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Evaluating the relationship between Socio-Cultural Diversity and Collaboration among Project Teams in Johannesburg, South Africa

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Abstract
The built environment sector is characterised by collaborative working relationships, which are traditionally adversarial, fragmented and incapable of delivering for its customers. The diversity of teams partly contributes to projects not being initiated, executed, and completed within a specific scope of time, budget, and quality, since collaboration between individual and alliance members could be affected. There is limited literature evincing this relationship, which could contribute to improving project success. Therefore, the objective of the study was to establish the relationship between team members' attributes (including socio-cultural diversity, level of association, social interaction) and collaboration. A quantitative approach was adopted to conduct the study. The study amassed data using a questionnaire distributed among eighty respondents, comprising engineers, supervisors, foremen, contractors, project managers, and other decision-makers in engineering, construction, and consulting companies in Midrand, Sandton, and Johannesburg in South Africa. Inferential statistical analysis was undertaken using Pearson's correlation to examine the relationship between team attributes and collaboration. Findings revealed positive and medium to relatively high significant relationships between the variables, indicating that the more the level of association, diversity, and social interaction among team members, the more collaboration among them. The findings from the study are envisaged to be beneficial to construction and project managers in managing teams with diverse social backgrounds and orientations. It was concluded that team collaboration could be maintained even though high social and cultural diversity exists.

Keywords
Collaboration, construction industry, diversity, socio-culture, South Africa

1.0 Introduction

The construction industry, like many others, falls among the most critical sectors of the South African economy. However, it is also faced with decreased productivity due to poor technology and a shortage of skilled experts, among others (Valentine and Voster, 2012). In addition, the construction industry does not always hand over completed projects within the stipulated period, within the planned budget, and to the desired quality (Valentine and Voster, 2012). This is partly due to the level of collaboration among project participants. In recent years, advances in technology have underlined the need for project team members to effectively relate and collaborate amongst themselves (Rahman et al., 2013).

Effective collaboration between project teams and other stakeholders within the construction industry has many advantages: focusing on and achieving core competencies, sharing scarce knowledge and human resources, significant reductions in capital requirements, and high customer satisfaction (Akintoye and Main, 2008). Hence, the way forward towards improving the construction industry's efficiency is not limited to on-site teamwork alone; it also includes efficient collaboration and alliances among construction companies, suppliers, and clients through effective

supply-chain management, Public-Private Partnership (PPP) and organisational joint ventures (Akintoye and Main, 2008). However, not all forms of construction project collaboration may be as productive or successful as expected, and clients still have a deep-rooted cost-driven agenda (Akintoye and Main, 2008). However, collaborative practices have been adopted in the manufacturing and service sectors and are increasingly advocated in the construction industry. Collaboration is found to be a suitable means of nurturing relationships among contracting parties, achieving better project performance and greater end-user satisfaction, optimum quality and service delivery (Ayegba et al., 2018).

Hence, ways to improve collaboration in the construction industry warrant consideration. Unsuccessful collaboration among project stakeholders may be caused by various factors such as weaknesses related to social and cultural diversity in the workforce. Human effort greatly determines the construction industry's productivity and success rates (Douma et al., 2000). With this in mind, in the context of South Africa, which encompasses a wide range of ethnicities and a significant number of skilled foreign contractors, all of whom bring their distinct cultural differences, ways of working and communicating to bring progress to the table is of paramount importance. How aspects of social and cultural diversity correlate to team collaboration within the construction sector in terms of the quality of interpersonal relationships and association among diversified staff at all levels and alliance organisations is an area that has been ignored in the literature.

1.1 The research problem

Based on the above, it is evident that the construction industry suffers from poor project delivery in terms of meeting specified time frames and budgets and construction-quality issues. Although many factors contribute to this issue, one of the critical determinants of construction project success is the extent to which individual project team members collaborate effectively, which, to a large extent, is based on social and cultural factors. Consequently, construction projects are likely to continue failing if poor collaboration among project team members remains an issue.

