advance society?" and, "What will advance knowledge?"

The issues are not, "What is of demonstrable and immediate use?" but, "What is valid, What is reliable, and What is worthwhile?" We must be rigorous and prepared to take (proper) criticism.

<div align="center">− And they lived in thoughtful torment ever after. −</div>

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AN INVESTIGATION OF PROBLEMATIC ISSUES ASSOCIATED WITH SITE MANAGEMENT – A CASE STUDY OF THE GREAT MAN-MADE RIVER PROJECTS IN LIBYA

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Construction site management (CSM) mainly involves a combination of numerous activities, which turn basic resources into a finished product. It directly influences security, material supply, resource utilisation, health and safety, planning, cost and all construction processes during the production stage. Thus, CSM can greatly influence aspects of sustainable development relating to construction, and is therefore paramount to project success. Practically, it is not a simple procedure to manage a site successfully. Construction work has become a complex set of processes, and there are numerous management challenges which are continually occurring on construction sites. The aim of this research is to investigate the problems which constrain optimal CSM, and to identify the approaches which have been taken to solve these problems. As part of the research methodology, an in-depth literature review was carried out on CSM in order to define and identify CSM problems and possible resolutions. This resulted in several CMS problems being identified as the most significant and regularly occurring when managing a construction site. In order to investigate CSM problems practically, five construction sites suggested by organisations which have worked on behalf of Great Man-made River Water Utilization Authority (GMRWUA) in Libya were used for multiple-case studies. Structured interviews with a Senior Project Manager, a Construction Manager, and a Contract Manager were carried out to gather data from the case study. Additionally, a questionnaire survey involving Construction Site Managers and Site Engineers was also administered.
The main findings of the paper are the identified ranking of importance of CSM problems in terms of their effect on managing construction sites, in addition to their frequency of occurrence. Moreover, problem solving approaches to be undertaken by the CSM team were identified in GMRWUA projects to assist in mitigating CSM problems in the future.

Keywords: Case studies, Construction Site Management (CSM), Current problem-solving approaches, Problems of CSM, GMRWUA.

INTRODUCTION

In construction management, the main objectives are to complete a construction project with the required quality (CIRIA 2001), prevent 're-invention of the wheel' (Holroyd 1999), improve project performance (Robinson *et al* 2001) and with less time (Hassan 2005). Wideman (1986), Newcombe *et al* (1993) and Fapohunda (2009) argue that CSM is the act executing the majority of these objectives and the entire construction process from inception to completion on site. It can therefore be seen that a construction site manager carries out the single most arduous, demanding, and responsible function of the construction process (Wakefield 1978), and faces several engineering challenges and management problems that occur on the site (Anumba and Mohamed 2006). There is, consequently, a need to look deeply at problematic issues associated with site management. For that reason, this research seeks to investigate

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the problems which are faced by construction site managers and to expand knowledge of the current problems-solving approaches.

The paper starts with reviewing the CSM definition and problems, and is followed by a brief description of the adopted research methods. Five case projects within the case study are used to investigate the CSM problems from a practical perspective and to identify problem-solving approaches which have been adopted. The frequency of CSM problems and the ranking of their importance, in terms of their effect on managing a site, are also presented (with respect to the ten problems that are considered as the most significant occurring in managing a construction site).

CONSTRUCTION SITE MANAGEMENT

Recognition of the site management should be a priority for attention by all contractors, since on site profit and reputations can be built or damaged. Monies may be made or lost, and there is considerable scope for improving efficiency, productivity and quality (Harlow 1985; Fellows *et al* 2002). Site management involves the combination of a large number of activities including, site investigation as pre-construction work, and CSM practices during the construction process (Anumba and Mohamed 2006). This research focuses on CSM practices, and these have been divided by into six sub-processes: planning, monitoring and control; management, supervision and administration; delivery and materials' handling; commercial management; production on and off-site; legal and health and safety (Construction IT 1996; Illingworth 2000; Mohamed and Anumba 2006). From the sites considered in the study, all can be described as having problems in at least one of these processes.

Construction Site Management Problems

Mohamed and Anumba (2004) and Alzohbi (2008) believe that numerous problems and engineering challenges occur when managing these site processes. There is an urgent need to investigate the problems that are faced by the construction site manager to identify constraints and optimal solutions. Through the review of literature DeCuyper (1993), Wilde (1997), Holroyd (1999), Li and Love (2000), Doran (2004) and Toor and Ogunlana (2008), it was discovered that the most recognised problems, which affect CSM have been categorized into two types; external constraints and internal constraints.

The External Constraints

External constraints are those that are external to a site manager's own organisation, and may arise before the work commences or during the site work. Such constraints relate to complications in technical studies, design issues, poor information transfer and inadequate co-ordination of site management activities (DeCuyper 1993).

1) Design: Wilde (1997) believes that the design and drawings are often the source of site problems. Abadi (2005) stresses that basic information concerning construction operations is required before the start of work on site. Moreover, it is not always evident that the systematic update of drawings takes place when modifications occur, which inevitably leads to delay in the execution of work, unforeseen costs, and conflicts.

2) Technical Studies: Technical studies are often given too little time and consideration, which may impact on construction processes, estimated budgets and productivity (DeCuyper 1993, Spilsbury 2008). Poor technical studies can often lead to unforeseen work causing unjustified costs.

3) Co-ordination of Site Management: Construction may be considered as the result of the interaction of a group of actors, and there is an unavoidable need for co-ordination between these actors. Barton (1976) and Dorn (2004) believe that co-ordination on the construction site is the most difficult task facing site management.

4) Information Transfer: Kimmance (2002) supports Morrison & Morrison (1993) who stated that the majority of information transfer problems on the site arise from one or both of the following problems: the problems that occur because all drawings are not systematically updated when modifications are introduced; and problems that are covered up on site by staff without informing the site manager.

The Internal Constraints

The internal constraints are those which are internal to the site manager's organisation, and involve a large number of elements. DeCuyper (1993), Holroyd (1999) and Doran (2004) view the following internal constants as the most influential internal constraints for the site management and organisation.

5) Estimating Requirements: incorrect evaluating causes many problems to occur during site work. These include: labour shortages, failure to obtain needed equipment on time, defective and damaged materials (Mohamed and Anumba 2004)*.*

6) Quality Control: Doran (2004) confirms that insufficient inspection and test plans, which should be prepared from the technical specifications, working drawings and method statements, could be major reasons behind the problem of quality control.

7) Planning: Poor planning is the most significant factor influencing management of the construction site (Mustapha and Naoum 1998). De Cuyper (1993) reported that the majority of site problems arise from; a lack of planning, no time scheduling being used, no evaluation of the efficacy of site work, and misunderstanding of the client's requirements at an early stage of a project.

8) Materials Supply and Storage On Site: Ibn-Homaid (2002) believes that "*material management is the most common and frequent cause of delays in projects*". Guthrie *et al* (1998) and Holroyd (1999) believe that a non-compliance with International Material Storage and Supply standard causes mainstream problems.

9) Health and Safety: Griffith and Watson (2004) see legislation relating to health and safety on site as one of the most problematic issues facing construction site managers. Cheng and Li (2004) argue that the lack of using and complying with the standards and regulations of health and safety causes serious accidents on sites.

10) Multicultural Projects: construction site managers who carry out work beyond national borders often face special problems, such as operating within local

regulations and social customs, dealing with multiethnic work teams, and the import of materials (Burgess and Enshassi 1990).

RESEARCH METHOD

Fellows and Liu (2008) and Love *et al* (2002) define triangulation as the use of qualitative and quantitative techniques together in the study of a topic. A combination of qualitative and quantitative research methods were used to gain insights and results in order to draw conclusions from the research.

Data Collection Process

Literature Review
Literature was drawn from peer-reviewed books, journals, papers and research reports. This survey aimed to report recent research in this area in order to understand a site manager's role, identify theoretical problems in managing construction sites and resolutions undertaken by site managers.

Case Study Technique
The Great Man-Made River Project (GMRP) was chosen as a case study for the research and is one of the largest civil engineering projects in the world, in addition to being the largest for the transportation of water from the Sahara Desert (Loucks, 2004). Five construction sites identified by international organisations, which have worked on behalf of the Great Man-made River Water Utilization Authority (GMRWUA)-central zone in Sirte City, were used as shown in Table 1. Through the case study protocol, structured interviews were also selected as a data collection technique.

Questionnaire Survey
A postal questionnaire survey was administered to a sample of site managers who are working on construction projects in the GMRWUA. Questions were formulated to identify the frequency of the problems occurring in managing construction sites, and to rank the importance of the site problems in terms of their effect on managing the construction site.

ANALYSIS AND DISCUSSION

Structured interviews were formulated for the Site Manager, Construction Manager, and Chief Resident Manager in each organisation involved in the case study (see Table1).
The interviews were aimed at investigating the problematic issues of CSM and the problem-solving approaches that are used in the GMRWUA in Libya. Table 1 indicates details of respondents highlighting nationality, experience and current role.

Table 1: Project personnel involved in the interviews

No	Number of Company	Nationality	Years of Experience	Current Role
1	Organisation A	German	15 Years	Construction Manager
		Austrian	21 Years	Site Manager
2	Organisation B	English	43 Years	Chief Resident Engineer
		English	36 Years	Site Manager
3	Organisation C	Cypriot	26 Years	Site Manager
4	Organisation D	Bosnian	28 Years	Construction Manager
		Bosnian	16 Years	Site Manager
5	Organisation E	Egyptian	25 Years	Construction Manager
		Egyptian	25 Years	Site Manager

Key problems of the construction sites

Table 2 summarises the problems identified from projects representing the case study, in relation to the ten construction site management problems outlined in the literature and deemed to have the greatest influence on effective management of construction processes. Table 2 indicates the perceived problems and solving approaches from the case study sites.

Organisations (A), (B), (C) and (E) experienced planning problems as both the original problem (X), and resulting from other problems (o), from a lack of estimating requirements, and in particular poor material supply. In organisation (D), although the planning process was affected by several issues, it was not the origin of the problem. Essentially, this was caused by the CSM team not understanding the client's requirements clearly before commencement of work on site.

While organisations (A), (B), (C) and (D) suffered from material supply problems owing to the majority of materials being from overseas, organization (E) did not. The majority of materials used by organization (E) were imported from its home (Egypt), Libya's neighbour, which does not suffer restrictions through complex customs procedures, and also because of the well-known professional suppliers in the organisation's home country. This confirms that poor materials supply arrangements cause the majority of materials problems on the site (Holroyd 1999).

Although organisation (E) had experienced problems from the complexity of design specifications, the only other organisation that had suffered major design problems was organisation (C). This resulted from the design being carried out by another consultant and without involvement of the site manager. This goes with the advice of Bresnen *et al* (1987), DeCuyper (1993) and Abadi (2005), who stress the importance of engaging the site manager in the early stage of design.

Case problems/construction processes / Approaches to site processes	Design	Technical Studies	Coordination of the site management	Information Transfer	Estimating of Requirement	Quality Control	Planning	Material supply	Health and Safety	Multicultural Projects	Approach to Problem Solving
Case 1 (Org A)											
-Information Transfer				X			O				* Informal site meeting & discussions
-Poor Planning							X				* Using E-mail to transfer drawings & information.
-Poor Material Supply (MS)							O	X			* Understand the client requirements.
-Difference of Language					X						* Choosing professional suppliers.
-Shortage Qualified Labours							O			X	* Understanding in depth the Local Regulation and Policies. * Training the local labours.
Case 2 (Org B)											
-Poor Planning							X				* Trying to plan day-to-day work on the site
-Lack Quality Control & MS						X	O	X			* Taking a more practical approach to quality control
-Poor co-ordination			X				O				* Reporting senior manager & client
-Language problems										X	* Trying to manage a schedule for Local labour.
- religion attitude							O			X	* Adopting the UK health and safety Standards.
-Poor local and health and safety regulations									X		* The use of manuals and guidance.
Case 3 (Org C)											
-Poor Planning					X		X				* Developing knowledge and experience from previous projects.
-Shortage Qualified Labours.							O				* Discussion with the designer and Suggest solutions.
-Poor Design & Info Transfer	X			X			O				* Employing local coordinator.
-Poor Communication.							O			X	* Finding suitable alternatives of suppliers.
-Poor Material Supply							O	X			* Using E-mail to transfer drawings
Case 4 (Org D)											
-Poor Technical Studies	O	X	O		O	O	O	O			* Informal site meeting & discussions * Reporting senior manager & client
-Poor Material Supply							O	X			* Developing knowledge and experience from previous projects.
Poor Quality Control						X	O				* Adjusting project activities according to new situations.
Case 5 (Org E)											
-Inaccurate Planning.							X				* The site managers draws his Previous experience.
- Complexity of designs.	X						O				* Technical problems are discussed and examined on and off site.
- Poor health and safety.							O		X		* Referring the problems to company's engineering division
- **Poor co-ordination.**			X				O				

Note: **X** is Origin of problem; **O** is Sub-processes is affected.   **Table No (2):** The Summary of the Problems and Solving Approaches identified from the case studies.

Owing to the differences in language, religion, culture and regulations (Multicultural Projects), organisations (A), (B), and (C) experienced communication problems in dealing with multicultural teams and staff, local authorities, and local regulations. This also tends to impact on project planning, as witnessed in organisation (B). Organisation (E) has been not affected by multicultural problems because of its Arabic origin and having the same language, religion, culture and often the same regulations to that of the client. In spite of the difference in language, culture and regulations, organization (D) has not been affected by the multicultural problems. The reason being, that the CSM team obtained intensive cross-cultural training before entering Libya to work on the project. This is further supported by Burgess and Enshassi (1990) who observed that "*there is a pressing need to recognize and consider cross-cultural training as an integral part of construction management if organizations are to remain competitive and successful*".

Problems with technical studies were experienced by organisation (D) on an infrequent basis. However, this problem was seen to affect the majority of other construction processes, such as planning, design, estimating requirements, material supply and quality control. This proves that "*too little attention and time is given to the technical studies, although they are of primary importance for reaching a high productivity and high quality*". (DeCuyper 1993).

Generally, other problems, such as poor health and safety, lack of quality control, poor co-ordination of the site activities and lack of the estimating requirements, have normally happened with organizations at the commencement of work.

The Problems-Solving Approaches

Table 2 also summarises the problem-solving approaches used by organisations, although these were seen to differ from one case to another.
Organizations (C) and (D), with extensive knowledge of Libyan culture, followed informal approaches that were heavily reliant on previous experience, informal site team meetings, discussions between the site team and experts in order to solve problems, and reports to senior management and the client.

Such procedures were reflective of culture (the tribal nature in Libya); where in the tribe system any dispute or internal problem can be resolved by meeting, discussion and the transfer of decision-making to the tribe's sheikh.

Organisation (B) followed a practical and more structured approach to the control of quality, planning day-to-day work on the site, monitoring project activities and health and safety procedures. Organisation (A) and (C), however, followed both informal and structured approaches.

Data Analysis of Questionnaires

Questionnaires were used to identify the frequency of the site management problems occurring on construction sites, and to rank the importance of the site problems in terms of their effect on managing projects. A total of 37 questionnaires were administered with a response rate of 33 returns representing 90% of respondents. The

results and statistics were documented using four main descriptive statistics, these being: Frequencies (Percentage), Total Score, Mean Score and Importance Index. The ranking of the questions is based on the mean score with the higher importance index. Nine different organisations, which work on behalf of GMRWUA, were involved in the questionnaire survey, as illustrated in the Table 3.

