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An investigation into the relationship between diversity, leadership and innovation in the South African construction industry

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Abstract. Without a diverse leadership and workforce, in the South African construction industry innovation is hindered and slowed, resulting in a weakened ability to respond to a fast paced and technologically driven market and economical changes, which has a direct impact on organisational growth. Little is known about the role of leadership in managing the relationship between diversity and innovation in the South African construction industry. The construction industry has not been responsive to market changes and therefore slow to innovate. This rapidly evolving contextual landscape requires a more diverse workforce in order to address these challenges. This paper presents the findings from a study that investigated and analysed the role of leadership in managing the relationship between diversity and innovation in the construction industry. In this context leadership is described as the ability to select, equip, train, and influence one or more followers who have diverse gifts, abilities, and skills and focuses the followers to the organisation's mission and objectives. Diversity are described as age, ethnicity, cultural background, gender, race and capabilities. Innovation is described as the implementation of ideas that have come together to create new solutions to problems or improvements to existing systems, processes, products, or attempted solutions.

1. Introduction

This study examined the relationship between leadership, diversity and innovation in the South African construction industry, in relation to its ability to provide inclusive innovative solutions for societal infrastructure challenges. Diversity are defined as the primary dimensions of diversity which are age, ethnicity and culture, gender, race, religion, sexual orientation, and capabilities [1, 2]. For the purposes of this study the focus was on age, ethnicity, culture, gender, race, and capabilities in terms of the level of focus these factors receive and to what extent they form part of the strategic drive for organisations in the South African construction industry.

The study was at a virtual and deep level. The virtual level included age, gender, race, cultural, education and ethnicity, while the deep level included values, attitudes, beliefs, and personality traits [3]. The basis of this study was to advance the understanding of the relationship between diversity and innovation in the context of organisational ideation, performance and inclusive problem solving in the South African construction industry. In the context of its relationship to diversity and the diversity, innovation, formed an integral part of this study.

In this study innovation was seen as the implementation of ideas that have come together to create innovative solutions to problems or improvements to existing, systems, processes, products, or attempted solutions, such as legislative attempts to drive transformation and diversity [4, 5].



1.1 Background to the study

Diversity is a critical issue in globalisation and competitiveness of institutions and corporate entities. Several industries including the construction industry, are traditionally not diverse and are therefore further deterring women, black people and people living with disabilities to consider such industries as career choices. The resultant being a specifically exclusive culture that is quite different to what is seen as a diverse culture where everyone feels included, appreciated and valued and everyone can achieve their potential [6, 1].

Research has shown that both globally and in South Africa the construction industry is characteristically a male dominated industry in terms of employment at all levels as recruitment at senior and management levels by the construction industry has remained homogeneous, with a marked propensity for companies to attract, recruit and select men [7, 8, 9, 6, 10]. The 2021 South African Construction Industry Development Board (CIDB) Construction Monitor – Employment survey [10] examines employment in the construction industry and the factors affecting employment. According to this CIDB [10] report the construction industry employs around 1 222 000 people, of which 87% are male and 13% female.

In comparison with other industries, the construction industry has the highest proportion of male employment. Male representation in the construction industry is high (87%) compared with the industry average of 56% for all industries [10]. Consequently, there exists a demonstrable under-representation of women, thereby making equality and diversity a significant challenge for the industry [11, 12, 9].

1.2 The Research Aim

The aim of this research study was to investigate and analyse the role of leadership in managing the relationship between diversity (factors) and innovation in the South African construction industry and its impact on the industry's ability to provide inclusive innovative solutions to the societal and infrastructure challenges in the country. This research aims to add to the South African construction industry's body of knowledge on leadership diversity, diversity, diversity management and innovation.

The research objectives were to: Investigate the perceptions of diversity held by leadership within the construction industry in South Africa; Analyse the perceived lack of leadership diversity within the South African construction industry, and how this impacts the management of the relationship between diversity and innovation in the South African construction industry; Investigate the extent to which leadership within the construction industry view the importance of diversity and inclusion to drive innovation for better problem-solving within their organisations and the construction industry; Evaluate the link between leaderships' drive, influence, and management of the relationship between diversity and innovation to inclusive innovative societal infrastructure problem solving within the construction industry; and, Determine the relationship between the South African construction industries leadership commitment to diversity and innovation with the industry's impact on the South African economy and society.

