

Productivity improvement framework for South African construction SMEs

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ABSTRACT

Contractors' productivity holds strategic importance for both long-term micro and macroeconomic performance. A significant number of small and medium-sized enterprises (SMEs) in the construction sector in South Africa are characterised by poor performance, which can be attributed, in part, to low productivity rates. This scenario contributes to a pessimistic outlook for the South African construction industry and undermines its potential for job creation. This study aims to investigate the primary obstacles that hinder productivity within construction SMEs and proposes an improvement framework. The study employed a qualitative research approach, collecting data from registered SMEs in South Africa through semi-structured interviews. Qualitative content analysis was applied to analyse the research data. The key factors identified as undermining SMEs' productivity include challenges related to workers' skillsets, directors' competencies, government interference, and workers' remuneration. The implications of this research are valuable for SMEs, offering insights to expedite project delivery and thereby mitigating the risk of construction business failure. Previous studies have often focused on the overall performance of construction SMEs, with limited attention to their productivity. Moreover, productivity-focused studies tend to lack a strong SME-centered approach. This research bridges these gaps and introduces interventions that have the potential to enhance productivity in small and medium-sized construction organisations.

Keywords: Construction industry, contractors, labour productivity, project management, SMEs

1. INTRODUCTION

The construction management literature extensively documents the myriad challenges facing the construction sector, with issues related to low productivity taking center stage. Over the past four decades, South African construction has grappled with persistent low productivity challenges (Chingara and Moyo, 2014). The country's construction productivity has reached its nadir (Bierman et al., 2016), attributing its poor performance to a combination of extrinsic and intrinsic factors (Adebowale and Smallwood, 2020). This situation undermines both the sector's contribution to the economy and the welfare of South African citizens. Current South African productivity concerns have spurred interventions from academia and industry practitioners, aiming to address these challenges (Isabirye and Orlando, 2020; Orlando and Isabire, 2018; Snyman and Smallwood, 2017; Bierman et al., 2016; Construction Industry Development Board, 2015). Bierman et al. (2016) addressed productivity management, dissecting factors that impact construction productivity. Isabirye and Orlando (2020) delved into organisational equity as a platform for enhancing ethics and integrity, thus promoting construction productivity. The study examined perspectives from construction professionals and academics in the built environment. Snyman and Smallwood (2017) focused on contractors' perceptions and practices concerning construction business

productivity. Orando and Isabire (2018) explored skills development within South African construction to spur productivity growth.

While studies have explored the general performance of SMEs in South Africa, some have homed in on their productivity. Abor and Quartey (2010) advocated the involvement of governmental and non-governmental entities to enhance construction SMEs' performance. Wentzel et al. (2016) underscored the importance of management focus, competency assessment, and strategic planning for SMEs. Olawale and Garwe (2010) emphasised the necessity for financial support, while Aigbavboa et al. (2014) and Wentzel et al. (2016) highlighted the role of financial management. In South Africa, SME contractors comprise those with 250 full-time employees or fewer and an annual turnover of less than or equal to R170 million (Small Business Development, 2019). The underperformance of SME contractors undermines their potential to significantly contribute to job creation (Fatoki, 2014). Until 2016, construction SMEs constituted approximately 95.3% of South African contractors (Balogun et al., 2016), with more than 50% being owned by previously disadvantaged South Africans (George, 2016). Despite the strategic importance of SMEs for job creation and poverty reduction, research indicates that large contractors generally outperform SMEs in achieving project objectives (Wentzel et al., 2016). Notwithstanding substantial governmental spending to enhance performance, the current results do not justify such investment (Mafundu and Mafini, 2019; Aigbavboa et al., 2014). While studies have probed productivity within both SMEs and large construction organisations, investigations that specifically examine SMEs often explore their overall performance as opposed to their productivity. Although performance and productivity are sometimes used interchangeably, there is a distinction between these two management concepts, as elucidated in the following section. Besides, productivity studies have often made contributions that apply to the broader categories of construction organisations. This research narrows its focus to construction SMEs' productivity, seeking to uncover specific issues and interventions pertinent to contractors in this category. The study details current construction SME productivity, identifies systemic drivers, and presents a proposed improvement framework based on the research findings.

2. LITERATURE REVIEW

2.1 Productivity perspectives

Productivity growth is gaining increasing attention from economists and policymakers due to a growing recognition of the link between productivity and economic performance (Fadejeva and Melihovs, 2010). Efforts to understand productivity have yielded various perspectives on its definition. Academics have yet to arrive at a unanimous definition, as the concept often depends on the unique project control systems relevant to each organisation (Nasir et al., 2014). The term 'productivity' was first introduced in an article by Quesnay in 1766 (Jarkas and Bitar, 2012; Vaggi, 1987). Over a century later, in 1883, Littré expressed productivity as the ability to produce, implying the desire to do so (Jarkas, 2015). By the early 20th century, a more widely accepted definition emerged: productivity is the relationship between output and the resources used for production (Jarkas and Bitar, 2012). The Organization for European Economic Cooperation later formalised this definition, describing productivity as the quotient obtained by dividing output by one of the factors of production. The American Association of Cost Engineers contributed by defining productivity as a relative measure of production efficiency against an established benchmark, accounting for tasks performed in relation to a predefined standard (Nasirzadeh and Nojedehe, 2013).