Table 3: Organisations and sites involved in the questionnaire survey

Organisation	Nationality	Type	The type of the site
1	German	Private	Construction Buildings Irrigation Works
2	English	Private	Supervision of the Construction Pump Stations Works
3	Cypriot	Private	Pipe Line & Pump Stations Works
4	Bosnian	Private	Pipe Line & Pump Stations Works
5	Egyptian	Private	Pipe Line & Pump Stations Works Irrigation Works
6	French	Private	Construction Buildings Pump Stations Works
7	South Korean	Private	Construction Buildings Irrigation Works
8	Tunisian	Private	Construction Buildings
9	German	Private	Construction Buildings Pump Stations Works

Table 3 shows that three basic types of construction sites were involved in the questionnaire survey. Different types of sites were selected based on the belief that although there are general problems that occur in the majority of sites, each site has its own specific problems. The majority of the respondents (80%) had wide experience of working in the Libyan construction sector, which added to the in-depth findings of the research.

The Frequency of the CSM Problems

In order to find out the occurrence frequency of site management problems, the respondents were asked to rank the frequency of the ten problems which occurred while managing construction sites. The results are shown in Table 4. The ranking of the frequency of CSM problems is based on the mean score and the higher importance index.

Table 4: Frequency of the site management problems

The Problems of CSM	Total score (Ts)	Mean Score (Ms)	Importance Index (Ii)	Rank
FP1= Design	295	2.95	0.7375	**2**
FP2= Technical Studies	230	2.3	0.575	**6**
FP3= Co-ordination of the Site	245	2.45	0.612	**5**
FP4= Information Transfer	250	2.5	0.625	**4**
FP5= Estimating Requirements	200	2	0.5	**9**
FP6= Quality Control	170	1.7	0.425	**10**
FP7= Planning	280	2.8	0.7	**3**
FP8= Material Supply	460	4.6	1.15	**1**
FP9= Health and Safety	230	2.3	0.575	**7**
FP10= Multicultural Projects	220	2.2	0.55	**8**

Table 4 shows that the highest ranked CSM problem is Material Supply (mean score (Ms) =4.6, Importance Index (Ii) =1.15), followed by Design, Planning, Information Transfer, Co-ordination of the Site, Technical Studies, Health and Safety, Multicultural Projects, and Estimating Requirements. The least frequent problem was Quality Control.

The Importance of CSM Problems:

With the purpose of investigating the importance of the CSM problems, in terms of their effect on managing the construction site, respondents were asked to rank (1 = least important and 10 = most important) the importance of the ten problems according to their experience. The statistics were computed to generate the total score, mean score and importance index and are summarised in Table 5. The ranking of the importance of the CSM problems is based on the mean score and higher importance index. Table 5 shows that the most important problems of CSM in terms of their effect on managing a construction site are: Design, Material Supply, Technical Studies, Information Transfer, Estimating Requirements, Quality Control, Co-ordination of the Site, Health and Safety. The least important problem is Multicultural Projects.

Table 5: Importance of the site management problems

The Problems of CSM	Total score (Ts)	Mean Score (Ms)	Importance Index (Ii)	Rank
IP1= Design	801	8.01	0.801	**2**
IP2= Technical Studies	726	7.26	0.726	**4**
IP3= Co-ordination of the site	382	3.82	0.382	**8**
IP4= Information Transfer	616	6.16	0.616	**5**
IP5= Estimating Requirements	495	4.95	0.495	**6**
IP6= Quality Control	459	4.59	0.459	**7**
IP7= Planning	874	8.74	0.874	**1**
IP8= Material supply	727	7.27	0.727	**3**
IP9= Health and Safety	319	3.19	0.319	**9**
IP10= Multicultural Projects	314	3.14	0.314	**10**

MAIN FINDINGS AND CONCLUSION

The main findings from the data were concluded as follows:

- The most significant problems faced the site managers in the GMRWUA projects were consistent with the problems identified by *DeCuyper (1993)*. These problems are classified as External Constraints and Internal Constraints.
- The most frequent problems in managing construction sites were: material supply followed by planning, information transfer, co-ordination on site, technical studies, health and safety, multicultural projects, estimating requirements and quality control.
- The ranking of the most important problems on construction sites, in terms of their effect on managing construction work were problems of planning followed by design, material supply, technical studies, information transfer, estimating requirements, quality control, co-ordination on the site, health and safety and finally the problem of multicultural projects.
- The ranking of the importance of construction site management problems is not always based on the frequency of occurrence on site. For example, although the problem of the technical studies occurred infrequently, it was also seen to affect the majority of construction processes on the site.
- Although the problem of multicultural projects has a negative effect on site management effectiveness, in contrast to Burgess and Enshassi (1990), this problem is considered as the least important problem of site management in terms of their effect on managing construction work. However, the importance of cross-cultural training is an essential requirement for effectively managing overseas projects successfully.
- The problem-solving approaches used in GMRWUA projects can be classified into two main categories:
  - o Informal methods - these encompass previous experience, discussion or informal meetings and reference to experts.
  - o Structured methods - these encompass practical approaches to control quality, day-to-day planning and health and safety procedures. (Anumba and Mohamed 2006)

This research has highlighted the major problems which have occurred within the GMRWUA. Even though the ten major problems in CSM are common problems in many countries, there are numerous other problems that can occur in the CSM. Therefore, in order to obtain a broader and clearer picture of the problems in terms of managing construction sites, large sample sizes will be required to produce more reliable findings and validation of data.

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PERCEPTIONS OF STATUS AND WORKGROUP COOPERATION: IMPLICATIONS FOR PROJECT GOVERNANCE

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Achieving and sustaining individuals' cooperation in temporary multi-organisation (TMO) project workgroups in construction is one of – if not – the most enduring challenges facing the sector. A mediational model connecting pride and respect to each of four dimensions of cooperative behaviour – in-role, compliance, extra-role, and deference – was tested in a survey sample of 140 construction professionals in Hong Kong. The findings show that respect mediates the influences of pride on in-role, compliance, and extra-role behaviours but not deference behaviour. While needing corroboration by future research, the findings suggest that pride and respect are viable strategies for project managers who are keen to motivate project actors to cooperate with their workgroups to achieve project objectives, and lend support to efforts to improve the culture of construction.

Keywords: Cooperation, pride, respect, temporary multi-organisation, TMO.

INTRODUCTION

The problems of the construction sector and their causes are generally well known and articulated. Courtney and Winch (2003) summarized these as being behavioural and organisational. The behavioural dimension underscores a chronic lack of cooperation between the temporary multi-organization (TMO) members involved in the design and delivery of construction projects and programmes (Phua, 2004), which also speaks for the organizational dimension as TMO member boundary spanning behaviours are crucial for the success of projects. Suggested solutions to these problems – renewal strategies – include, for example, the use of alternative (to design-bid-build) procurement methods, new forms of contract and incentive mechanisms, supply chain management, as well as delivery modalities like partnering, alliancing and concurrent engineering. Generally, these renewal strategies have failed to create the much expected deep-seated improvements in attitudes, mindsets, behaviour, and project performance. Much of the blame for this has been placed on the design and marketing of and research in these renewal strategies, which have tended to emphasize their structural features of the renewal strategies (e.g. tools and techniques, critical success factors, hypothesized benefits) almost to the neglect of the contextual and situational factors that underpin their effectiveness or otherwise (Bresnen and Marshall, 2000; Koskela, 2003).

However, an analysis of the renewal strategies shows that, while they may have structural features that distinguish one from the other, they all use (or assume) the

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team approach as the primary means to execute their respective philosophies (Fleming and Koppelman, 1996; Baiden *et al.*, 2006; Anvuur and Kumaraswamy, 2007). For clarity, this approach implies, at the very basic level, the existence of collectives consisting of differentiated and independent members (Cherns and Bryant, 1984; Katzenbach and Smith, 1993; Klimoski and Mohammed, 1994). Central to the team approach – and to the development of high-performance project teams – is the notion of *confluence* (Katzenbach and Smith, 1993; Syer and Connolly, 1996): a gestalt concept in which the boundaries between the self and the team merge. According to Syer and Connolly (1996), confluence manifests itself in the cohesion, synergy and high performance of the team. Confluence is thus the culmination of the long and often painful commitment building process through which the team evolves and learns from its failures and successes (Katzenbach and Smith, 1993). This commitment building process involves the development of psychological mechanisms (or mental models), which collectively are referred to as *emergent states* and which mediate the influence of managerial interventions, team processes and contextual factors on individual performance, team performance and project outcomes (Klimoski and Mohammed, 1994). Within the extant management literature, there is an abundance of conceptual frameworks for and empirical evidence of the outcomes and antecedents of emergent states (for a review, cf. Mohammed *et al.*, 2010).

In construction management research, similar conceptual frameworks have been developed to explain the influences of emergent states on cooperation (e.g. Nicolini, 2002; Anvuur and Kumaraswamy, 2007). Similarly, there is a growing body of empirical research on the outcomes and predictors of various emergent states in construction TMOs. For example, organisational identification (e.g. Phua, 2004), trust (e.g. Lui and Ngo, 2004; Smyth *et al.*, 2010), psychological empowerment (e.g. Liu *et al.*, 2007; Tuuli and Rowlinson, 2009), project affinity (Dainty, Bryman *et al.*, 2005) all have been demonstrated to influence individual efforts aimed at specific organisationally-relevant outcomes. However, no construction management research has examined the extent to which the psychological mechanisms based on status-relevant evaluations of group membership – *pride* and *respect* – influence individuals' cooperation in construction project settings. This is a major shortcoming in the construction management literature, given that these status evaluations – along with organisational identification (Mael and Ashforth, 1992; Phua, 2004) – have been demonstrated to be central to an individuals' definition of his or her self-concepts – i.e. their social identity (e.g. Tyler and Blader, 2000, 2001).

The purpose of the present study is to address this shortcoming, by reporting the findings of empirical research which investigated the influences of pride and respect on individuals' cooperative behaviours in their proximal project workgroups. A secondary objective of this study is to make a methodological contribution by illustrating the state of the state-of-the-art statistical procedures for testing mediational hypotheses using OLS regression. Such process analysis research that provides insight into the causal networks of variables/constructs of interest are crucial for the further development of the construction management discipline (Winter *et al.*, 2006) yet are very rare. The majority of existing process analysis research papers used Baron and Kenny's (1986) 'three-steps and Sobel *z*' mediation procedures. However, recent research emphasizes bootstrap confidence interval tests of the indirect effect over null hypothesis significance tests and the Sobel *z*-test (Shrout and Bolger, 2002; MacKinnon *et al.*, 2004; Cheung, 2009). Only the study by Pesämaa *et al.* (2009) used bootstrap tests of the indirect effect in a structural Equation model to test mediation.

25

By illustrating the new procedures in OLS regression, the method of choice for most construction management researchers, it is hoped that researchers would be encouraged to use the more robust new procedures and to consider the possibility of intervening variable processes (mediation, moderated mediation, mediated moderation, and suppression) in their research designs. In the following sections, we discuss the relationships between the constructs of pride and respect and with the multi-dimensional cooperation construct. We then present the methods of research used in and the results of our study. Finally, we discuss the findings and outline the implications for research and practice.

STATUS PERCEPTIONS IN WORK ORGANISATIONS

According to Tyler and Blader (2000, 2001), individuals make two basic status evaluations with regard to the groups or organisations to which they belong: an evaluation of the status of the group/organisation (*pride* in affiliation); and an evaluation of their own status within the group/organisation (*respect*). Authentic pride and respect are occasioned by intrapersonal evaluations of action that confirm achievement and self-realisation respectively (Khalil, 2000; Williams and DeSteno, 2008). A*chievement-orientated* or *authentic pride* stems from forward-looking evaluation of the tenacity of action (Khalil, 2000; Williams and DeSteno, 2008) while authentic respect stems from forward-looking action aimed at substantive ends and which confirm estimated ability (Khalil, 2000). However, as is the case with most emergent states, pride and respect also have their distorted or maladaptive forms – hubristic pride (Williams and DeSteno, 2008) and pomposity (Khalil, 2000) respectively, which, in contrast, are generalised and non-targeted or specific experiences. These maladaptive forms of pride and respect are not the focus of the present paper. The present paper focuses on the adaptive functions of pride and respect in the context of TMO settings in construction.

Previous research demonstrates that favourable status evaluations lead individuals' to engage in cooperative behaviours and self-development activities (e.g. O'Reilly and Chatman, 1986; Gaertner *et al.*, 1993; Tyler and Blader, 2000, 2001; Katzenbach, 2003; Blader and Tyler, 2009). Equally, research indicates that personal pride shapes individuals' decisions and behaviours related to intra- and interpersonal social and organisationally-directed goals (e.g. Williams and DeSteno, 2008), and that personal pride influences perceptions of respect (Williams and DeSteno, 2009). Further, research indicates that, especially in the context of teams, the consequences of personal pride and group pride would be analytically indistinguishable (e.g. Khalil, 2000; Williams and DeSteno, 2008). Thus, based on previous research, as discussed above, we believe that not only do pride and respect act as functional mechanisms for increasing individuals' cooperation with their project workgroups, also the influence of pride is mediated by respect.

INDIVIDUALS' COOPERATION IN PROJECT WORKGROUPS

Cooperation is defined here as behaviour which promotes the goals of the workgroup or organisation that one belongs to (Katz, 1964; Tyler and Blader, 2000). From an organisation's or workgroup's perspective, such behaviours constitute performance (Katz, 1964). Previous research has demonstrated that role incumbents' cooperation with their workgroups or organisations can be bifurcated into four types of behaviour which vary on two dimensions (e.g. Katz, 1964; Smith *et al.*, 1983; Motowidlo and Van Scotter, 1994; Tyler and Blader, 2000): *function* (i.e. production-function;

coordination); and *source* (formal organisation, hence obligatory; informal organisation, hence voluntary). The four types of cooperative behaviour – *extra-role*, *in-role*, *deference*, and *compliance* – are distinct yet related manifestations of individuals' cooperation, and are context-specific (Stone-Romero *et al.*, 2009; Turnipseed and Wilson, 2009).

Extra-role behaviour is voluntary production-function focused behaviours and includes volunteering to carry out extra task activities or helping peers with task-related problems not formally part of one's own job role. In-role behaviour is obligatory production-function focused behaviour, and involves role incumbents in carrying out tasks that are formally part of their job roles. Deference behaviour is voluntary rule-following behaviour that helps coordination and restrains counterproductive workplace behaviour, and includes willingly following organisational/workgroup rules or deferring to relevant authorities or best standards of appropriate behaviour where rules/norms do not exist. Compliance behaviour is calculative rule-following behaviour referenced to reinforcement mechanisms, and involves minimal observance of both task-specific and general organisational/workgroup rules (e.g. on health and safety) to avoid sanctions for rule-breaking.

There is empirical support both in the extant management literature (Smith *et al.*, 1983; Motowidlo and Van Scotter, 1994; Tyler and Blader, 2000, 2001) and in construction management research (e.g. Phua, 2004; Tuuli and Rowlinson, 2009; Anvuur and Kumaraswamy, under review) for the construct validities and independent organisational performance consequences of the four types of cooperative behaviour. Based on previous research, as discussed above, it is expected that pride and respect would each predict in-role, extra-role, compliance and deference behaviours, and that respect would mediate the influence of pride on each of the four cooperation dimensions. Figure 1 depicts this mediation model. More formally, it is hypothesized as follows:

H_1: Respect will mediate the influence of pride on in-role behaviour.

H_2: Respect will mediate the influence of pride on compliance behaviour.

H_3: Respect will mediate the influence of pride on extra-role behaviour.