2. Literature Review

2.1. Diversity and Inclusion

In today's ever-changing world, in which competition for talent never abates, diversity and inclusion have become crucial elements of strategic plans for organisations globally. A cultural revolution and changes in demographics influencing the current workplace forces businesses to use diversity and inclusion as a strategy to succeed. Workplace dynamics must move beyond representation metrics to engage a more diverse population [13]. According to Mathieu *et al.* [14] and Stewart [15] There is a challenge for researchers to embrace the complexity of this subject. It creates much discomfort and discussing it is often met with resistance. However, through the Human Resources and Industrial Psychology industries it has been researched extensively as part of affirmative action and due to legislative requirements research has been conducted as a need to ensure compliance and not as a need to advance diversity and innovation. Diversity has been a topic that has been researched extensively in the humanities fraternity particularly in relation to academia and human resources [14, 15].

Studies have focused on improving the diversity in organisations both in industry and in academia. Dani *et al.* [14] and Stewart [15] further states that the language used to describe, discuss, and study

diversity shapes the ways in which this concept is understood. Like team mental models, researchers have focused a great deal of attention on team diversity. However, progress has been less clear when it comes to diversity than in team performance. According to Prieto *et al.* [16] to remedy the shortcomings of past diversity research and the inconsistency in results, further developments of alternative ways in which group diversity can be conceptualised are needed.

2.2 Leadership

According to Latham [17], a key issue in leadership research is that there has been no convergence toward a reasonable number of cogent leadership theories. The current knowledge about leadership consists of narrow definitions of leader effectiveness that are disconnected from their context, so the application to practice is difficult. More research is needed that develops leadership frameworks and models that integrate transformational, servant, and spiritual leadership theories and include the context and a definition of success based on creating value for multiple stakeholders [17, 18].

Leadership is important to consider in relation to acceptance of innovations and to work attitudes, perceptions, behaviours, service quality, and client outcomes [19]. Organisations that are only good at one or the other will not survive, let alone thrive, in the coming decades [19, 17, 20].

2.3 Innovation

Creativity and innovation drive progress and allow organisations to maintain competitive advantage. In recent years, both industry and academia have placed a premium upon creativity and innovation, and research in the field has flourished, generating several compelling findings. Unfortunately, the research has been fragmentary in nature. As a result, the leadership, creativity, and innovation literature is fragmented and primarily populated by small, exploratory studies, which are unrelated to any unifying framework [21].

In the dynamic and evolving 21st century environment, it is essential that organisational goals focus on innovation in accordance with the changing needs of consumers. According to resource-advantage theory, innovation enables organisations to offer more value to clients than their competitors and is primary to business success. There have been several studies linked with the resource-advantage impact of innovation management capability that says that to maintain sustainable competitive advantage, business units not only need to rely on technology-related innovation but also, they need to consider innovation in non-technological areas. Organisations that systematically manage innovation show more advancement in innovation capability than others [22, 23, 14].

3. Research Methodology

To achieve the aim of this study a convergent parallel mixed method approach was used to get the views of all the professionals working (the construction industry work force) within the South African construction industry on how they view, interact, feel, experience, engage and rate the level of importance of the three constructs under investigation. After a pilot study was conducted with a small sample to evaluate the comprehensibility of the questions, a questionnaire (survey) was distributed to professionals in various roles and levels within South African construction industry.

To better understand how leaders within the South African construction industry view, interact, feel, experience, engage and rate the level of importance of the three constructs, semi-structured interviews were conducted via Microsoft teams concurrently with the questionnaire which was distributed via the survey monkey digital platform.

4. Findings and Discussions

The main results presented in this paper are the results from the questionnaire, in terms of the semi-structured interviews, only a summary of the emergent themes from the thematic analysis is provided.

The main research question investigated by the questionnaire was, how does leadership drive, influence and manage the relationship between diversity and innovation to advance organisational performance in the South African construction industry? For purposes of data interpretation, mean scores 0.0 to 0.67 = Neutral, mean scores greater than 0.67 to 1.34 = Agree and mean scores greater than 1.34 to 2.0 = Strongly agree. These results are shown in Tables 1 to 4.