1.2 Research question

Therefore, the present study specifically examined how social and cultural factors affect team collaboration within South Africa's diverse construction industry workforce. This study sought to address the question: "Within the context of South Africa's construction industry, to what extent does its workforce's diversified social and cultural nature relate to work-based collaboration?" The gap in the literature is addressed by focusing on the strength and direction that social and cultural diversity takes in the quality of interactions among actors involved. The study was carried out in Johannesburg, South Africa, quantitatively.

2.0 Literature Review

Collaboration among project teams maximises efficiency, improves profitability, reduces waste, and thus contributes to more valuable relationships and enables benchmarking of current levels of practice against best-in-class performers (Ayegba et al., 2018). Collaboration is driven by top management commitment and mutual and shared understanding of the goals of cooperation and coordination (Gulati et al., 2012). Other factors are mutual trust, willingness to learn from and support others, clear definition of responsibilities, effective communication, complete integration, and risk and reward sharing (Ayegba et al., 2018). A higher degree of collaboration nurtures relationships among parties, achieving mutual benefits from set goals, thus leading to better project performance and greater end-user satisfaction (Wu et al., 2008; Ayegba et al., 2018).

Effectively managing people from different backgrounds and proclivities on construction projects is a difficult task, and in recent years, the construction/development sector has evolved by emphasising partnership between the public and private sectors, joint ventures and strategic alliances (Akintoye and Main, 2007). In reality, for any construction project team, one is likely to find individuals from many different backgrounds; inevitably, this has a significant impact on the project performance. One cannot underestimate the role that the labour force plays in determining the success of any organisation. Therefore, the construction management team must understand the importance of effectively running such cultural differences in their team members. Naturally, how well any group of people performs is highly dependent on the team's ability to effectively work together to achieve a common goal

(Akintoye and Main, 2007). Difficulties in managing people are especially prominent in the construction project environment because such projects bring together people from different organisations, either face-to-face or increasingly online, to complete critical tasks requiring them to be highly interdependent. A project team relates with external boundaries other than its immediate organisation, such as suppliers, clients, sub-contractors and other stakeholders involved (Sundstrom et al., 1990). The factors determining the effectiveness of a team are not limited to saddled responsibilities and tasks nor the overall objective for which the team is constituted, for example, individual abilities, leadership and decision-making strategies, interrelationships, interdependencies, individual satisfaction and fulfilment (Mbohwa and Edward, 2013).

Managing social and cultural diversity effectively within the construction industry can promote economic and political stability and success and boost employee and client satisfaction. In particular, the advantages of implementing effective socio-cultural diversity management include improved innovative creativity, better cooperation and attitudes towards work and colleagues, a more substantial commitment to work, better insights into the marketplace, more significant competitive advantage, and greater productivity (Wambui et al., 2013).

3.0 Research Methodology

3.1 Research strategy

The strategy to investigate the research questions was through quantitative research design, guided by the research gap and contribution (Trochim, 2006). Then, in-depth and critical analysis of the literature review to familiarise with the field of study and understand what other researchers have done concerning the topic of study (Trochim, 2006). The research process had to involve identifying the essential variables needed to gauge this effect. Diversity status was chosen as the independent variable and the level of collaboration as the dependent variable.