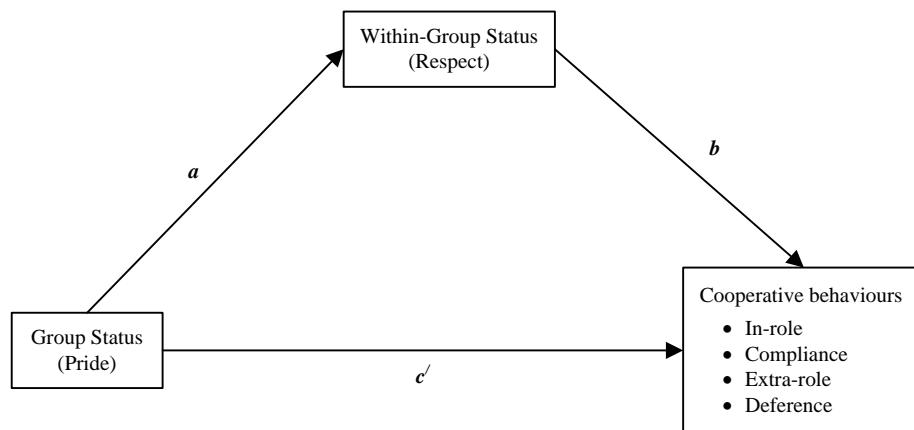H_4: Respect will mediate the influence of pride on deference behaviour.

Figure 1. Model of the relationships between pride, respect and cooperation

METHOD

Sample and procedure

The questionnaire responses analysed were from a sample of 140 chartered built environment professionals in Hong Kong. This sample happened to include 135 men and 5 women. Average age of the participants was 44 years. Average total experience of the participants in construction was 20 years and average experience in current position was 7 years. All but three participants had at least a bachelor's degree. The sample consisted of 101 Chinese, 37 Caucasians and 2 participants with other ethnicities. The survey and data examination procedures, as described below, provide methodological and empirical reasons to believe that the analysis sample was not biased.

Items for the present study were merged into a larger questionnaire and sent out to 1100 chartered (before 2006) built environment professionals (engineers, project managers, quantity surveyors, and architects). A qualification question and skip routine were used to select only respondents who had participated in a recently completed (i.e., within the past 5 years of 2007) or an ongoing but relatively advanced construction project to respond to the questions. The questionnaire items (except for the demographic and social preferences items) were tailored to a project context by expressly asking respondents to focus on their proximal cross-functional workgroup within one and the same specific recent project that they have participated in. After two mailings, interspersed with two e-mail reminders, a total of 153 'eligible' responses were received, representing a response rate of 18% or the higher rate of 20% if adjusting for 'non-eligibles'. This response rate compares favourably with those reported in many similar previous studies.

This initial dataset was examined for (item and unit) non-response bias, violations of multivariate normality, and social desirability bias using the normal procedures and techniques for data examination (cf. Hair *et al*, 2010), including missing value analysis, Armstrong and Overton's (1977) popular "successive waves" extrapolation procedure, examination of advanced diagnostic (and influence) statistics, and Strahan and Gerbasi's (1972) 10-item short version of the Crowne and Marlowe (1960) 33-item social desirability scale. This process resulted in 13 cases being discarded. The final analysis sample of 140 cases was adjudged to be fairly representative of the target population, hence suitable for the subsequent analyses.

Measures

All item measures were reflective (i.e. effect measures) and were phrased as questions on 5-point Likert scales. The dimensionalities of the measures were confirmed in this study by exploratory Principal Components factor analysis with Varimax rotation. Items that cross-loaded, had absolute loadings less than .50 or measures of sampling adequacy less than .50 were candidates for deletion. The final retained scale items were then examined for their internal consistency by checking item-total correlations and Cronbach's alpha. The final scales demonstrated strong item-total correlations (minimum correlation > .50) and internal consistencies (Cronbach's alpha > .70). See items in the Appendix.

Dependent variables: cooperation dimensions
Cooperation was measured by adapting Tyler and Blader's (2001) four-dimensional cooperation scale, which has four sub-scales measuring role incumbents' in-role, extra-role, compliance, and deference behaviours.

In-role. The final in-role sub-scale consisted of five items, which assessed role incumbents' performance of job tasks that are formally required as part of their work roles. The Cronbach's alpha for the five-item in-role sub-scale was .89.

Extra-role. The final extra-role sub-scale consisted of four items, which tapped role incumbents' performance behaviours that involve them in either volunteering to carry out extra task activities or in helping others with task-related problems which are not formally part of their own work roles. The Cronbach's alpha for the four-item extra-role sub-scale was .78.

Compliance. Compliance was measured with three items which assessed role incumbents' performance behaviours that involve them in following work rules which are shared within the organisation or workgroup and which they perceive to be obligatory because of reinforcement mechanisms. The Cronbach's alpha for the three-item compliance sub-scale was .88.

Deference. Deference was assessed with three items, which tapped role incumbents' performance behaviours that involve them in voluntarily following rules or deferring to relevant authorities or best standards of appropriate behaviour where rules/norms do not exist. The Cronbach's alpha for the three-item deference sub-scale was .83.

Independent variables
Respect. Respect was measured by adapting Luhtanen and Crocker's (1992) membership collective self-esteem scale, which measures role incumbents' evaluations of how valuable or worthy they are as members of their workgroups. Thus, the four items reflect workgroup members' self-assessments of their respect within their workgroups. The Cronbach's alpha of the respect scale for the present study was .73.

Pride. Pride in affiliation was measured by adapting five items from O'Reilly and Chatman's (1986) pride scales. The five items assessed how proud role incumbents' were to be part of their work settings, respecting or internalising their project organisations' (and workgroups') values and accomplishments. The Cronbach's alpha for the five-item pride scale was .85.

Control variables
We also controlled for each respondent's age, gender, educational attainment, ethnicity, and satisfaction with their pay. Previous studies (e.g. Smith *et al.*, 1983; Tsui *et al.*, 1992; Khalil, 2000; Phua, 2004; Blader and Tyler, 2009) have found or argued these variables to be associated with one or more of the attitudinal and behavioural variables in the present study. Age, gender, educational attainment, and ethnicity were coded as dummy variables: age, $0 \leq 40$ years and $1 > 40$ years; gender, $0 =$ male and $1 =$ female; educational attainment, $0 =$ undergraduate degree or below and $1 =$ postgraduate education; ethnicity, $0 =$ non-Chinese and $1 =$ Chinese. Pay satisfaction was measured with two items: "Overall, I receive excellent pay and benefits where I work"; and "I am satisfied with my pay". The Cronbach's alpha for this scale was .89.

Data analysis procedure
Procedure for determining the existence of a mediation process
Application of the Baron and Kenny (1986) mediation procedure would require the estimation of the following three regression models:

$$DV = i_1 + cIV + e_1 \tag{1}$$

$$MED = i_2 + aIV + e_2 \tag{2}$$

$$DV = i_3 + c'IV + bMED + e_3 \tag{3}$$

Where, i_j and e_j are the intercept and error terms respectively. Note that, for convenience, no distinction is made in the present paper between population parameters (e.g. a) and their corresponding sample estimates (e.g. $\hat{a}$).

In Equation 1, the *total effect*, c, of pride (the independent variable; *IV*) on cooperation (the dependent variable; *DV*) is obtained by regressing cooperation on pride. Figure 1 shows how this total effect of pride can be apportioned into its *indirect effect* on cooperation through respect (the mediator variable; *MED*) and its direct effect on cooperation (path c'). Path a represents the effect of pride on respect and is obtained by regressing respect on pride as in Equation 2. Path b, the effect of respect on cooperation while controlling for the effect (c') of pride, is obtained by regressing cooperation on both respect and pride as in Equation 3 above. The indirect effect of pride on cooperation through respect can then be quantified as the product of the unstandardised regression weights a and b (i.e. ab). Statistically significant effects for paths c, a and b (as expressed in eqns. 1, 2 and 3 above) and a significant Sobel's z-test constitute the popular Baron and Kenny (1986) "three tests + Sobel" steps for proving mediation. The Sobel z-test tests the null hypothesis that the indirect effect ab = 0 (Sobel's z = ab/SE_{sobel}; where, $SE_{sobel} = \sqrt{a^2 SE_b^2 + b^2 SE_a^2}$ and SE_i is the standard error for identity i). If the absolute value of the z score is larger than 1.96, it is statistically significant at the .05 level (Baron and Kenny, 1986).

However, subsequent research has indicated some necessary revisions to the Baron and Kenny (1986) mediation procedure. Firstly, the Baron and Kenny steps have been restated in terms of zero and nonzero coefficients to reflect a general trend in the psychology and social science disciplines to stress the importance of confidence intervals (CIs) over null hypothesis significance tests (Shrout and Bolger, 2002; Cheung, 2009; Kenny, 2009); if the CI of an estimate does not include zero, then the effect in question is considered to be significant. Secondly, the requirement that there should be "an effect to be mediated", that is, a significant total effect, c (step/eqn. 1 above), is now considered to be unnecessary. This is because in the case of distal mediation processes and when suppression (explained later in the text) is hypothesized or suspected, step 1 is not likely to be met (Shrout and Bolger, 2002; MacKinnon *et al.*, 2004; Preacher and Hayes, 2008; Zhao *et al.*, 2010). Therefore, the definitive test of mediation is a significant indirect effect ab; thus, only (steps) eqns. 2 and 3 above are required.

Researchers have also criticised the assumption of normality of the sampling distribution of the product (ab) and the Sobel's z, which hold only for very large sample sizes (Shrout and Bolger, 2002; MacKinnon *et al.*, 2004). The assumption of normality makes the Sobel *z*-test very conservative; that is, the 95% CI for the indirect effect ($ab \pm 1.96SE_{sobel}$) will include zero more often than would the 95% CI created

from the theoretical sampling distribution of *ab* (Shrout and Bolger, 2002). Bootstrap tests of the indirect effect are considered to be more powerful than the Sobel z-test and do not impose an assumption of normality (MacKinnon *et al.*, 2004; Cheung and Lau, 2008). Bootstrapping involves sampling with replacement (thousands of times) from the original data set and estimating the indirect effect (*ab*) in each resampled data set (Shrout and Bolger, 2002). This way, the empirical distribution of *ab* is used to approximate its theoretical distribution and to generate the CI.

There are several methods by which to construct bootstrap CIs, a discussion of which is beyond the scope of the present study. For a review of the available methods, the interested reader should please see, for example, MacKinnon *et al.* (2004) and Cheung and Lau (2008). Based on simulation studies, MacKinnon *et al.* (2004) concluded that the bias-corrected and accelerated bootstrap (BC*a*) procedure is the single best method overall in terms of closeness to nominal Type I error rates and statistical power. Preacher and Hayes (2008) recommend 1000 bootstrap resamples for preliminary analyses and 5000 for final reporting, and have developed SPSS macros for generating bootstrap CIs for the indirect effect in OLS regression designs. Shrout and Bolger (2002) and Cheung and Lau (2008) describe the procedure for and provide practical recommendations on generating bootstrap CIs of the indirect effect in structural Equation models using popular software packages like AMOS, LISREL and EQS. Cheng (2009) provides a helpful comparison of methods for generating CIs of standardised indirect effects.

Procedure for determining the type mediation process
While the definitive test of mediation is a significant indirect effect *ab*, the magnitudes, directionalities and *p*-values of the *a*, *b*, *c′* and *c* paths, hence Baron and Kenny's (1986) three Equations above, are important in determining the exact type of intervening variable process (mediation, nonmediation or suppression) that is indicated, and may also be instructive for theory building (Shrout and Bolger, 2002; Cheung and Lau, 2008; Zhao *et al.*, 2010):

1. If neither a direct effect (*c′*) nor indirect effect (*ab*) exists, the situation is *no-effect nonmediation*.

2. If a direct effect (*c′*) exists but there is no indirect effect (*ab*), there is *direct-only nonmediation*.

3. If a direct effect (*c′*) and indirect effect (*ab*) both exist and are in the same direction, then there is *complementary mediation* (or "partial mediation).

4. If an indirect effect (*ab*) exists but there is no direct effect (*c′*), then the mediation process is *indirect-only mediation* (or "full mediation").

5. If the indirect effect (*ab*) and direct effect (*c′*) both exist but are in opposite directions, there is *suppression*.

In the special case where the proposed independent and mediator variables have significant zero-order bivariate associations of roughly the same magnitude direction with the dependent variable, a redundancy situation results (Tzelgov and Henik, 1991). Shrout and Bolger (2002) have also shown that 50% of the time when a full mediation process exists in the population (i.e. $c' = 0$), the sample estimates of the direct effect, although nonsignificant, can be expected to be in an opposite direction to the indirect effect (*ab*) – this spurious situation they said is an artifactual result of sampling fluctuations.

One of the advantages of the above guidelines over the Baron and Kenny steps is the ability to identify and test suppression situations. Research (e.g. Paulhus *et al.*, 2004; Nickerson, 2008) distinguishes between three types of suppression situations namely classical suppression, cooperative suppression, and net suppression. Previously only recognised for their ability to enhance the predictive validities of one or more predictors (Tzelgov and Henik, 1991), suppression situations (specifically, cooperative and net suppression situations) are now also considered to have theoretical import, including indicating the possibility of an omitted mediator (Shrout and Bolger, 2002; Paulhus *et al.*, 2004). A detailed discussion of the three types of suppression situations and their theoretical implications is beyond the scope of the present study. The interested reader should please refer to Tzelgov and Henik (1991), Paulhus *et al.* (2004) and Nickerson (2008). Also, a confirmed case of complementary (or partial) mediation is often indicative of an omitted mediator of the same sign as the indirect effect (Shrout and Bolger, 2002; Zhao *et al.*, 2010).

The present study
In the present study, we used the BCa procedure with 5000 resamples and Preacher and Hayes' (2008) SPSS OLS regression macro for multiple mediation to generate 95% CIs for the indirect effects (*ab*) of pride on in-role, compliance, extra-role and deference behaviours acting through respect. If the 95% CIs do not include zero, then the indirect effects would be considered to be significant. The Preacher and Hayes' macro also provides estimates of the *a*, *b*, *c* and *c′* paths (as in Equations 1, 2 and 3 and Figure 1 above). Ethnicity, age, gender, educational attainment and pay satisfaction were included as covariates in each regression model estimated. Table 1 shows descriptive statistics and correlations among the study variables. Table 2 shows the results of the regression analyses.

Table 1. Descriptive statistics and correlations among study variables

Variables	Mean	*SD*	1	2	3	4	5	6	7	8	9	10	11
1. Ethnicity	.72	.45	—										
2. Age	.67	.47	−.10	—									
3. Gender	.04	.19	.03	−.19	—								
4. Education	.55	.50	.01	.04	.02	—							
5. Pay satisfaction	3.00	.90	−.03	.23	.09	.09	.89						
6. Pride	3.31	.69	.05	.10	−.01	.18	.45	.85					
7. Respect	4.09	.61	−.10	.18	−.06	.09	.17	.39	.73				
8. In-role	4.10	.54	.03	.00	−.02	.01	.16	.24	.35	.89			
9. Compliance	4.05	.61	.20	.01	.03	.14	.13	.23	.25	.41	.88		
10. Extra-role	3.67	.60	−.06	.04	−.07	−.02	.20	.31	.34	.51	.32	.78	
11. Deference	3.73	.65	.17	−.04	.04	.13	.11	.19	.20	.27	.58	.25	.83

Notes. $N = 140$. All correlations > .16 have $p < .05$.
Entries below the diagonal are Pearson's product-moment correlations. Diagonal entries, where available, are the Cronbach's alphas for each scale.
Dummy variables were coded as follows: ethnicity, 0 = non-Chinese and 1 = Chinese; age, $0 \leq 40$ years and $1 > 40$ years; gender, 0 = male and 1 = female; educational attainment, 0 = undergraduate degree or below and 1 = postgraduate education.
Scale items were scored on 5-point Likert scales with high numbers indicating more of the construct.