Diverse studies have approached productivity definitions based on their specific objectives. In this study, productivity is assessed by the extent to which SMEs have optimised project resources to achieve project cost, quality, and time objectives. Studies have recognised the correlation of time, quality, and cost overruns with productivity (Raykar and

Ghadge, 2016; Enshassi et al., 2010). Enhancing production efficiency involves leveraging organisational resources to achieve optimal outcomes at minimal cost (Rane et al., 2017). A firm's productivity hinges on its ability to effectively coordinate its production process (Caliendo and Rossi-Hansberg, 2011) while ensuring product and service quality (Hanaysha and Majid, 2018). It is vital to distinguish between efficiency and effectiveness to grasp the productivity concept (Sumanth, 1998). Efficiency pertains to task speed, while effectiveness relates to achieving appropriate outcomes. Efficiency pertains to the swift delivery of construction tasks using organisational resources (Nasirzadeh and Nojedehi, 2013), while effectiveness revolves around meeting construction goals. Monitoring and improving both efficiency and effectiveness are crucial for achieving productivity growth in construction organisations. Research on construction productivity addresses three levels: activity, project, and industry (Yi and Chan, 2014). Activity-level studies delve into the productivity of construction tasks, primarily through quantitative methods (Shan et al., 2016). Project-level research quantifies and evaluates the productivity of construction projects (Zhao and Dungan, 2014). At the industry level, research focuses on productivity measurement (Vogl and Abdel-Wahab, 2015) and long-term productivity trends (Borg and Song, 2015).

2.2 Construction productivity research

Studies have identified factors influencing construction productivity, which may vary from project to project. Furthermore, the factors influencing productivity in developing countries can differ from those in developed nations (Adebowale and Agumba, 2022a; Adebowale and Agumba, 2021). As a result, there is a compelling need to explore productivity factors on a project-specific or geographical basis (Goodarzizad et al., 2021). El-Gohary et al. (2017) conducted a study on the factors impacting productivity in formwork and rebar fastening trades, specifically focusing on various types of reinforced concrete foundations. Among the 29 factors identified, critical factors for productivity in the formwork trade included work experience, incentive programs, material availability, leadership, and site management skills. Jarkas and Bitar (2012) investigated 45 factors influencing construction productivity, categorising them into four main groups. Clarity of technical specifications emerged as the most critical factor, with the technological group exerting the most influence. Kazaz et al. (2008) categorised 37 productivity-influencing factors into four groups: organisational, economic, physical, and socio-psychological. The organisational group held the most significance, with site management quality identified as the pivotal factor. Khan (2005) centered research on formwork installation, while Thomas and Sudhakumar (2013) identified 44 productivity-affecting factors, with material unavailability standing out as the most critical. Despite extensive studies on productivity-influencing factors, disparities in their classification and prioritisation persist across different studies. Some studies have employed qualitative models, including system dynamics, to address productivity factors (Jalal and Shaor, 2019; Nasirzadeh and Nojedehi, 2013), establishing relationships among these factors. Momade et al. (2020) utilised support vector machines and random forests to model construction productivity, offering insights for realistic budgeting, work scheduling, and human resource allocation.

Artificial intelligence has also been employed in productivity modelling. Tam et al. (2002) utilised an artificial neural network to predict excavator productivity, highlighting its capability to capture non-linear relationships. Fayek and Oduba (2005) introduced a fuzzy expert system to estimate pipe rigging and welding productivity, accommodating subjective judgment. Ezeldin and Sharara (2006) proposed artificial neural network models for formwork assembly, steel fastening, and concrete pouring activities. Oral and Oral (2010) utilised a self-organising map-based model to estimate crew productivity under specific conditions. Heravi and Eslamdoost (2015) employed a multilayer feed-forward neural network for productivity measurement. Mirahadi and Zayed (2016) devised a hybrid model applying the alpha-cut method for productivity prediction. Goodarzizad et al. (2021)

developed a hybrid model utilising an artificial neural network and a grasshopper optimisation algorithm to predict construction productivity and enhance project planning efficiency. Studies on productivity predominantly employ questionnaires, while some incorporate focus groups (Dai et al., 2009; 2007). Some studies resort to literature reviews for productivity factors identification (Jarkas et al., 2014; Jarkas and Bitar, 2012), and others explored detailed productivity drivers through industry practitioner input (Jarkas, 2015). In this study, qualitative inquiry offers comprehensive investigations among a select number of small and medium-sized construction organisations.