The approach involved compiling the questions from the literature in a structured survey questionnaire and using numerically ranked questions, where the participants' response to a statement asked in the questionnaire was indicated. The questionnaire was developed in sections containing the input and output variables. Input variables include the level of association as friends where questions such as having meals together (at least once a month) if one-third of them are friends, if they have worked on the same project in the past, and if they communicate informally after work non-project matters. The diversity variable includes the team's demographic composition within the organisations sampled. Questions in this group include consultation by project managers before decisions are taken, differences in age (less than 10 years), educational level, gender balance (more than 50% are male) and racial profiles. Lastly, on input variable groups is the level of social interaction among team members, with questions such as whether team members meet for social functions after working hours or at weekends and regularly communicate on instant messaging applications like WhatsApp, Facebook, and Twitter. The output variable includes communication media in use (site instruction book, verbal discussion, phone calls, E-mail, Instant messaging applications and written formal letters). In addition, interactions between alliance partners were grouped, that is, time taken to undertake request for inspections (within 24 hours), payment request, request for information; if a resolution of disagreement is made without invoking contractual provisions, if they normally reach consensus on-site problems such as cost or other claims and if the atmosphere in site meetings are cordial. The developed framework is presented in Figure 1. This guided the research and yielded an understanding of the participants' perceptions that were then analysed. With this in mind, two measures were used to check the accuracy of the data collected and analysed; the margin of error and confidence level (Ankrah, 2007; How to analyse questionnaire responses, 2017). Scaling of responses was done using Likert-type scale with weights ranging from 1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree and 5 = Strongly Agree.
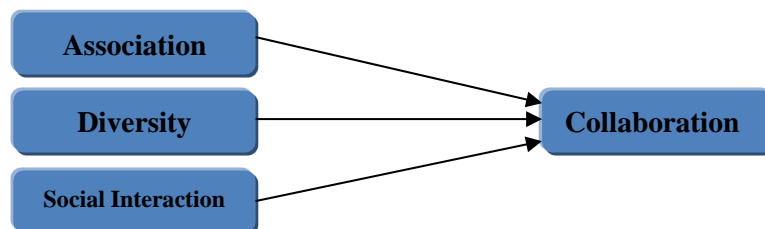

Fig. 1: Diagrammatic representation of input and output scales (Research model)

3.2 Population and sample

Sample selection for this research was made by searching for engineering, consulting and construction companies in selected Johannesburg suburbs. This heterogeneity research sampling was made around Midrand, Sandton and Johannesburg CBD, where construction work was ongoing to enhance variation in the perspective of respondents (Trochim, 2006). The researcher ensured that relevant respondents could give meaningful feedback on the topic under investigation within all organisations responsible for a successful construction project. The sample encompasses a range of people of different levels educationally, ethnicities, and ages to ensure internal validity and cover the social class and cultural background differences. It was also imperative to choose a representative sample size that accurately reflects the construction-sector workforce.

In this research, 254 questionnaires were sent out, to get 119 (sample size) questionnaires filled. However, 92 responses were recorded in total, out of which three (3) were not completely filled, rendering it void and 89 accurately completed responses were received, equating to a response rate of 35.04%. This response rate is considered positive when compared to other researchers' work, recording 27% and 13.5%, respectively (Ankrah, 2007; Idrus and Sodangi, 2010). In this research, the exercise schedule was crucial to increase the response rate.

3.3 Data analysis

The inputs were association, diversity and social interaction among team members, while the output was collaboration, as shown in figure 1. Data analysis was performed by correlation to determine the extent of the relationship between the input factors and collaboration. Information collected was gathered and populated in a spreadsheet, making it easier to get a tabular representation of all the responses. With the aid of filters, it was then possible to look at the response of each question or category of questions to draw up logical conclusions. After collection, the data were quantitatively analysed using SPSS (version 25). The survey questionnaire used was synthesised from the literature. It was tailored to obtain respondents' opinions, structured carefully to avoid leading questions, and reviewed to avoid irritating questions. The final questionnaire was distributed to relevant construction project team members in selected areas around Johannesburg, South Africa. Cronbach's Alpha test was performed to determine the reliability and validity of the variables (to ensure every question in each of the identified groups collects relevant information). A value of 0.8 validity is better, values range of 0.6 - 0.7 is considered acceptable (Pallant, 2013). In cases where the Cronbach's Alpha value was lower than the acceptable values, a report could be given on the mean inter-item correlation values, (recommended to be between $0.2 – 0.4$) (Pallant, 2013). Further, the internal validity and reliability report shows consistency in the questions in each group on the input and output scales, ranging from 0.73 to 0.8 for the association in the collaboration scale. Mean inter-item correlation values were used for diversity and social interaction scales with 0.22 and 0.23 values, respectively, indicating good consistency.