RESULTS

As the results in Table 1 show, of the control variables (covariates), only gender was not significantly associated with any of the variables of interest in the present study.

Ethnicity was significantly correlated with compliance ($r = 0.20$, $p = .016$) and deference ($r = 0.17$, $p = .041$) behaviours. Age was significantly correlated with pay satisfaction ($r = 0.23$, $p = .006$) and respect ($r = 0.18$, $p = .034$), while education was significantly correlated with only pride ($r = 0.18$, $p = .035$). Finally, pay satisfaction was significantly correlated with pride ($r = 0.45$, $p = .000$), respect ($r = 0.17$, $p = .047$) and extra-role behaviour ($r = 0.20$, $p = .021$). Thus, ethnicity and pay satisfaction were the only control variables that were significantly associated with cooperation. As can be seen from the results in Table 1, a pattern of positive and statistically significant intercorrelations among pride, respect and all four cooperation dimensions ($r \geq 0.19$, $p < .03$) was observed, thus providing preliminary support for our hypotheses.

The results of the regression analyses, presented in Table 2, provided substantive support for our hypotheses. The directions of the a and b paths were consistent with the interpretation that greater pride in affiliation leads to greater respect, which in turn leads to greater in-role, compliance, extra-role, and deference behaviours. An examination of the specific indirect effects of pride acting through respect indicated significant effects for the *pride→in-role*, *pride→compliance* and *pride→extra-role* relationships but not the *pride→deference* relationship, since the CI for the indirect effect (.0006, .1655) included zero. Referring to the procedures, as discussed above, for determining the type of intervening variable process there is in process analysis research, we concluded the following about our study hypotheses:

- Hypothesis H_1 is supported. Respect mediates the relationship between pride and in-role behaviour. Based on guidelines discussed earlier, the mediation process can be described as indirect-only mediation (or full mediation).

- Hypothesis H_2 is supported. Respect mediates the relationship between pride and compliance behaviour. Based on guidelines discussed earlier, the mediation process can be described as indirect-only mediation (or full mediation).

- Hypothesis H_3 is supported. Respect mediates the relationship between pride and extra-role behaviour. Based on guidelines discussed earlier, the mediation process can be described as complementary mediation (or partial mediation).

- Hypothesis H_4 is not supported. Respect does not mediate the relationship between pride and deference behaviour. Based on guidelines discussed earlier, the intervening variable process can be described as no-effect nonmediation.

DISCUSSION

The primary purpose of this research was to investigate the adaptive consequences of two organisation-related mechanisms of human status – pride and respect – by deriving and testing predictions linking these emotions to individuals' in-role, compliance, extra-role, and deference behaviours in their proximal TMO project workgroups. The findings show that individuals high in pride tend to view themselves as being self-respecting, which in turn leads them to exhibit more in-role, compliance, extra-role, and deference behaviours. Further, the findings show that respect fully mediates the influence of pride on in-role and compliance behaviour and partially mediates the influence of pride on extra-role behaviour. These findings are consistent with prior research which demonstrates the adaptive social and organisational performance consequences of pride and respect (Katzenbach, 2003; Williams and DeSteno, 2008). In particular, our findings replicate those of Tyler and Blader (2000, 2001) in demonstrating that pride and respect are functional social mechanisms for

increasing individuals' cooperation with their workgroups. However, the present study extends the Tyler and Blader studies by showing that respect mediates the influence of pride on cooperative behaviour – fully in the case of mandatory behaviour (in-role and compliance) and partially, in the case of extra-role behaviour. This finding, along with previous research (Williams and DeSteno, 2009), may suggest that, contrary to Tyler

and Blader's (2000, 2001) assertion, respect influences aspects of behaviour that flow from both group- and individual-level concerns. One finding of this research, disconfirming our mediational hypothesis and contradicting Tyler and Blader's (2001) finding, is that pride has neither a direct nor indirect influence on deference behaviour. More research is thus required to better understand the influence of pride on deference. However, a finding of no-effect can occur despite a pattern of positive and significant a and b paths, as observed in Table 2 (cf. Zhao *et al.*, 2010).

An unhypothesized yet significant finding is relationship between ethnicity and rule-following behaviour. Ethnicity was significantly related to the compliance behaviour ($\beta = 0.30$, $p = .008$) and deference behaviour ($\beta = 0.26$, $p = .032$) of the individuals sampled in this study. This finding suggests that Chinese respondents ($N = 101$) in the sample were more likely than their non-Chinese counterparts ($N = 39$) to comply with or defer to work rules and regulations. The finding that the Chinese respondents in the sample showed a propensity towards rule-following is significant given that power distance is one dimension on which collectivists and individualists are said to differ markedly (Hofstede, 1980). Chinese are generally considered as collectivists and have been found to tend towards self-restraint and compliance, and even self-deprecation (e.g. Bond, 1986; Markus and Kitayama, 1991). This finding on the positive relationship between Chinese ethnicity and individual rule-following behaviour is, thus, consistent with and reinforces previous research.

A secondary objective of this study was to illustrate the procedures for testing mediational hypotheses using bootstrapping tests of the indirect effect and, based on the results, 'diagnosing' the type of intervening variable process that is indicated (cf. Shrout and Bolger, 2002; Cheung and Lau, 2008; Zhao *et al.*, 2010). This has been achieved. Using the techniques and procedures illustrated in this paper would increase the chances of identifying intervening variable processes in construction management research and, hence advance our understanding of the 'causal' networks associated with the numerous classificatory systems of critical success factors for various aspects of construction performance. Such process analysis research is crucial for the further development of the discipline (Winter *et al.*, 2006; Morris, 2010).

Implications for practice
Workgroup members in construction TMOs are essentially boundary spanners whose (Cherns and Bryant, 1984; Phua, 2004) whose decisions and actions have profound impacts on project outcomes (Dainty, Cheng *et al.*, 2005). However, research suggests that project actors' self-concepts are closely linked to their professional or functional role affiliations and that this has often limited the extent of cooperation in projects (e.g. Moore and Dainty, 2001; Ankrah and Langford, 2005; Gluch, 2009; Pinto *et al.*, 2009). A major challenge for project managers is, therefore, how to motivate project actors to cooperate with their workgroups in order to achieve project objectives. The findings of this study show that pride and respect are interrelated yet distinct functional psychological mechanisms for achieving this. Because these emotions derive from intrapersonal evaluations of substantive action, project managers can only

<div align="center">Table 2. Results of regression analyses</div>

					Direct Effect		Indirect Effect				Total Effect				
	a		*b*		*c´*		*Ab*				*C*				
									BC*a* 95% CI[a]						
DV	Point Estimate	(*SE*)	Point Estimate	(*SE*)	Point Estimate	(*SE*)	Point Estimate	(*SE*)	Lower	Upper	Point Estimate	(*SE*)	*F*	*R²*	Adj. *R²*
Cooperation															
In-role	0.36***	(.08)	0.29***	(.08)	0.06	(.08)	0.1049	(.04)	.0314	.2077	0.17*	(.08)	3.33**	0.15	0.10
Compliance	0.36***	(.08)	0.22**	(.09)	0.08	(.09)	0.0805	(.04)	.0184	.1739	0.16*	(.08)	3.14**	0.14	0.10
Extra-role	0.36***	(.08)	0.25**	(.09)	0.17*	(.08)	0.0906	(.04)	.0282	.1862	0.26**	(.08)	3.87***	0.17	0.13
Deference	0.36***	(.08)	0.20*	(.10)	0.06	(.09)	0.0707	(.04)	.0006	.1655	0.14	(.09)	2.19*	0.10	0.06

Note. $N = 140$. Residual *df* = 132. All unstandardised regression coefficients (betas; β's) and R^2 estimates are from analysis that include controls for the effects of ethnicity, age, gender, educational attainment, and pay satisfaction on all four cooperation dimensions, with only ethnicity having significant effects on compliance (β = 0.30, $p = .008$) and deference (β = 0.26, $p = .032$). IV = independent variable; MED = mediator variable; DV = dependent variable; SE = standard error.

[a] Column entries are the bias corrected and accelerated (BC*a*) 95% confidence intervals (95% CI) based on 5000 bootstrap resamples (and were estimated using an SPSS script written by Preacher and Hayes, 2008).

* $p \leq .05$

** $p \leq .01$

*** $p < .001$

influence these indirectly, through the design and management of the social environment of projects. Previous research suggests that governance systems and action that demonstrate, for example, the articulation and enactment of ethical standards, justice (or fairness), opportunity (for upskilling; of challenging work; for performance feedback), concern for employee well-being, and participative safety all have been shown to provide favourable cues for the status evaluations central to the emotions of pride and respect (e.g. Katzenbach, 2003; Blader and Tyler, 2009). Previous research shows that organisational identification mediates the influences of both pride and respect on cooperative behaviour (Tyler and Blader, 2001). This suggests that the same management action impacting pride and respect, as described above, would also impact the development of organisational identification.

Given the many circles of inclusion in TMO project workgroups (Fellows, 2006), an individual's identification would be superordinate in nature (Gaertner *et al.*, 1993) and temporary. Similarly, any pride climate or respect climate developed in construction project settings would be temporary (Fellows, 2006). At the firm and institutional (sector) levels, pride- and respect-based strategies can take on cultural significance. Our findings provide support for efforts towards a 'cultural transformation' of the construction sector – as represented by the partnering ethos. Besides creating taxonomies, this effort is, more importantly, concerned with understanding and shaping the aspects of governance structures and processes that create and sustain the attitudes and values that encourage cooperation on construction projects (e.g. Kumaraswamy *et al.*, 2002; Kumaraswamy *et al.*, 2005; Fellows, 2006; Fellows *et al.*, 2007).

Consider, for example, the *Respect for People* (2000, 2004) initiative in the UK. When stripped of all the politics, cynicism, and power struggles associated with its introduction (see Ness, 2010), the two Respect for People foci of 'people as assets' and 'people as ends in themselves' are not inherently conflicting or contradictory. Instead, they entail two dimensions of human *value* (Kane, 1998): the former is consistent with economic or instrumental value; and the latter, with moral or ethical value. The (moral/ethical) issues that Respect for People, along with the general partnering ethos and legislation, has highlighted and campaigned for – for example, health and safety, well-being, diversity/inclusivity, corporate social responsibility (business ethics) – are all now recognised as dimensions of organisational and project management performance (Anvuur *et al.*, 2011; Liu *et al.*, 2011; Lingard *et al.*, 2010). This is significant for two reasons. Firstly, people develop value-expressive attitudes and behaviours in order to project and uphold their moral values in the groups/organisations to which they belong (Kane, 1997). Secondly and more pertinently, pride and respect stem from intrapersonal evaluations – i.e. are by-products – of forward-looking action in pursuit of instrumental value. Therefore, to the extent that these moral value criteria are reflected in organisational and project goals, pride and respect constitute viable mechanisms for achieving not only cooperation in projects but also, through identification and replication, the much desired cultural transformation of the construction sector as a whole. As prior research shows, behavioural change is the foundation for attitudinal change (Gaertner *et al.*, 1993; Pettigrew, 1998).

Limitations and future research
There are important limitations to the research reported in this paper, which we now discuss. The findings were based on a Hong Kong sample, which raises questions

about the generalisability of the findings to different cultural contexts. Therefore, further research is required to corroborate the findings reported in this paper. Also, future research is needed to extend the findings of this research by investigating the influences of pride and respect at the workgroup/team level. Another limitation of this study was the use of self-report data. This is concerning because of the potential for effect size inflation due to common method bias. The design of the present study followed all the procedural remedies for controlling common method bias, including obtaining disconfirming evidence from tests of its occurrence in the dataset (see method section). Nonetheless, future research is needed that uses objective data, for example supervisor ratings, and statistical techniques (e.g. Multitrait-Multimethod Matrix; MTMM) capable of modelling the effects of common method. A further limitation is our use of OLS regression as an analysis technique. Although our choice of OLS regression was deliberate, structural Equation modelling (SEM) is a more powerful statistical tool because it not only models measurement error but also is the method of choice where discriminant validity (which was not a problem in the present study) is in doubt (Zhao *et al.*, 2010).

Future research is also required to confirm or otherwise our unexpected – yet not uncommon – finding of no-effect for the pride—deference relationship despite a pattern of positive and significant *a* and *b* paths (cf. Zhao *et al.*, 2010). One possibility is that after partialling out the influence of ethnicity, there was not variance remaining in the pride and respect measures to predict deference behaviour. However, future research is needed to better our understanding of the causal network between pride, respect and deference behaviour. Finally, the results of this study showed that pride had a direct effect on extra-role behaviour ($\beta = 0.17$, $p < .05$), that is, over and beyond its indirect effect through respect. This could be indicative of an 'omitted' mediator or just an artefact of errors in the indicant measures of respect used in this study (Zhao *et al.*, 2010). If the former scenario were to be correct, then future research using SEM techniques is what would be required. If the latter scenario were to be correct, then future research would need to look for an 'omitted' mediator of the same sign as the sign of the indirect effect *ab*. On a speculative note, the 'omitted' mediator might be organisational identification, which has been demonstrated in previous research to mediate the influences of pride and respect on cooperation and to be more strongly predictive of discretionary rather than mandatory cooperative behaviour (Mael and Ashforth, 1992; Tyler and Blader, 2001; Phua, 2004); the finding of no-effect for deference behaviour, in this case, being due to the reasons described above. In either case, future research is needed to better our understanding.

CONCLUSION

In conclusion, this study tested a meditational hypothesis involving pride, respect and each of four types of cooperative behaviour: in-role, compliance, extra-role, and deference. The findings show that respect mediates the influences of an individual's pride on his or her in-role, compliance, and extra-role behaviours but not their deference behaviour. While needing corroboration by future research, these findings suggest that pride and respect are viable strategies for project managers who are keen to motivate project actors to cooperate with their workgroups to achieve project objectives, and lend support to efforts to improve the culture of construction.