4.1 The results from the Questionnaire

To understand the perceptions and experiences of the construction industry workforce in relation to diversity, using a Likert scale, participants were presented with 17 statements about diversity and requested to rate the level at which they strongly agreed or strongly disagreed with the statements. The findings in Table 1 shows that the mean scores ranged from 0.62 to 1.55, deprived of any negative scores, indicating that the participants responses oscillated from neutral to strongly agree, with no participants disagreeing or strongly disagreeing with the statements. The participants agreed (1.29) that this was the first time they were participating in a research study on diversity in the construction industry.

This finding supports the limitations of this study in relation to the adequate availability of South African literature on similar studies. Table 1 further shows that the participants strongly agreed (1.42) that diversity such as age, ethnicity and culture, gender, race, and capabilities are critical for driving the organisational success in the industry. Participants strongly agreed (1.43) that workforce diversity management should be a strategic drive for leadership in the construction industry. With a mean score of 1.51 the participants strongly agreed that diversity is important to improve organisational competitiveness and innovation capabilities. This statement was ranked the second highest important (2), indicating that the participants recognised diversity as key for organisational competitiveness and innovation in the South African construction industry. The findings showed that there was agreement (1.12) that despite equal opportunity laws in South Africa, women and other historically discriminated-against groups continue to remain disadvantaged and disempowered in the construction industry organisations relative to their white male counterparts. This finding further supported the participants agreement that the industry continues to attract, retain, and promote predominately white males.

Table 1. Diversity and Inclusion in the South African construction industry

Statement	Diversity			Rank	Interpretation
	Mean	Std	Score		
This is the first time I am participating in a research study where diversity in the construction industry is the topic.	1.29	0,99	1.29	8	Agree
Diversity such as age, ethnicity and culture, gender, race, and capabilities are critical for driving the organisational success in the industry.	1.42	0.75	1.42	5	Strongly Agree
Diversity is important to improve organisational competitiveness and innovation capabilities.	1.51	0.69	1.51	2	Strongly Agree
My organisation has recruitment strategies and policies to drive, advance and address diversity.	0.55	1.02	0.55	14	Neutral
The South African construction industry is not seen to be promoting diversity as it continues to predominately attract, employ, and promote males and in particular white males.	0.75	1.14	0.75	12	Agree
In the South African construction industry diversity and diversity management are not regarded as important issues that require focus.	0.61	1.03	0.61	13	Neutral
Due to the lack of diversity, previously disadvantaged groups and in particular black females are discouraged from considering careers in the construction industry.	0.52	1.10	0.52	15	Neutral
Gender diversity is an important issue that needs focus in the construction industry to ensure that the industry has a diverse workforce to better address the challenges it faces.	1.47	0.62	1.47	3	Strongly Agree
A diverse construction organisation workforce brings new thinking approaches to the workplace.	1.55	0.65	1.55	1	Strongly Agree
Diversity increases and strengthens the interaction between different types of construction disciplines and levels of expertise.	1.28	0.77	1.28	9	Agree

Workforce diversity management should be a strategic drive for leadership in the construction industry.	1.43	0.66	1.43	4	Strongly Agree
Despite equal opportunity laws in South Africa women and other historically discriminated-against groups continue to remain disadvantaged and disempowered in the construction industry organisations relative to their white male counterparts.	1.12	0.99	1.12	11	Agree
The South African construction industry requires a more diverse workforce to address its economic growth and skills shortage challenges.	1.37	0.67	1.37	7	Strongly Agree
Diversity is a difficult and uncomfortable conversation to have.	0.30	0.62	0.30	17	Neutral
The South African construction industry is still a male dominated; particularly white male dominated industry.	1.21	1.28	1.21	10	Agree
My organisation has a diversity policy.	0.38	0.91	0.38	16	Neutral
Diversity should be a priority agenda in the South African construction industry.	1.39	1.21	1.39	6	Strongly Agree

Table 2. shows the results related the leadership construct in the South African construction industry. Participants were presented with eight statements about leadership and requested to rate the level at which they strongly agreed or strongly disagreed with the statements. The findings showed that the participants strongly agreed, with a mean score of 1.40, that diversity management must be a leadership initiative, owned and driven by the CEO and EXCO. This statement was ranked the second most important. With a mean score of 1.47, the participants strongly agreed that the role of leadership in driving diversity is key to improving construction industry diversity and ranked this statement as the most important.