Pearson correlation was then used to examine the relationships between the input and output variables. Pearson's correlation coefficient is expected to be between -1 to +1 (Pallant, 2013). This means that a correlation coefficient value of 0 depicts no linear relationship between the tested variables, while a -1 value means as one of the variables decreases, the other increases. Also, +1 correlation values depict that the relationship between the variables is that one variable increases as the other increases. In addition, the significance value (p) of less than 5% implies a relationship between the variables (Pallant, 2013).

4.0 Results

4.1 Relationship between socio-cultural diversity and collaboration
This part of the study presents the results of the questionnaire. The main areas focused on were the team members' interrelationships in construction site projects, how their association with one another is achieved, how their diverse social and cultural characteristics alongside social interaction relate to collaboration among individuals and other participating collaborators. The result of the correlation analysis performed was also tabled below.

4.2 Findings on the relationship between diversity and collaboration

The team members' association as friends, diversity and social interaction was considered, as this would help determine if differences in the demographic structure of the organisation allow individual members to relate better on the project and non-project matters. From table 1 below, the relationship between team members' diversity on collaboration had a medium positive 0.323 (p=0.002) relationship with the level of association as friends (Tassoc). A positive and relatively strong value of 0.574 was found between their demography and collaboration (Tdiverse) (p= 0.000), and a medium strength of 0.318 (p= 0.002) between collaboration and team members social interaction (Tsocialint). These positive and medium to relatively high relationships indicated that the more diversified the team members are, the more collaboration exists among them. These results indicate a significant relationship between the variables, giving the direction and strength of such relationships.

Table 1: Relationship between team members' association, diversity, social interaction and collaboration

		Tassoc	Tdiverse	Tsocialint	Tcollab
Tassoc	Pearson Correlation	1	.200	.370[**]	.323[**]
	Sig. (2-tailed)		.060	.000	.002
	N	89	89	89	89
Tdiverse	Pearson Correlation	.200	1	.194	.574[**]
	Sig. (2-tailed)	.060		.068	.000
	N	89	89	89	89
Tsocialint	Pearson Correlation	.370[**]	.194	1	.318[**]
	Sig. (2-tailed)	.000	.068		.002
	N	89	89	89	89
Tcollab	Pearson Correlation	.323[**]	.574[**]	.318[**]	1
	Sig. (2-tailed)	.002	.000	.002	
	N	89	89	89	89

** Correlation is significant at the 0.01 level (2-tailed).

5.0 Discussion

The project team members' diversity was assessed through various aspects including the demographical (socio-cultural) differences within the organisation that could impact the behaviour of individuals. Team members' diversity was measured through consultation by managers with subordinates before decision-making, the age difference of team members participating in projects, gender profile, education level and racial profile of team members. Diversity reflects the multiplicity of demographic features present in an organisational workforce, especially race, age, sex, origin, culture, religion and capability or disability (Dessler, 2011; Jones and George, 2011).

First, the assessment of whether project manager consults before making a decision revealed significant consultation by managers before decision-making. This is in line with previous research that every member within the team has unique skills and values, which differs; consultation improves leader-subordinate relationships in the workplace (Wambui et al., 2013). Individuals' contribution to the organisation's objectives or project's success brings satisfaction. Consultation could also be in the form of allocation of responsibility and project managers' interactions with project team members, resulting in improved communication (Wambui et al., 2013).

Concerning the age difference, the data acquired confirmed that the age difference among the members was small, below 10 years. This age gap has no impact on the level of relationships when it comes to projects. This aligns with the literature that age has no impact on official responsibility (Chileshe and Haupt, 2010). Although team members might not relate well outside work due to age differences; they relate better with colleagues within their age bracket (Chileshe and Haupt, 2010).

Further, the results showed that a high percentage believes there are wide educational differences in terms of educational differences. The graduate category represents the majority, while other educational categories are the minority, such as those with certificate training and informal educational certificates. This is expected in the engineering, consulting and construction industries.