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APPENDIX: SCALE ITEMS AND FACTOR LOADINGS

Variable	Items	λ^a
Cooperation % Variance explained = 69.37	(anchors: 1 = "never" to 5 = "very often")	
In-role (5 items) Cronbach's alpha = .89 Min. item-total corr. = .64	I fulfil the responsibilities specified in my job description	.83
	I perform the tasks that are expected as part of my job	.86
	I meet the performance expectations for my job role	.81
	I adequately complete my required work tasks	.78
	I exert my full effort when getting my job done	.73
Extra-role (4 items) Cronbach's alpha = .78 Min. item-total corr. = .57	I volunteer to do things that are not required in order to help my workgroup	.60
	I make innovative suggestions to help improve my work setting	.71
	I volunteer to help others when they have heavy workloads	.81
	I lend a helping hand to others at work	.78
Compliance (3 items) Cronbach's alpha = .88 Min. item-total corr. = .70	I comply with work related rules and regulations	.86
	I follow the policies established by my supervisor	.86
	I carefully try to carry out the instructions of my supervisor	.73
Deference (3 items) Cronbach's alpha = .83 Min. item-total corr. = .64	I willingly follow my project organisation's policies	.69
	I do what my supervisor expects of me, even when I do not think it is important	.85
	I willingly accept the decisions made by my supervisor	.87
Respect (4 items) % Variance explained = 55.91 Cronbach's alpha = .73 Min. item-total corr. = .45	(anchors: 1 = "strongly disagree" to 5 = "strongly agree")	
	I am an important member of my workgroup	.67
	I feel I don't have much to offer my workgroup (R)	.83
	I am a cooperative participant in my workgroup	.73
	I often feel I'm a useless member of my workgroup (R)	.75
Pride (5 items) % Variance explained = 63.29 Cronbach's alpha = .85 Min. item-total corr. = .58	(anchors: 1 = "strongly disagree" to 5 = "strongly agree")	
	I would recommend to a close friend that they work where I do	.72
	I agree with what my project organisation stands for	.78
	I find that my values and the values where I work are similar	.81
	I feel proud to be working where I am	.86
	I 'talk up' where I work to my friends as a good place to work	.81
Pay satisfaction (2 items) % Variance explained = 90.28 Cronbach's alpha = .89 Min. item-total corr. = .81	(anchors: 1 = "strongly disagree" to 5 = "strongly agree")	
	Overall, I receive excellent pay and benefits where I work	.95
	I am satisfied with my pay	.95

Notes:

[a] Standardised factor loadings. For all variables, KMO MSA $\geq$ .50 and Bartlett's test of sphericity is significant at $p < .001$.

R, reverse-scored to create a scale.

FACTORS INFLUENCING THE SUCCESS OF PROJECT IN THE LIBYAN CONSTRUCTION INDUSTRY

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The success or failure of any construction project depends upon many factors, and invariably, differs greatly from one project to another. Cultural influences, in particular, often have a major impact on projects in relation to: completion within required timescales, cost at completion, achieving acceptable quality, and client satisfaction. The main aim of this study is to provide a practical approach for understanding the importance of factors that influence the success of construction projects. In order to identify the major issues and opinions within construction, research was carried out based on both qualitative and quantitative methods within the Libyan construction industry. The results of the study indicate a strong relationship between culture related issues and the success of construction projects, especially in project team selection. Consideration of culture as criteria for selecting project team members was therefore considered paramount to the successful completion of projects. The research also identifies that culture is an integral part, and essential element, in achieving project success.

Keywords: Project management, project success factors, project team selection, cultural factors.

INTRODUCTION

The importance of culture to the success of construction projects has been highlighted by various studies. Smith (2008) acknowledged that the success of construction projects, especially in developing countries, requires an understanding of the ways local society is organised, in addition to indigenous cultural and religious traditions. If socio-cultural factors are therefore not taken into consideration, a project may, or may not, be considered as successful even if it is successfully constructed. Sanvido, et al. (1992) defined success for a given project as the degree to which project goals and expectations are met. He added that these goals and expectations may include technical, financial, educational, social, and professional aspects. Smith (2008) also indicated that, as with other factors already mentioned, knowledge of socio-cultural influences is necessary at the earliest stages of a project because they may have a significant effect on project identification, appraisal and design, as well as on construction and operation. The understanding of employees' culture and religion are important elements that should be taken into consideration as an important part of ensuring a project is completed successfully. Moreover, the management team, including project manager, should be fully aware of these issues in terms of motivating operatives to carry out their work effectively.

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Meredith and Mantel (2006) identified that national culture can affect projects in several ways including time, cost, quality and client satisfaction. Mullins (1993) defined that culture is considered crucial for successful projects implementation. Thus, culture needs to be taken into account when looking for improving the success of construction projects. Furthermore, it is important to consider cultural factors when selecting project team members in order to ensure such selection will not have a negative impact on project completion and success.

LITERATURE REVIEW

The success of any construction project depends upon many factors, and differs from one project to another, and from one organisation to another. This may also be related to the nature and location of a project within a country's geographical boundaries. The construction industry in Libya, in particular, tends to suffer from late completion of projects, and high levels of costs affecting overall budgets, and poor quality of construction on completion. To avoid the above problems and achieve projects goals, three elements (time, cost, and quality) need to be taken into consideration from inception to completion of a project by all project stakeholders. Thus, it is essential to recognise the factors that have an impact on the success and failure of a project. Kerzner (2006) defines project success as *"the completion of an activity within the constraints of time, cost, and performance".* Moreover, Nguyen, *et al*. (2004) consider that a construction project is commonly acknowledged as successful when it is completed on time, within budget, and in accordance with specifications and to stakeholders' satisfaction.

IMPORTANCE OF CULTURE AND ITS INFLUENCE ON PROJECT SUCCESS

The success of any construction project is considered a complementary process, and if any participating body is wrongly selected it will have a major impact on project success. A person who is selected for the project whether a project manager, consultant, contractor or subcontractor should be selected based on specific criteria. This should not only relate to experience, skills and capabilities, but there should also be an awareness of cultural issues to avoid any misunderstanding and delays that can affect project success. Muller and Turner (2007) have shown a correlation between the cultural preferences of construction project managers and their performance in different contexts. Young (2000) pointed out the following points as factors in the project which can affect the quality of project completion. These include: labour availability, use of equipment, contractual agreements, the local climate, and the culture of workforce. According to Hampden-Turner (1994) the importance of culture in construction is that *"Culture defines appropriate behaviour, motivates individuals and asserts solutions where there is ambiguity".*

Meredith and Mantel (2006) emphasized the selection of a project manager as one of the most important decisions concerning a project. They identify some of the most popular attributes, skills, and qualities that have been sought when selecting project managers including: a strong technical background; a mature individual; someone who is currently available and on good terms with senior executives; someone who can keep the project

team happy; and one who has worked in several different departments within organisations.

Situations become even more complex when a project manager has to operate in a multicultural environment where there are on-site differences in language, customs and cultures. In such situations, a project manager requires a greater capacity for understanding and flexibility than that needed by managers in non-multicultural environments. It is also essential for a project manager to understand the culture of the employees, and be aware of different religions and national holidays of each group of workers.

Additionally, there is no doubt that a contractor who will be directly involved in a project will have a significant impact on the project success. Mabachu (2008) highlights that the optimal selection of contractors should be on the basis of overall ability to perform, rather than on tender price alone. A contractor for a project must be carefully selected taking into account the availability of knowledge (e.g. culture), experiences and capability. It is therefore clear that culture is considered as a fundamental issue which strongly influencing project success.

RESEARCH METHODOLOGY

For this research study, the aims and objectives are concerned with investigating and exploring factors that affect the success of construction projects in Libya and finding means of optimising those factors. It is therefore, an exploratory research study with the principal aim to develop a framework for construction organisations for completing projects successfully (within time, cost, and quality). It is also envisaged that the resulting increased successes would also help promote the development and growth of the construction sector in Libya. A mixed method approach was therefore used for this research (qualitative and quantitative) in order to achieve the research objectives. The ultimate goal of using mixed methods in any research project is to: answer the questions and objectives that were specified at the start of the project; to provide better opportunities for achieving the research outcomes; and to help researchers meet the criteria for evaluation of the "goodness" of their answers over single approach designs (Tashakkori and Teddlie, 2003). Three benefits of using this approach can be identified as: mixed methods research can answer questions that the other methodologies cannot; mixed method research provides better (stronger) inferences; and mixed methods provide the opportunity for presenting a greater diversity of divergent views.

A total of 400 questionnaires were administered for the research survey and 161 returns were received representing a 40.25% response rate. This was above the acceptable return rate of 20-30% for a mixed methods approach identified by (Krejcie and Morgan, 2003). Semi-structured interviews were also carried out with experienced personnel from seven organisations within the Libyan construction sector. In all, ten persons were interviewed including: national office officials; a manager from the project management department; a director from the civil engineering department; technical affaires officials; and five project managers, consultants and contractors.

DATA ANALYSIS

Quantitative analysis

The Statistical Package for the Social Sciences (SPSS 17) for Quantitative Analysis was used to analyse the data. This provides structured and robust analysis and is probably the most popular statistical software package used by social science and engineering students (Ryman, 2001). Table 1.1 shows details of respondents who completed and returned questionnaires. From the background information provided, the largest single group of respondents were Construction Professionals, 39.8% of the total respondents; 16.1% were Project Managers; 13.7% were Client/Top Management; 13.7% were Consultants and 8.7% were Construction Managers. The remaining respondents were Academic Lecturers and Contractors at 5.0% and 3.7%, respectively.

Table 1.1: Analysis of Respondents

Respondents	Frequency	Percent %	Cumulative Percent
Project manager	26	16.1	16.1
Construction Manager	14	8.7	24.8
Academic Lecture	8	5.0	29.8
Contractor	6	3.7	33.5
Consultant	21	13.0	46.6
Client/Top Management	22	13.7	60.2
Construction Professionals	64	39.8	100.0
Total	161	100.0	

Table 1.2 lists twenty four factors that may affect the success of a project and that should taken into account in order to complete construction projects successfully. The survey listed nine factors with a median score of 5 that the respondents considered a possible barrier to success of a project. These were: wrong selection of a project manager (96.3% of respondents agreed or strongly agreed), lack of skills and knowledge (95%), lack of materials (93.8%), wrong selection of contractors (91.9%), adequate cash flow (91.3%), poor financial support (90%), poor leadership (88.2%), poor planning and control (88.2%), and poor top management support (82.6%). The results of the Sig of Chi-square as shown in the above table were (0.000) for all the propositions and Cronbach's alpha was (0.923). This confirms the validity of the propositions and the reliability of the scales used. The ANOVA test show that there are significant differences (sig. < 0.005) in the mean score values for poor definition of project objectives (sig. 0.027), lack of health and safety (sig. 0.036), poor risk management (sig. 0.002) and misunderstanding of responsibilities (sig. 0.023). Other propositions showed no significant differences in their mean scores.

Table 1.2, Scores, Median and ANOVA and validity analyses and reliability of scales for the External Environment Factors to the project success

Propositions	Response Scores %					Median	ANOVA (Sig)	Asymp. Sig	Cronbach's alpha
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree				
Wrong Selection of Project Manager	0.6	1.9	1.2	28.0	68.3	5	.689	P > 0.000	
Poor Planning and Control	1.2	0.6	9.9	34.8	53.4	5	.155	P > 0.000	
Lack of Skills and (Knowledge e.g. culture, language)	0.6	1.9	2.5	32.9	62.1	5	.764	P > 0.000	
Poor Financial Support	0.6	1.9	7.5	24.2	65.8	5	.826	P > 0.000	
Poor Top Management Support	0.6	1.9	14.9	32.3	50.3	5	.630	P > 0.000	
Poor Leadership	0.6	1.9	9.3	37.9	50.3	5	.660	P > 0.000	
Adequate Cash Flow	0.6	1.2	6.8	37.3	54.0	5	.185	P > 0.000	
Lack of Materials	0.6	0.6	5.0	37.3	56.5	5	.585	P > 0.000	
Wrong Selection of Contractors	0.6	1.2	6.2	27.3	64.6	5	.406	P > 0.000	
Poor Risk Management	0.6	2.5	25.5	41.6	29.8	4	.002	P < 0.000	0.923
Poor Definition of Project Objectives	1.2	1.2	20.5	32.3	44.1	4	.027	P < 0.000	
Unmotivated Team	1.2	1.9	8.7	47.8	40.4	4	.468	P > 0.000	
Lack of Communication	0.6	1.2	24.8	37.3	36.0	4	.303	P > 0.000	
Poor Quality of Materials	0.6	1.9	9.3	47.2	41.0	4	.150	P > 0.000	
The Fluctuation of Prices	0	5.0	16.8	52.8	25.5	4	.228	P > 0.000	
Instability of Economy	0.6	1.9	18.0	43.5	36.0	4	.171	P > 0.000	
Inadequate Manpower	0.6	1.2	14.9	44.1	39.1	4	.226	P > 0.000	
Increase in the Cost of Labour and Materials	0.6	1.9	16.8	53.4	27.3	4	.784	P > 0.000	
Lack of Health and Safety	0.6	3.1	32.3	34.8	29.2	4	.036	P < 0.000	
Change of Top Management	2.5	6.8	24.2	42.2	24.2	4	.625	P > 0.000	
Misunderstanding of Responsibilities	1.2	1.9	12.4	37.9	46.6	4	.023	P < 0.000	
Inadequate Technology	1.2	1.2	12.4	54.0	31.1	4	.121	P > 0.000	
Wrong Use of Project Methodology	0.6	1.9	8.1	50.9	38.5	4	.158	P > 0.000	
Weather Factors	2.5	9.3	39.1	29.8	19.3	3	.448	P > 0.000	

To be successful, a project must meet time, cost, quality and technical performance objectives, and it must also satisfy the client. The survey results show that to ensure projects are successfully implemented and problems minimised, project objectives should be clearly defined. This would include adequate communication and proper planning and control that needs to be in place, and the appointment of a good project manager and project team, taking into account their skills, knowledge and experience. The data analysis also shows that health and safety management should be present, and in place, in order to avoid injury and/or loss of life. An adequate risk management methodology is also needed for successful projects as shown in the analysis. In order to ensure projects success, there should be early and careful selection of project managers and contractors taking into account their experiences and backgrounds. Contactors' profiles should be considered before selection.

Qualitative analysis

The data were analysed using the qualitative research analysis software NVivo Version 8. The software identified themes and patterns from the interviews. Keywords are entered into the software which then combines all the sentences relating to the key words. After analysing the data thematically, the themes were further examined manually to identify the challenges that affect the success and development of construction projects in Libya.

As confirmed in the literature review, one of the most common reasons behind the failure of project managers is lack of experience. The majority of participants explained that the lack of experience and knowledge (e.g. culture and language), and appointing a project manager to manage a construction project with a non-construction background are considered the most common problems that affect the success of projects within the Libyan construction industry. Moreover, to run successful construction projects, a project manager and contractor should be well qualified, experienced, and knowledgeable to be eligible for selection on a project.

DISCUSSION

From the data analysis, the selection of a poor project manager and a contractor came as the first two factors that affected the success of construction projects in Libya. Findings from the research strongly recommend that there should be a set of criteria which can be used as a guide when selecting and appointing a project manager and contractor in order to enhance of successful completion. Indeed, experience, management and managerial skills, technical abilities, project management knowledge, financial abilities, administrative and supervisory skills and health and safety, are all important issues in the selection process which can impact greatly on project success. Nevertheless, thus far, the importance of culture in a country like Libya will greatly influence the selection of project team members, in addition to the consideration of its special customs and traditions. It is therefore important in order to maintain high employee motivation for a project manager to understand multicultural aspects, employees' needs and cultural influences. This will help promote effective team working and the achievement of successful project completion.

CONCLUSION

Culture in construction projects is an important factor in the successful completion of construction projects. It should initially be considered at the outset of any project, particularly, when selecting project team members including, a project manager, contractor, and subcontractors, in addition to project site workers. Moreover, cultural awareness is an important criterion for selection, as it contributes to the success of construction projects by enabling integrated project team working, in addition to dealing with local external factors. It has also been shown that to improve the performance of the project team members, it is important to respect workers, at all levels within project development, and gives more attention to their culture and needs. This will reflect a good image for project stakeholders, in addition to contributing to the achievement of client satisfaction and successful project completion.