These results indicate that leaders in the South African construction industry have a significant role to play in advancing, managing, and improving diversity in the industry. The participants strongly agreed (1.37) that leadership management and integration of diversity through workforce diversity management enhances innovation in construction organisations and ranked it 4th out of 8. Table 2 further shows that the participants strongly agreed (1.38) that leadership is a key catalyst for driving innovation through effective diversity management. These findings suggest that effective workforce diversity management enhances innovation in the construction industry and that this needs to be a leadership focus. As shown in Table 2, the participants were neutral (0.40) about whether their organisations had diversity management as a strategic leadership focus. This statement was ranked 7th out of the 8 statements.

This result aligned with the findings on diversity strategies and policies under the diversity construct, therefore suggesting that there is a relationship between strategic leadership focus on diversity management and the policies guiding these in the industry. The participants were also neutral (0.52) about their organisations having innovation as a strategic leadership focus, this statement was ranked 6th. These findings indicate that, though these issues are regarded as important in the construction industry, they are not strategically prioritised.

Table 2. Leadership in the South African construction industry

Statement	Leadership				Interpretation
	Mean	Std	Score	Rank	
Diversity Management must be a leadership initiative, owned and driven by Senior Management, namely the CEO and EXCO.	1.40	0.89	1.40	2	Strongly Agree
The role of leadership in driving diversity in construction organisations is key to improving diversity in the industry.	1.47	0.733	1.47	1	Strongly Agree

Leadership's management and integration of diversity through workforce diversity management enhances innovation in construction organisations.	1.37	0.758	1.37	4	Strongly Agree
Leadership is a key catalyst for driving innovation through effectively managing diversity in construction organisations.	1.38	0.791	1.38	3	Strongly Agree
In my organisation diversity management is a key leadership strategic agenda	0.40	1.195	0.40	7	Neutral
My organisation has innovation as a strategic leadership focus.	0.52	1.131	0.52	6	Neutral
The leadership within your organisation drives initiatives that foster diversity and innovation.	0.39	1.141	0.39	8	Neutral
Leadership should drive the management of the relationship between diversity and innovation in the construction industry.	1.30	0.841	1.30	5	Agree

On the construct of innovation, the results as shown in Table 3 depicted that the participants strongly agreed (1.64) that “*construction industry organisations need to innovate in response to changing customer demands and lifestyles, and to capitalise on opportunities offered by technology and changing marketplaces, structures and dynamics*” ranking this statement the most important. The participant strongly agreed (1.56) that innovation is key to the growth and evolution of the South African construction industry. Table 3 further depicts that the participants strongly agreed (1.58) and ranked 2nd that “*workplace innovation can enhance the profitability of construction industry organisations in South Africa.*” The findings show that the participants were neutral (0.64) that the South African construction industry is shrinking and struggling to cope under economic pressure due to lack of diversity and ranking this statement the second lowest. This shows that there is no consensus among the participants about the construction industry's performance in relation to the lack of innovation in the industry, and that there is possibly no definite link between the industry's shrinkage and innovation.

This finding indicates that there could be reasons other than innovation for the industry's shrinkage that were not explored in this statement. The findings revealed that the participants were neutral (0.49) about the South African construction industry not being mature enough to embrace innovation due to the low levels of diversity and limited focus on diversity and innovation management initiatives, ranking this the least important. This finding indicates a lack of awareness and availability of information about the industry's innovation maturity levels and diversity and innovation management initiatives. The need for the organisations in the construction industry to innovate in response to changes in market and customer demands was ranked the most important. This indicates that there is a recognition for the importance of innovation in retaining customers in the industry and taking up technological opportunities within the industry, however the findings display a lack of practical implementation.