Further, considering gender as an essential dimension relating to organisational culture, a wide gender balance was evident from the result of the survey conducted as participants supported that males dominate the construction industry. This is in line with findings that men account for 99% of the construction industry personnel over their female counterparts (Williams, 2015). It is also in tune with findings of previous researchers saying women have a lower percentage in the construction industry, accounting for only (if not less than) 3% of the construction and extraction workforce as of 2015 (Stephenson, 2017). This could be because tasks in construction are mostly physical, and this requires younger, active males.

The racial profile showed that every race was fairly represented on construction projects. Therefore, the racial profile was proportionally balanced, as most participants believed that blacks are more than other races and most blacks are from South Africa, the highest racial population in the Republic (Statistics South Africa, 2012). However, many other races are involved in construction projects, and many are from abroad, such as expatriates or online support members (Green, 2002). This connotes that team members are from different races and ethnicity and are dedicated to achieving common construction project objectives.

The result presented above shows that team members collaborate well despite their diversity in cultural characteristics and social class or level. This is in line with the literature that there is a need for team members to collaborate and manage workplace diversity as this helps develop higher competitive advantages, and managers must acknowledge this.

6.0 Conclusion and Recommendations

The study aimed to determine how social and cultural diversity relates to collaboration within South Africa's socially and culturally diversified construction-sector workforce. It was concluded that a significant relationship exists between the project team members and alliance partners. There is a good association between friends and social interaction among team members in the construction industry. The findings reveal that people can relate well in construction projects regardless of their social class, status or cultural background. The medium to high strength of the results demonstrated the quality of collaboration among alliance partners. In other words, social and cultural diversity is not a significant hindrance to establishing a close relationship or collaboration among the project team members and partnering firms in Johannesburg.

From the results and analysis conducted, several recommendations could be made in connection to the objective of the study:

1. Even though individuals on projects within the construction industry relate well and collaborate to achieve their common goals, it is imperative to educate individuals on identifying and appreciating different aspects of cultural diversity. People must learn to respect others and their cultural beliefs.
2. In order to attain project delivery efficiency, it is necessary to promote factors of collaboration, which include trust and communication. Collaborating parties also need to assess the extent to which they are willing to participate in the alliance. Other participating members must be strategically weighed/assessed and trusted to become part of the alliance regarding the expected benefits and the risks involved.
3. Further studies on improving collaboration in the construction industry can be conducted using a larger sample.

References

Abdull Rahman, S.H., Endut I. R., Faisol, N., and Paydar. S. "The Importance of Collaboration in Construction Industry from Contractors' Perspectives. International Conference on Innovation, Management and Technology Research, Malaysia. pp.22-23. Sept. 2013.

Akintoye, A., and Main, J. "Collaborative Relationship in Construction: UK Contractors' Perception" Engineering, Construction and Architectural Management, Vol. 14 Issue 6. pp. 597-617. 2007.

Akintoye, A. & Main, J. 2008. 13th Joint International Symposium "Transformation through Construction" Dubai, United Arab Emirates, 17-19 November 2008

Ankrah, N.A. "An Investigation into the Impact of Culture on Construction Project Performance". PhD Thesis: University of Wolverhampton. 2007.

Ayegba, C., Kamudyariwa, X. B. and Root, D. (2018). Collaboration and long-term relationships in construction.
Journal of Construction Project Management and Innovation, 8(1): 2180-2197.

Census 2011: Census in brief (PDF). Pretoria: Statistics South Africa. 2012. ISBN 9780621413885.

Chang, R.Y. "Building a Winning Team – A Practical Guide to Maximizing Team performance" (Book Style), California. Richard Chang Associates. pp. 105. 1994.

Chileshe N and Haupt T. C "The Effect of Age on the Job Satisfaction of construction workers" Journal of Engineering, Design and Technology. Vol 8. Issue 1. pp.107-.118. 2010.