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PRIORITIES AND INFLUENCES IN DECISION-MAKING IN THE BUILT HERITAGE PRACTICE IN UK

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The practice of 'managing change' for built heritage projects has emerged over the last two hundred years from the early days of preservation, restoration and conservation to heritage protection in usage of terms and practice. As we await the new Heritage Protection Bill and the much debated "Heritage Partnerships Agreements" model, this research project aims to understand the role of decision-making processes in UK heritage practice. It intends to map the different factors and stakeholders shaping these processes and to understand their role, and to determine their priorities and influences. Through examining decision-making theory, the project recognises the need to develop a coherent model which can then encompass all factors. A literature review has been conducted to help map the decision-making processes at particular periods in time and the chosen methodology, i.e. case study research, allows analysis of the decision-making processes for each chosen case study. A factor model developed from the literature review includes various criteria which influence decision-making; i.e. Aesthetics/Physical, Social/Cultural, Economical, Environmental/Sustainability, Legal/Political and Behavioural. The project deals with various concepts and philosophies which are highly debated in the 'theory of heritage' vs. the 'practice of heritage'. These are "rational decision-making", "rationality", "value of heritage", "participation" and "community involvement".

Keywords: community involvement, decision-making, heritage protection, rationality, stakeholder participation, value of heritage.

INTRODUCTION

The discourse on heritage has evolved in the last two hundred years with decision-making in practice changing hands from Kings to ruling elites to conservation experts and now the public. The new developments in Heritage call for a more participatory approach which this research seeks to explore through understanding the role of factors and stakeholders which influence decision-making.

Foucault (1991) argues that discourses are forms of expertise, collected into different disciplines, which deal with the construction and representation of knowledge. Discourse not only reflects social meanings, relations and entities, it also constitutes and governs them (Smith, 2006, p14).

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Perceptions of heritage

Heritage has been perceived and defined extensively in a varied context by different authors. Loulanski (2006) struggles between the elastic definition of heritage as "*anything inherited from the past*" and the constricted definition of "i*tems of historic and cultural significance*". Heritage is a dynamic process which has been developed and modified across time and space where bigger entities like conservation areas and functions have replaced preservation approaches of artefact, objects and buildings since the 19th century. The contemporary perception is *Heritage* which Loulanski terms as "commodification of the past or a "*contemporary product shaped from history*" (Tunbridge and Ashworth, *Dissonant Heritage*, 20)
Two decades ago, Robert Hewison in his controversial and influential book 'The Heritage Industry' argued against the rise of heritage (Larkham, 1999, p115).
 "*Instead of manufacturing goods, we are manufacturing heritage, a commodity which nobody seems able to define, but which everybody is eager to sell, in particular those cultural institutions that can no longer rely on government funds as they did in the past*" (Hewison, 1987, p9).

In the context of the UK, he feared that if the process of heritage industry went the way it was going then it would turn the UK into one big museum, showing desperate measures 'as a product of economic necessity' and would lead to the 'erasure of the present' (Hewison, 1987, p97). Heritage has been interpreted and misinterpreted in a number of ways. Larkham (1999, p115) provides a definition for heritage stating that 'heritage is a process of selection and presentation of aspects of both (history and place), for popular consumption'. On the other hand, Smith (2006) wants to prove that '*there is no such thing as Heritage'* in her book 'Uses of heritage'. She claims that there is dominant Western discourse on heritage which is blindly followed by everyone and calls it "*Authoritative heritage discourse*".
Heritage has had its role in shaping public policies and has had its support from different groups of stakeholders at different times (see Figure 1).
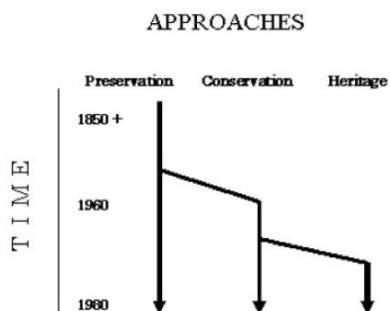
Figure 1: Steps in the evolutionary process:
historical monument to heritage product

Loulanski (2006) asserts that heritage is "tightly bound within societal and economic realities" And that *"economic factors shape the possibilities of heritage conservation's practice in fundamental ways, by influencing decisions, shaping policy, encouraging or discouraging the use of heritage, enabling conservation through financing, giving incentives to stewardship, and so on" (*Lowenthal, page 2 cited in Loulanski 2006*)*

Earlier decisions regarding heritage were made by rulers (mostly ecclesiastical) but later the issue of heritage was mostly raised by the elite groups. The involvement of experts and their comments and influence has been consistent throughout history. Lately conservation has been seen more as a populist movement with larger public interest and governments have focused on the issue of public involvement.

The debate has always ranged in the form of allowing or disallowing change.   Certain groups follow the ethos of "preserve as found", but others follow the ethos of restoring it back to what it was. Objections to this which cite the issues of redundancy and sustainability, led to a new definition of conservation as "managing change". Hence, contemporary culture calls for managing change. But how much of this change has to be acceptable? All past processes from preservation, restoration, facadism to adaptive reuse have been widely criticised and contested (Pickard 2001, Pendlebury and Townshend 1999, Strange 2003)

Heritage has always been and always will be ambiguous and debatable, since why we save, what we save and how we save are recurrent questions. This can also be linked to the current controversy and debate on the "sustainability" concept.
Just as Hewison (2006) reflected on the justifications of preservation as the responsibility of the *present* to preserve the past and pass it to *tomorrow*, another critic, Smith (2006), has stated that heritage discourse '*naturalises the practice of rounding up the usual suspects to conserve and 'pass on' to future generations, and in so doing promotes a certain set of Western elite cultural values as being universally acceptable.*'

Broad Trends in Cultural Heritage Management		
	FROM	**TO**
Definition of Heritage	Monuments	Landscapes
	Buildings	Urban areas
	Sites	Historic environment/cultural heritage
Role of Heritage in Society	National unity	Respect for cultural diversity
	Generate revenue from visitors	Wider economic benefits Social benefits
Decisions	State	Region/locality
	Authoritarian	Democratization Participation
Professionals	Experts	Facilitators
	Single discipline (e.g., buildings, archaeology)	Multiskilled professionals
	Historical knowledge	Management skills
Significance	Old	Industrial heritage; postwar buildings
	Aesthetic	Commemorative value
	National importance	Local distinctiveness
	Monocultural	Values of different cultures
	Narrow range of values	Wide range of values
Interpretation	Expert led	Community led
Responsibilities	State led	Communities/the market/private sector
	Heritage sector	Environmental sector
Management Practices	Designation	Characterization
	Separate conservation	Integrated conservation
	Site based	More strategic
	Technical research	Philosophical research

Figure 2: Trends in Cultural Management Source: Clark 2000 cited in Loulanski 2006

Figure 2 helps us trace the evolution of heritage concepts and perceives heritage as multi faceted and constantly evolving.

UK and England – the current context

The UK has undergone developments and modifications of Acts in the planning system to incorporate heritage conservation in the last century. Though these Acts make the conservation process seem a linear development, some critics have claimed that this development is perplexed and incoherent. It is been stressed by Strange and Whitney (2003) that "the role and function of heritage conservation is in a state of flux". This is in support to Townshend and Pendlebury (1999) who state that "conservation needs to rethink its purpose and role if it is to maintain its place in the planning system specifically and urban policy more generally"
The confusion caused by these debates reinforces the need for a holistic and unified approach for management of heritage.

A number of bodies have sprung up independently over the last century in the UK claiming their views on the heritage practice.   They have contributed to the current UK conservation philosophy and have also influenced legislation and policies. Similarly, UK conservation practice is also continuously influenced by the progressive charters of international conservation practice. Many philosophies developed in past century are complementary and conflicting in their own rights to the ethos of conservation. All of them have been incorporated in the recent policy guidance by the English Heritage (English Heritage, 2008). English Heritage provides a brief for each process with the guidance of when these processes should be allowed. This opens room for debate and confusion that English Heritage supports all of the processes which are conflicting to each other. Figures 3 and 4 show the vast choices and criteria need to be taken in consideration before a decision is made.

Strange and Whitney (2003) specify by quoting English Heritage (2000) that *"many aspects of heritage planning practices are experimental and widely debated and contested, with many questions raised about desirability and effectiveness of contemporary approaches to conservation"*.
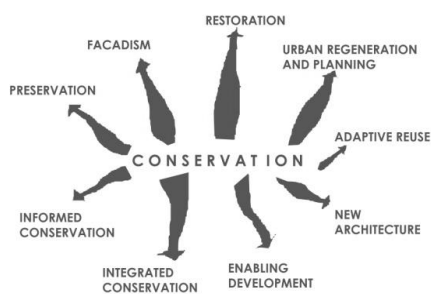

Figure: 3 Managing Change – Practices
Source: The author

Figure 4: Managing change – Criteria
Source: The author

The above figures show the abundance of listing processes, numbers of bodies involved and influencing international charters. It also shows that this abundance of knowledge has led to greater confusion in current practice.

The Department of Culture Media and Sport (DCMS) published a white paper titled "Heritage protection for the 21st Century" in 2007 followed by a Draft Heritage Protection Bill in April 2008. This bill based on Heritage Protection Review undertaken by DCMS aims for a simplified, transparent, inclusive, effective and streamlined management system of historic properties in the United Kingdom. (DCMS, 2007)

It recognised the need of change for current consent systems, requirement of heritage partnerships agreements and new statutory requirements for heritage environment records. It proposed a new unified Register of Historic Sites and Buildings of England (RHSBE) (English Heritage, 2008). This Bill is still waiting to be in the Queen's Speech since it was first brought forward for the legislative programme 2008-09. The Bill has been hailed by most experts in the country as one of the major changes required in the functioning of heritage management; and has been welcomed by most of the professional bodies in the country with a few modifications (RTPI, IHBC, RICS, RIBA, POS & CIOB, 2008)

In the assessment of the review by Smith and Waterton (2008), the authors make a valid point that the proposed changes in the White Paper *do "little to challenge the dominant and elitist understandings of "heritage" and attendant cultural values and meanings, and thus fails to adequately address social inclusion/exclusion issues in the cultural sector"* (Smith and Waterton, 2008, p 1).

Participatory Approaches, Decision making and Rationality in Heritage Practice

Participatory approaches to planning have been talked about for a long time but only recently have they been considered as an option. Figure 5 shows the ladder of participation proposed by Chogull in 1996, consultation as a process in planning is midway in community control over project decision-making.
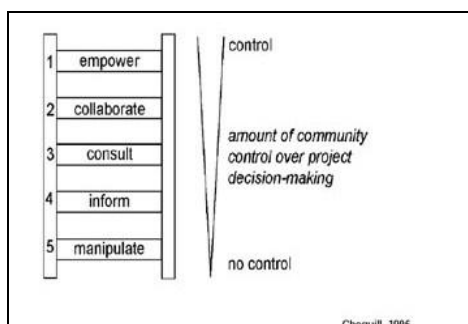

Figure 5: Ladder of Participation
Source: Chogull, 1996

There have been debates all over the world in the last two decades about the practice of public participation. The involvement of the public in decision making has always been offset by various concerns such as the depth of participation, equal participation and representation from all stakeholders, satisfaction of particular groups and neglect of others and evaluating success of a project.

In case of heritage management and conservation, Pendlebury et al (2009) argue that the social values that underlie these process have become enmeshed with urban regeneration policies and practices which are not necessarily socially inclusive or progressive (Smith, 2006). Various stakeholders have various values attached to particular historic buildings and it can be a difficult task to come up with one solution for all. The more complicated the issue, the more the decisions can be politicised and manipulated.

Martignon (2001, p272) believes that the main feature of social rationality is that individuals' and groups' interest and utilities are constantly interacting in difficult dynamical systems and games where simple strategies are not easy to detect. These can be explored by participation Whereas Huber and McDaniel (1986) suggest for decision-making principle to drive organisational structures, Van de ven and Delbecq (1974) identify group decision-making as more relevant especially when people from different backgrounds come together. Rationality and good decision-making are subjective concepts and debate is always generated. "Rationality cannot be defined, Simon claimed, unless this is done by relating it with its environmental and cognitive constraints (Martignon, 2001, p270)".

Herbert Simon proposed that human inference in the real world exhibits "bounded rationality", based on limited search, and clear stopping rules. Regressive methods do not work in adaptive decision making. Instead emotions rule the process of decision-making. This is bounded rationality. One fundamental class of heuristics in the context of social rationality is emotions. Emotions function as important stopping rules in decision-making (Martignon, 2001, p270). In the field of built environment and in particular conservation there are a lot of factors which need to be taken in consideration, and a lot of voices to be heard across time, space and different levels. In this case, it is almost impossible to take a rational decision where rationality is defined by consistent use of logic and probability. Many decisions in the conservation industry are left to one person i.e. the minister in charge. This has been observed in the past when ministers took suggestion disregarding the suggestions by advisory committees (Larkham, 1999 and Delafons, 2001) "*Human rational behaviour... is shaped by a scissors whose two blades are the structure of task environments and computational capabilities of the actor*" (Simon 1990b).

Assigning Values to Heritage

English heritage follows a values based approach based on the Burra Charter (ICOMOS Australia, 1999) in listing and protection of historic properties. Figure 6 is from published documents by English Heritage. The intention thus is to protect the fabric as well as the values attributed to it (Poulios, 2010). This puts people in centre of decision making and involves various stakeholder groups related to the historic property. Poulios (2010) and Demas (2002)

- **Cultural values:** The historic environment helps define a sense of place and provides a context for everyday life. Its appreciation and conservation fosters distinctiveness at local, regional, and national levels. It reflects the roots of our society and records its evolution.
- **Educational and academic values:** The historic environment is a major source of information about our ancestors, the evolution of their society, and the characteristics of past environments. It provides a means for new generations to understand the past and their own culture. We can also use archaeology to learn about the long-term impact (and sustainability or otherwise) of past human activity and development, and use this knowledge when planning our future.
- **Economic values:** The historic environment can make a significant contribution to economic development by encouraging tourism, but more generally it also supports viable communities by creating good environments where people will prefer to live and work.
- **Resource values:** Longer-lived buildings usually make better use of the energy and resources that were used during their construction, and reuse is usually more economic than demolition and redevelopment. Conservation is inherently sustainable.
- **Recreational values:** The historic environment plays a significant role in providing for people's recreation and enjoyment. Increasingly, the past and its remains in the present are a vital part of people's everyday life and experiences.
- **Aesthetic values:** Archaeology and historic buildings make a major contribution to the aesthetic quality of townscapes and landscapes, enhancing the familiar scene of our historic towns and villages, and giving historic depth and interest in our countryside.

Figure 6: Heritage Values Source: English Heritage

contest this by adding that there is a strong managing authority i.e. the conservation professionals which identify the stakeholders, decides on their involvement and which values to protect.

"[...] *because cultural heritage has a multitude of values, it is not always possible to protect all of them equally. Values are sometimes in conflict, and managers must make decisions that favour some but not others"* De la Torre (2005a:8) cited in Poulios 2010

Poulios and De la Torre further assert that conflicting stakeholders have different values assigned to the property and the "values that prevail belong to the group with most political power" making it important to acknowledge "that values are mutable and that there are few absolutes in terms of what is right or wrong" (de la Torre, 2005a:5 cited in Poulios 2010, 172). Demas (2002) concludes that these approaches may thus become capable of being manipulated and turned into formulas of rules" (2002:49).

Case Study Research

The research aims to understand and assess decision making in chosen case studies, identify stakeholders and their values with the property, analyse linkages and networks between various stakeholders (see Figure 7). The area of research has been narrowed down from UK to England and focuses on London.