Table 3. Innovation in the South African construction industry

Statement	Innovation			Rank	Interpretation
	Mean	Std	Score		
Construction industry organisations need to innovate in response to changing customer demands and lifestyles and to capitalise on opportunities offered by technology and changing marketplaces, structures and dynamics.	1.64	0.571	1.64	1	Strongly Agree

Innovation is an integral key element to the growth and evolution of the South African construction industry.	1.56	0.584	1.56	3	Strongly Agree
Workplace innovation can enhance the profitability of construction industry organisations in South Africa.	1.58	0.583	1.58	2	Strongly Agree
The construction industry in South Africa is shrinking and struggling to cope under economic pressure because of the lack of innovation in the industry.	0.64	1.098	0.64	4	Agree
The South African Construction Industry is not mature enough to embrace innovation because of the low levels of diversity and limited focus on diversity and innovation management initiatives.	0.49	1.072	0.49	5	Neutral

The questionnaire further evaluated the relationship between the constructs, diversity and inclusion, leadership, and innovation in relation to this study. The results as per Table 4 showed that there was consensus among the participants on these statements, as the mean scores were all above 1.0, therefore the participants agreed with all four statements.

The findings showed that the participants ranked as most important, and strongly agreed (1.45) on the need for research on the impact of the relationship between leadership, diversity and innovation on the South African construction industry's performance and success. This finding suggests that the industry is possibly void of well-documented literature on the performance indicators of the industry and, in particular, indicators related to leadership, diversity and innovation.

Table 4. The relationship between diversity, leadership and innovation

The relationship between the three constructs						
Statement	Mean	Std	Score	Rank	Interpretation	
The relationship between leadership, diversity and innovation and its impact on the South African construction industry's performance and success is an important topic that needs further research and analysis.	1.45	0.615	1.45	1	Strongly Agree	
This is the first time I am participating in a research study on the relationship between leadership, diversity and innovation in the construction industry.	1.23	0.973	1.23	2	Agree	
There is a direct relationship between workforce diversity management and the ability of the workforce to be innovative.	1.08	0.81	1.08	3	Agree	
There is a direct relationship between leadership's focus on diversity management and the rate of innovation in organisations.	1.04	0.951	1.04	4	Agree	

4.2 The emergent themes from the qualitative thematic data analysis

The following themes emerged from the qualitative phase of this study:

Theme one: The characteristics of the South African construction industry

The South African construction industry is characterised by unique and general attributes which are both positive and negative. These characteristics were detailed by all the interviewees, and it was evident from the responses that the characteristics of the industry have a significant impact on how leaders within the industry experience, relate, interact with, manage and drive leadership, diversity (factors) and innovation to achieve their organisational and industry goals. The following some of the characteristics that emerged:

- The SA construction industry is a sustainable industry and should therefore be proactive in their approach to addressing issues
- The SA construction industry is not diverse, and it is untransformed
- The SA construction industry has the potential to innovate but lacks willingness and commitment
- The SA construction industry is rigid and resistant to change

Theme Two: Integration and management of diverse teams to drive collaboration and innovation

There is a need for the industry to be more proactive in managing diverse teams to drive better collaboration in the industry, the following are some of the issues that came up under this theme:

- Curating better collaborative work environments
- Providing safe spaces for innovation to thrive

Theme Three: Leadership capabilities, qualities and development

There was a consistent view about the need to strengthen and develop better strategic and transformational leadership qualities in the South African Construction industry under this theme. The lack of accountability and ownership of diversity, inclusion and innovation by leaders in the industry, was a dominant issue among the participants.

5. Conclusions and Further Research

The findings in this study confirm that the negative characteristics of an untransformed, rigid, male dominated and slow to change industry are still prevalent in the South African construction industry. Further confirming that legislation alone is insufficient to drive the changes required in the industry in order to provide inclusive innovative solutions to the challenges it faces. It is evident from the findings that there is a need for research on the role that diversity and innovation can play in the industry and what capabilities and attributes are required for leaders to effectively integrate and manage these. It is evident from the findings that, leadership, diversity and innovation are viewed as important aspects of the industry that need deeper understanding, and therefore future in-depth research would be recommended on each of these elements in particular innovation as it has proven to be the most challenging and under researched in the construction industry particularly in Africa and South Africa.

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