Crouse, H. J. "The Power of Partnerships. The Journal of Business Strategy. pp. 4-8. Nov/Dec. 1991. Dessler, G. "Human Resources Management" 12th Edition Harlow: Pearson Education. 2011.

Douma, M. U, Bilderbeek, J., Idenburg, P.J., and Looise, J.K. "Strategic Alliances: Managing the Dynamics of Fit. Long Range Planning. Vol. 33, pp. 579-598. 2000.

Green, K., López, M., Wysocki, A., Kepner, K., Farnsworth, D. and Clark, J. L. "Diversity in the Workplace: Benefits, Challenges, and the Required Managerial Tools" University of Florida Institute of Food and Agricultural Science Extension

Gulati, R., Wohlgezogen, F. and Zhelyazkov, P. (2012). The Two Facets of Collaboration: Cooperation and Coordination in Strategic Alliances. The Academy of Management Annals, 1: 1–53.

How to analyse questionnaire responses", Nfer.ac.uk, 2017. [Online]. Available: https://www.nfer.ac.uk/schools/developing-young-researchers/how-to-analyse-questionnaire-responses/. [Accessed: 08- Sep- 2017]

Idrus, A.B. and Sodangi, M. "Framework for Evaluating quality Performance of Contractors in Nigeria" International Journal of Civil and Environmental Engineering. Vol. 10: 1 pp. 34-39. 2010.

Jones, G. and George, J. "Essentials of Contemporary Management". 4th Edition. New York: McGraw – Hill. 2011. Kotter, J. P., and Heskett, J. L. "Corporate Culture and Performance". Free Press: New York, 1992.

Latham, M. "Constructing the Team. Final Report of the Government/Industry Review of Procurement and Contractual Arrangements in the UK Construction Industry. HMSO. Jul. 1994

Mbohwa, C. and Edward, L. N. Team Development – Applicability of the Efficiencies and Effectiveness of Team Development." International Conference on Law, Entrepreneurship and Industrial Engineering. 2013.38.

Pallant J. "SPSS Survival Manual: A Step by Step Guide to Data Analysis using IBM SPSS". 5th Edition. Allen and Unwin. Austrailia. 2013.

Stephenson K. "Breaking down Gender Bias in the construction industry" Issue of Building Energy, a publication of the Northeast Sustainable Energy Association. 2017. www.keepcraftalive.org/breaking-down-gender-bias-in-the-construction-industry.

Sundstrom, E., De Meuse, K. P., and Futrell, D. "Work Teams: Applications and Effectiveness" American Psychological Association, Inc. Vol. 45. No. 2; pp. 120-133. Feb. 1990.

Trochim W.M.K. "Levels of Measurement". Research Method Knowledge Base. Web centre for Social Research Methods. 2006.

Valentine, W. S., and Voster, F. S. "Understanding Construction Project Failure In Southern Africa. Proceedings of the Institution of Civil Engineers Issue MP1 pp. 19-26 Feb. 2012.

Wambui, T. W., Wangombe, J. G., Muthura, M. W, Kamau, A. W., Jackson, S. M. "Managing Workplace Diversity: A Kenyan Perspective". International Journal of Business and Social Science. Vol. 4, No.16. pp. 199-218. Dec. 2013.

Wambui, T. W., Wangombe, J. G., Muthura, M. W, Kamau, A. W., Jackson, S. M. "Managing Workplace Diversity: A Kenyan Perspective". International Journal of Business and Social Science. Vol. 4, No.16. pp. 199-218. Dec. 2013.

Williams M. "Where are all the Women? Why 99% of Construction Workers are Male? The Guardian (International edition). 19 May 2015. [Accessed: 07/10/2018].

Wu, S., Greenwood, D. and Steel, G. (2008). Exploring the Attributes of Collaborative Working in Construction Industry. Interdisciplinary Studies in the Built and Virtual Environment, Northumbria Built and Virtual Environment Working Paper Series, 1(2): 1-13.