Case studies have been chosen in accordance with the factor model developed from the above literature review. Also, these cases have been chosen with considerations that they were in the public light (i.e. highly debated) in last ten years (between 2000-2010). The Pilot Case study identified for the project is 'The Brunswick' in Bloomsbury, a modernist building built in 1972 which underwent regeneration in two phases 2000-2006. Semi-structured interviews have been
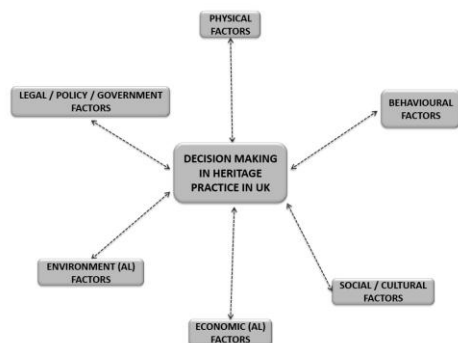
Figure 7: Factor Model influencing Decision making Source: The author

completed with various stakeholders involved in the project with a few remaining (see Figures 8 to 10).

Other case studies identified are the Brick Lane Mosque; Brixton market and the Euston Arch. Though each factor plays a complex and important role in decision making; each case study represents different factor prioritised as an important influence in the decision-making process.

The data collected from these studies would be analysed and compared with each other to identify patterns, influences and priorities in the decision making process. The chosen methodology expects rich and detailed outcomes from the interviews giving a texture to the literature review.

CONCLUDING THOUGHTS

This research deals with various facets of conservation and decision-making processes and tries to unearth the disparities in meanings and definitions of the key concepts: conservation, preservation, heritage, value, rationality and decision-making.

It demonstrates that there is still a conflict in heritage decision making, where the institutionalised sources, who have taken up the role are now being been looked upon to guide the development of the heritage discourse. These sources understand the need to recognise the non powerful voice as required legitimately but yet have to take these voices on board.

The research questions the belief systems and asks for more participatory development which can be used for making better decisions and to develop a win-win situation for all stakeholders.

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THE BRUNSWICK

formerly *the brunswick centre*
Architect: Patrick Hodginkinson

run down terraced housing -
bought by developers

"By word for bad town planning"

RADICAL LOW RISE, HIGH DENSITY, MIXED USE DE-
VELOPMENT COMPRISING OF SHOPS RESTAURANTS
CAFES AN ANCHOR SUPERMARKET AND A CINEMA

"brutalist"

"megastructure"

YEAR 1959
THE ORIGINAL IDEA OF
BRUNSWICK CONCEIVED

YEAR 1967
CONSTRUCTION
WORK BEGINS

YEAR 1970
HODGKINSON LEAVES
THE PROJECT

Reason - original developers sells
the project to McAlpine - leading to
cheap rapid completion and lots of
compromises. Building never paint-
ed to its final colour

YEAR 2000
LISTED AS GRADE II

YEAR 2006
REFURBISHMENT
COMPLETED

A new supermarket - i.e. Waitrose
introduced. Planning permissions
obtained for New extensions to the
Renoir cinema. The entire complex
is painted in a unifrom colour as
conceived originally

New labour government in 1964 -
introduces compensation for evict-
ed tenants - whole scheme is
termed as unviable

YEAR 1971
McALPINE
PULLS AWAY

"new barbarism"

PART TWO
WORK BEGINS

YEAR 1964
NEW CAMDEN
BOROUGH takes
up the job of rehousing the
original tenants

YEAR 1972
BUILDING WORKS
COMPLETED

YEAR 1998
ALLIED LONDON BUY THE
CENTRE FROM RUGBY ESTATES
LEVITT BERNSTEIN APPOINTED
AS ARCHITECTS

YEAR 2002
REFURBISHMENT WORK
BEGINS (PART ONE)

*"British architecture's radical
experiments in 1960's & 70's
condemned far too quickly"*

*"rain-streaked litter strewn
concrete monstrosity"*

"superblock"

"modernist revival"

*"Rebirth offering hope for some
of Britains ugliest buildings"*

STAKEHOLDERS DIAGRAM

ORIGINAL DEVELOPERS - MARCHMONT PROPERTIES
PART FINANCERS - ROBERT MC ALPINE AND SONS
LONDON COUNTY COUNCIL
ARCHITECT LESLIE MARTIN
ARCHITECT PATRICK HODGKINSON
ARCHITECTS LEVITT BERNSTEIN
CAMDEN COUNCIL
RESIDENTS - PRIVATE OWNERS
RESIDENTS - COUNCIL TENANTS
THE CITY - LOCALS, TOURISTS, ARCHITECTS PLANNERS ETC
ENGLISH HERITAGE
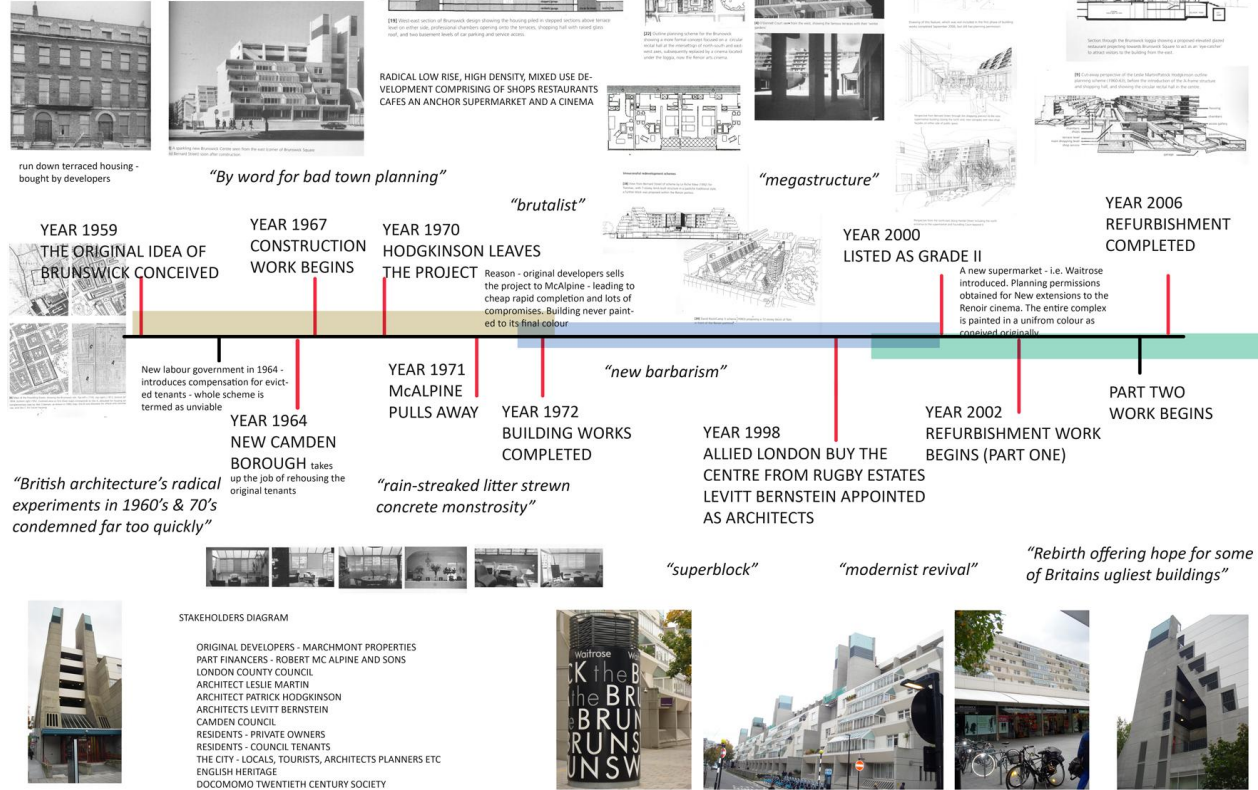DOCOMOMO TWENTIETH CENTURY SOCIETY

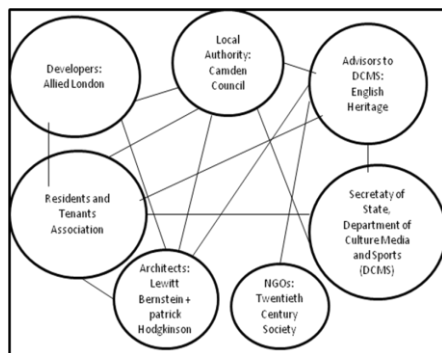*Figure 8: The Brunswick chronology model Source: The author*

*Figure 9: Stakeholder Model for
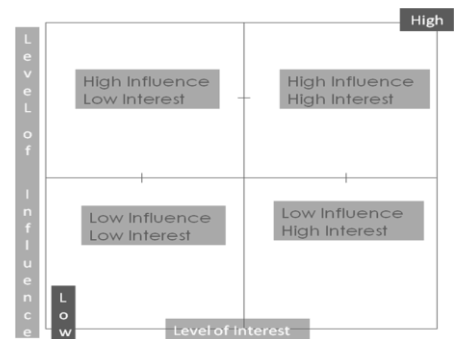Brunswick Regeneration Source: The
author*

*Figure 10: Developing Influence vs
Interest Model for Brunswick,
Source: The author*

IMPROVING THE CULTURE OF TRAINING IN THE UK CONSTRUCTION SECTOR THROUGH SKILLS TRAINING STRATEGIES

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Cultures in organizations play crucial and significant roles in performance outcomes. It is imperative therefore for organizations to have and maintain a culture that is relevant for desired output and performance. The industry's cultural values may determine the success or failure of the industry. An industry's cultural orientation on training and development of its core production skilled crafts-people will lead to organizational effectiveness and profitable performance. The construction sector is one of the major development drivers in any economy and in order for the industry to accomplish its objectives and fulfil its obligations; there is need for the sector to maintain a dynamic culture of training and development of craftsmen who are directly responsible for the production process. Construction related craftspeople also play prominent roles in the running and maintenance operations throughout the life cycle of the construction industry's products. This study is an off-shoot of a phase of an ongoing PhD Research which aims at formulating a framework for effective training and development of construction related craftsmen for the Nigerian construction industry. Literature and primary research conducted in the course of the study reveals that skills training culture in the UK construction sector is been eroded. The study concludes that there is need for an improvement to the present skills training and development strategies and proposes some issues for discussion by the conference participants.

Keywords: craftsmen, education, labour, skills shortage, training culture.

INTRODUCTION

The construction industry is a large sector with diverse specialities which together make a major contribution to national economic activity. The various stages or processes of work in the sector ranges from site preparation, including demolition, through general construction and repair of both residential and non-residential buildings and civil engineering works; which include (roads, highways, airfields, harbours, utility works). The construction process also involves different trades such as carpentry, joinery, bricklaying, painting, glazing, and plumbing to mention a few. The industry is a labour-intensive sector, and its output relies heavily on the availability of the required trades' people for the particular project. The Chartered Institute of Building (CIOB, 2009) informs that the construction industry has a long history of skill shortages which can be viewed as a reflection on economic and societal stability. Economic recessions often affect construction sector skills more severely than it does the other sectors. The construction sector as one of the major development drivers in the nation's economy cannot afford to approach the culture of training with levity. In order for the industry to adequately address the difficulties of skill shortages, and accomplish its objectives and fulfil its obligations; it is imperative to maintain a dynamic but effective culture of training and development of craftsmen who are directly responsible for the production process. Construction related craftspeople play primary and prominent roles both

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in new builds and in the running and maintenance operations throughout the life cycle of the construction industry's products. This paper sets out to explore the culture of the UK construction sector in the training of the needed skills' people for building trades; with the view to assessing the effectiveness of the culture in addressing the problem of skilled labour shortage in the sector. The study emanates from a phase of an ongoing PhD Research which aims at formulating a framework targeted at improving the culture of training and development of construction related craftsmen for the Nigerian construction industry.

IMPORTANCE OF SKILLS IN INDUSTRY

The skills of all the role-players in an industry determine the quality of its products. The type of the industry, however, determines the type of the mental and physical skill abilities and competences an apprentice must acquire. In the building and construction industry, semi-skilled and unskilled workers form a large part of the labour supply and they perform various tasks, which eventually determine the quality of products.

In the view of Lugujjo and Manyindo (1993), a country's technical and vocational training culture is a decisive factor determining the competitive strength and level of development of its economy. The level of competence of a country's skilled workers and technicians is centrally important to the flexibility and productivity of its labour force. Skilled workers and technicians enhance the quality and efficiency of product development, usage, production and maintenance and they supervise, train and develop new hands and workers with lesser skills. The development of a skilled labour force in a nation makes for important contribution to national development; such competent skilled workforce would be able to apply science and technology in the transformation of raw materials into goods and services. Oyegoke *et al* (2009) argues that skills have been one of the most important issues in the construction sector because construction methods are largely traditional and primitive; consequently labour intensive.   A well trained, capable, seasoned and knowledgeable skilled workforce is therefore the secret to national development and economic success of any nation.

ASSESSMENT OF UK CONSTRUCTION SECTOR'S TRAINING CULTURE

A good number of scholars have made spirited efforts in assessing the effectiveness of the UK vocational skills training culture vis-à-vis those of other EU states. Leitch (2005) in his interim report on the 'Skills in the UK: The Long-term challenge' sees skills issue in the UK as a formidable Challenge. He affirms that skills matter fundamentally for the economic and social health of the UK. Leitch applauds that the UK is in a strong position with a stable and growing economy, having a world leading employment rates but warns that demographic, technological and global changes present enormous challenges and brilliant opportunities. The population continues to age, technological developments are occurring faster than dreamed and dramatically altering working techniques; competitive pressures on all sectors of the economy are increasing. Manufactured goods, and increasingly services, are traded across the world, the developed economies are relying more and more on their capacity to innovate and drive economic growth. He noted that the ability to do this depends upon the culture of training and development of skills and knowledge of the people.

Leitch (2005) however decries the skills level in the UK by stating that the nation's skills are not world class. UK run the risk of having the long-term prosperity undermined as productivity continues to trail behind many of the nation's comparators and competitors. He opined that much more needs to be done to reduce the social disparities and improving

the skill levels by improving on the skills training culture can address most of the problems. The submission of Leitch's interim report could be interpreted to mean that the skills training culture in the UK exhibit some deficiencies and will need some sort of overhauling to be able to meet up with the standards of its allies and stand-out to be able to compete favourably among the developed economies. Other earlier observers of the UK skills training culture and approaches had aired their candid opinions on the issue. The Institute of Manpower Studies (IMS 1984) had argued a long time ago, that the British employers underfunded and gave insufficient priority to training compared with their US, Japanese and German counterparts. This view was far back supported by the Confederation of British Industry (CBI 1989) and Trade Union Congress (TUC 1989) with the assertion that Britain has a training system which is underfunded and significantly below the standards of her competitors.

In the same token, Clarke and Wall (1998) compared the UK skills training culture with some of those of her close allies in the EU. They observed that the construction skills trade profiles in the UK, National Vocational Qualifications (NVQs) approach has been over proliferated and overly partitioned. In their view, the smaller number of trades profiles apparent in Germany and The Netherlands results in a substantially different approach to training. While the approach in the UK is competence based and narrowly conceived around specific tasks, in Germany it is broad based at the outset, leading eventually to specialization on the long-run. The Netherlands is said to lie somewhere between the two extremes, being modular with certain modules in the initial stages common to all trainees.

The general tendency in countries like Switzerland is to organize training on a module basis, with a broad based, non-trade specific foundation or induction course. The Dutch system is similar to the UK's NVQ system; it is delivered through modules and integrated in a national system of educational levels. The content of training is however broader because it was conceived on an industry-wide bases and not trade based; thus offering a broad-based foundational knowledge to the trainees.

The German system of Vocational Education and Training (VET) requires that trainees spend the first year of training split between the college and the training centre, studying an introductory course common to all construction trainees irrespective of the trades registered with the employers. Hammond (2001) alluded to findings from comparative analysis of vocational training in Germany and elsewhere in the EU and informs that the UK's NVQ are academically lightweight in comparison with their equivalents abroad, in terms of theoretical underpinning education and instruction. The Germany approach to training has the benefit of equipping trainees with more advanced 'Key Skills', which usually make them better prepared to move to supervisory and management positions. The combination of theory and practical work in the German's 'two-track' vocational training approach guarantees that the craftsmen and skilled workers have prime qualifications. Such VET is also a launch-pad for a career that can, with advanced training, leads to the graduates becoming master craftsmen and women.

Brockmann et al (2010), in comparing the training culture in selected countries in the EU notes that in the UK's Diploma and NVQ qualifications, skill is not fully integrated with theoretical knowledge, degree of self management is low while the level of personal and civic education is minimal.

CIPD (2009) also exclaims that modern UK Apprenticeships training strategy, despite its constant re-branding struggles to succeed. There is no 'training culture' among many employers, as exists more widely in other EU nations. The culture of training among the

small and medium-sized enterprises (SMEs) in particular is viewed to remain a real problem.

IMPORTANCE OF IMPROVING TRAINING CULTURE IN THE UK CONSTRUCTION SECTOR

CIOB (2009) opines that maintaining and improving upon the industry's training culture should remain a priority, despite the economic downturn. After millions of job cuts globally and most especially with the present coalition move on job cuts, it is vital that the remaining construction employees are properly trained and developed, so that they can provide the needed skills. In order to ensure that craftspeople are up-to-date and competent enough for enhanced job performance, maintaining a dynamic culture of professional training and development is crucial. Furthermore, the constant introduction of innovative technologies and methods of working to foster improvement in the building process warrants that the employees have the opportunity and industry's support needed for development. A good training culture may also provide opportunities to those who have lost their jobs since potential recruiters will tend to have preference for well trained and competent people.

The looming high level skilled labour shortages in the construction sector when eventually economy and the market situation improve, with its attendance increase in demand and subsequent increase in recruitment; necessitates improving on the sector's training culture. The possibilities of a good number of previously skilled craftspeople choosing not to return to the industry having opted for other careers are high. The CIOB reflects that a well-trained and capable workforce is essential to the construction industry's recovery and growth. The industry can therefore not afford to overlook the importance of improving upon the existing training culture because of the economic recession of the recent past which is still taking its toll on the industry. CIOB (2010) in a report on exploration of skills in the UK construction industry also highlights the recruitment of apprentices, enhancement of training schemes, and improving on the culture of up-skilling of the current workforce as the master key for maintaining and ensuring continuous availability of skilled workmen for the construction sector.

METHODS

The data collection methods for the study include both the primary and secondary research. The primary research adopted the quantitative and the qualitative approach, while the secondary reviewed relevant literature.

The target population for the research include the UK's Construction firms, and regulatory bodies. The accessible population were the stake-holders in the above named population whose opinions are relevant to the study aim; these include: training officers, contract, project, and construction managers or others of such professional standing in the various construction companies. Data were also elicited from resource persons in selected construction industry training providing firms. Quantitative data were elicited through postal questionnaires which were designed to also allow for qualitative expressions of opinions on various relevant subjects bordering on the study objectives. The questionnaires were patterned in Likert scales 1-5. Qualitative data were also elicited through telephone interview. The sample were drawn across the various regions of United Kingdom, namely - East of England, East Midlands, London, North East, North West, South East, South West, West Midlands, Yorkshire and Humber, Northern Ireland, Scotland and Wales. A total number of 37 questionnaires were returned and analyzed, participation in the survey cut across all the regions.

ANALYSIS OF QUANTITATIVE AND QUALITATIVE DATA

Quantitative data were analyzed using SPSS (Statistical Package for the Social Sciences) PASW Statistics 18. The raw data were collated, coded and manually imputed and analyzed using descriptive statistics and correlation statistical functions. Results were presented in tabular form to explain frequencies and relationships between variables. The software was used to find the percentage (%) scores and statistical significance of the variables under each postulated question; using descriptive statistics median and correlation mean coefficient weighting. Qualitative data collected through the interview and questionnaires were collated and interpreted using thematic analysis approach.

FINDINGS FROM QUANTITATIVE AND QUALITATIVE DATA ANALYSIS

Analysis of reasons why UK Construction firms seems not committed to training

Q. How relevant is each of the following reasons to why UK construction firms seem not committed to craftsmen's training culture?

The analysis of responses to the above question is presented in Table 1.

Table 1: % Scores, Median, Correlation Mean Coefficient and Ranking of assessment of reasons why construction firms in the UK seems not to be committed to culture of Craftsmen's training.
Relevance Scale: VR= Very relevant, SR=Somehow relevant, DK=Don't know, NR= Not relevant, NAR=Not at all relevant.

Propositions	Response Scores %					Median	Corr. Mean Coeff.	Ranking
	VR	SR	DK	NR	NAR			
Training perceived as not sufficiently profitable	16.2	62.2	8.1	10.8	2.7	4	3.78	4
Considered as unacceptable cost overhead	18.9	73.0	2.7	2.7	2.7	4	4.02	1***
Workers may be attracted away into self employment	32.4	40.5	5.4	16.2	5.4	4	3.78	4
Lack of interest on the part of workers to improve skills	5.4	35.1	5.4	43.2	10.8	2	2.81	7
Firms plan on short-term basis and recruit for specific contract	24.3	56.8	2.7	10.8	5.4	4	3.83	3*
Little information on exact cost of training	13.5	29.7	18.9	21.6	16.2	3	3.02	6
Sector rarely able to attract better qualified school leavers	45.9	24.3	8.1	16.2	5.4	4	3.89	2**

(*** 1st ranking, **2nd ranking and *3rd ranking)

From Table 1 above it could be deduced that the most striking reason why many construction firms seems not to be committed to culture of craftsmen's training is because they consider training as unacceptable cost overhead, responses (VR=18.9%, SR=73.0, Corr. Mean 4.02 and ranking 1***). The construction sector, it is revealed, is rarely able to attract school leavers with better qualifications for training in construction trades (VR=45.9%, SR=24.3%;

Corr. Mean 3.89 and Ranking 2**). Third (3*) in the Ranking is the fact that most construction firms plan on very short-term basis hence rather than train would prefer to recruit skilled manpower for specific contracts. Also rated as relevant is the fact that some firms are reluctant to train because of the belief that workers may be attracted away into self employment before firms fully benefit from training investment.

Analysis of effectiveness of current training strategies

Please rate the effectiveness of under-listed current methods for craftsmen training in the UK.

The analysis of responses to question is depicted in Table 2

Table 2: % Scores, Median, Correlation Mean Coefficient and Ranking of effectiveness of current methods of craftsmen training.

Effectiveness Scale: VE=Very effective, E=Effective, DK=Don't know, SE=Somehow effective, NAE=Not at all effective

Propositions	Response Scores %					Median	Corr. Mean Coeff.	Ranking
	VE	E	DK	SE	NAE			
National Vocational Qualification (NVQ) method	8.1	37.8	16.2	35.1	2.7	3	3.14	5
Community based short duration Adults training programme	2.7	10.8	43.2	10.8	32.4	3	2.41	8
Informal on-the-job company based apprenticeship method	18.9	37.8	24.3	13.5	5.4	4	3.51	3*
CITB Employment Training (ET) for training Adults	2.7	37.8	40.5	16.2	2.7	3	3.22	4
3-year indentured apprenticeship training method	48.6	29.7	16.2	5.4	0	4	4.22	2**
College based off-the-job training method	5.4	32.4	24.3	27.0	10.8	3	2.95	6
Combined college and construction company based on-the-job training	2.7	40.5	37.8	10.8	8.1	4	4.92	1***
The Youth Training Scheme (YTS)	2.7	18.9	40.5	21.6	16.2	3	2.70	7

From Table 2 above, amongst the current training methods, the combined college off-the job and site based on-the-job training strategy is rated most effective (Median 4' and Corr. Mean Score 4.92, Ranking 1***). The 3-year indentured apprenticeship and the informal on-the-job training methods ranked second and third respectively (Corr. Mean Score 4.22 and 3.51 respectively). The NVQ ranked fifth perhaps for the reason that it is considered more of a qualification method rather than a specific training strategy.

Analysis of overall rating of UK construction sector's training approach effectiveness

Q How would you rate the effectiveness of UK'S Vocational/Skills Training approach? The analysis of responses to question is depicted in Table 3.

Table 3: % Scores, Median, Correlation Mean Coefficient and Ranking of effectiveness of UK methods of craftsmen training.

Effectiveness Scale: VE=Very effective, E=Effective, DK=Don't know, SE=Somehow effective, NAE=Not at all effective

Propositions	Response Scores %					Median	Corr. Mean Coeff.	Ranking
	VE	E	DK	SE	NAE			
How would you rate the effectiveness of UK skills training approach in supplying needed competent craftsmen to construction sector?	2.7	27.0	16.2	43.2	10.8	2	2.67*	**

From Table 3 the opinions of respondents to the overall effectiveness of the UK's construction sector training strategies depicts 'Somehow Effective' % Score 43.2, 16.2% submits that they want to be neutral about commenting on either the training strategy is effective or not effective, only 2.7% agreed that the training strategies are very effective. The findings here agree with literature on the effectiveness of the UK's skills training approach in training and developing needed skills; as compared to those of its close allies in the EU (Leitch 2005, CIPD 2009, and Clarke and Wall 1998).

Reasons why some firms do not train new hands

Findings from the qualitative data elicited indicate various factors why a good number of the construction factors do not demonstrate any serious commitment to the culture of training. The domination of the sector by labour only subcontractors is one of the reasons advanced for the reason some firms do not take-up new hands for training. Most major construction firms use SME's to provide the needed skilled crafts for their projects. Many of these SME's have little or no understanding of the obligations in training young people for 2-3 years. In many cases they look for short term solutions because of the nature of their planning for workload is on project to project basis.

The problem of costs of training is another issue raised as a reason some construction firms do not show much commitment to skills training. One Senior Project Manager explained that - *a major factor the industry is not seriously thinking about training apprentices is the cost of training, because of the current climate within our industry.* The current market conditions mean that training budget is cut or cancelled. Another respondent view the current budget restraints caused by the market conditions as a major problem militating against training in the construction sector.

Effectiveness of current skills training methods

The survey identified reasons that hinder the effectiveness of some of the prevalent training approaches in the construction sector. The college based off-the-job training method doesn't work as college provision is very poor. College provision needs to improve dramatically. The combined college off-the-job and site based on-the-job training can be very effective if colleges provide better and more up to date training.

One interview respondent observes that - *the current falling standards of trades training reflects on the standard of student sent into the trades (key skills - basic maths, English and relevant courses should be learnt as school).* He further noted that the indentured apprenticeship; with technical college training would be the best way for training in most jobs, in order to be able to learn the full scope of the job and be employable.

Problems militating against skills training.

In order to make training approaches effective and sustainable in producing the needed crafts skills to the construction sector; the contending factors must be identified and adequately addressed.

Some of the factors found to be militating against effective training include: lack of work and lack of project continuity, which is a concern in the industry because when the company is not satisfactory market-wise; it might not be thinking or talking of training new hands.

Other identified problems militating against effective training include factors such as poor careers guidance, cuts in CITB grants, lack of funding available for training.
The fact that training in colleges is given by individuals who are out of date with today's working practices was found to be relevant; apprentices tend to learn far more in the workplace if this is properly managed by ensuring that they are placed with suitable mentors. One company Director said that - *Trade Teachers are not properly trained, therefore teaching students incorrectly, government is also following the wrong policies on vocational education, and funding of apprenticeships.* The cost of training was also found to be an issue, a Director of a general construction contracting firm *blamed training problems on the ineffectiveness and inefficiency of the CITB and imprecision of training grants targeting.*

The downturn in the industry was also highlighted as a problem because trained craftsmen are lost to the industry; making training to seem as a mere wasted effort.

Overall assessment of UK construction sector skills training approaches.

On the overall assessment of skills training approach some see both the NVQ and previous C&G method of qualification as equally good. One of the study participants observe *that the quality of training and the ensuing labour is poor; any one can pass NVQ etc due to trainers receiving money for people to pass.* The general opinion expressed from both the quantitative and qualitative surveys including the available literature seem to support the fact that the current skills training approach and its implementation calls for review for necessary up-grading and standard improvement.

DISCUSSION

The surveys show that the UK construction industry training culture is been eroded due to various reasons which include the fact that training is considered by many companies as unacceptable cost overhead, the construction industry is rarely able to attract better qualified school leavers, Firms plan on short-term basis and recruit for specific contract; and the notion that trained workers may be attracted away into self employment amongst other reasons. Akin to these opinions are the specific problems of reluctance of self-employed operatives and small labour-only firms to get involved with training, poor funding from government, emphasis on achievement of qualifications rather than skills, constant changes in government policies on skills training and the drought of well-seasoned, qualified and competent vocational skills instructors. Another factor found to be militating against skills training is the problem of the youth generation, not entering into the construction industry, thus creating skill-gap. Even though most of the respondents claimed that their companies are currently involved with training, the qualitative survey indicate that most firms would rather prefer to train existing staff to improve their skills and remain or be more competitive in business; than to take-up new hands for training. The current market situation in the construction industry does not encourage investment in training due to economic reasons and restraints on cash

flow. The problems militating against skills training in the sector impacts on the labour situation. The general consensus that the industry seems not to be experiencing labour shortages presently; is premised on the low demand for the sector's products at the moment as a result of the on-going recuperation from the economic down-turn of the recent past. The current move of 'cuts' by the coalition government may affect the labour situation more negatively. The study however underscores 'ageing' workforce and 'skill-gap', as forms of labour shortage malaise currently facing the UK construction sector.

CONCLUSIONS

Based on the results and findings from both the primary and secondary research conducted during the study as discussed under the various headings above; it could be concluded that: the common skills training strategies presently used in the UK construction sector are the apprenticeship methods-which include the 3-year indentured apprenticeship method, the combined college 'off-the-job and site based 'on-the-job' method, the informal construction site based apprenticeship scheme and; the NVQ which is mainly for skills assessment and qualification. All the current skills training strategies are deficient in basic sciences and mathematics. The training strategies are also structurally deficient when compared to the strategies used in some EU countries. With the present situation in the construction sector's market; the industry is not giving the required attention to the culture of craftsmen's training. The lack or insufficient funding and training grants for the industry to maintain an effective training culture is also a very salient factor confronting the UK construction industry.

This study has implications for the industry, because for the industry to be able to fulfil its obligations, and perform creditably and profitably; the culture of constantly training and developing needed skilled workforce should not be held with levity.

From the various surveys conducted in the course of this study, it could be inferred that there is need for addressing the various militating factors; with the view to improving the training strategies in order to make for effectiveness in the training of competent skilled crafts-people to meet the construction sector labour demand. Previous researchers on the situation of skills training in the UK have argued that the skills training approach in the nation will need lots of structural adjustments to be able to meet-up with skills training standards of some of its close allies in the EU (Clarke and Wall 1998, Hammond 2001, CIPD 2009).

ISSUES FOR FORUM DELIBERATIONS

Matters arising from this study which is proposed for discussions include:

What are the implications of the ongoing 'cuts' for the construction industry's workforce training culture? Especially when the policy makers are 'cutting' when they should be 'adding' to training grants already adjudged as insufficient by role players in the industry.

What new strategies or innovations can the construction industry adopt to ensure that the culture of training and developing needed craftspeople in not eroded amidst economic recessions and government policies on 'cuts'?

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