Table 1: Construction productivity influencing factors

Country	Factor	Source
Thailand	Lack of materials, incomplete drawings, incompetent supervisors, lack of tools and equipment, and absenteeism.	Rojas and Aramvareekul (2003)
Malaysia	Shortage of materials, non-payment to suppliers causing stoppage of materials delivery to sites, change orders by consultants, late issuance of construction drawings by consultants, and incapability of site management to organise site activities.	Abdul Kadir et al. (2005)
Uganda	Incompetent supervisors, lack of skills, rework, lack of tools/equipment, poor construction methods, and weather conditions.	Alinaitwe et al. (2007)
UK	Poor supervision, simplicity of building design, level of site experience, information flow, and communication with sub-contractors.	Chan and Kaka (2007)
USA	Construction equipment, project management, craft workers' qualifications, training, and foreman competency.	Dai et al. (2009)
Indonesia	Lack of materials, delay in the arrival of materials, unclear instruction to labourers, labour strikes, and financial difficulties of the owner.	Soekiman et al. (2011)
New Zealand	Reworks, level of skill and experience of the workforce, adequacy of the method of construction, buildability issues, inadequate supervision, and coordination.	Durdyev and Mbachu (2011)
India	Tool and equipment issues, poor labour motivation, improper supervision, poor material planning, and poor site management.	Thomas and Sudhakumar (2013)
Kuwait	Payment delay, rework, lack of financial incentive scheme, the extent of change orders during execution, and incompetent supervisors.	Jarkas and Radosavljevic (2013)
Palestine	Rework, lack of cooperation and communication between construction parties, the financial status of the owner, lack of labour experience, and lack of materials.	Ibrahim (2013)
Qatar	Lack of financial incentive schemes, slow decision-making process by owners, remuneration scale, delay in responding to requests for information (RFI), and shortage of skilled labour force.	Jarkas et al. (2014)
Egypt	Labourers experience and skill, incentive programs, availability of materials and their ease of handling, leadership, competency of construction management, and competency of labour supervision.	El-Gohary and Aziz (2014)
Oman	Errors and omission in design drawings, change to orders during execution, delay in responding to requests for information, lack of labour supervision, and clarity of project specifications.	Jarkas et al. (2015)

Bahrain	Labour skills, coordination among design disciplines, lack of labour supervision, errors and omissions in design drawings, and delay in responding to requests for information.	Jarkas (2015)
Iran	Supervision, proper coordination, effective communication, proper planning, and proper HSE programme.	Heravi and Eslamdoost (2015)
Jordan	Labour experience and skill, financial incentives, trust and communications, planning and scheduling, and job commitment and loyalty.	Hiyassat et al. (2016)
Nigeria	Availability of equipment and materials, supervision, payment method, welfare on-site, and weather conditions.	Afolabi et al. (2018)
Yemen	Labour's experience and skills, availability of materials on the site, leadership, and efficiency in site management, availability of materials in the market, and political and security situation.	Alaghbari et al. (2019)
South Africa	Excessive bureaucracy, late delivery of materials, industrial action resulting from political activities, inadequate project planning, and inadequate workers' skills.	Adebowale and Smallwood (2020)
Sri Lankan	Skills shortage, labourers' thinking abilities, work experience, knowledge in construction works, and discipline.	Manoharan et al. (2022)

Source: Authors's compilation

3. RESEARCH DESIGN AND METHODOLOGY

3.1 Research scope

The research was conducted among SMEs in Gauteng province, South Africa. Among the country's nine provinces, South Africa's construction operations vary significantly. Over the years, four provinces have prominently led in terms of both construction volume and capital expenditure. The focal areas for construction projects are Gauteng, KwaZulu Natal, Western Cape, and Eastern Cape provinces (Construction Industry Development Board, 2015). As of the close of 2021, the distribution of construction operations in these provinces stands as follows: Gauteng (25%), KwaZulu Natal (19%), Western Cape (18%), and Eastern Cape (12%) (Construction Industry Development Board, 2022). Collectively, these four provinces represented 76% of the total construction volume in 2014 (CIDB, 2015), and this dominance persisted in 2021, accounting for 74% of the total construction volume (CIDB, 2022).

Gauteng province has consistently held the highest capital outlay, largely attributed to the significant number of construction operations within the province. Over time, Gauteng has evolved into South Africa's economic hub, fueling a diverse range of construction activities. Given this context, the research population comprises contractors graded from 1 to 5 registered with the Construction Industry Development Board in Gauteng province.

3.2 Sample size

Guidance on determining a sufficient sample size for qualitative studies has been provided by various researchers. The importance of establishing an appropriate sample size before commencing data collection has been emphasised in the literature (Francis et al., 2010). Determining the ideal sample size in qualitative research is often regarded as both iterative and context-dependent. This decision is typically made during the analytical process as researchers gain a progressively nuanced understanding of research themes, their interrelationships, and the conceptual scope (Sim et al., 2018).

Ando et al. (2014) conducted 12 interviews and affirmed this sample size as adequate for qualitative studies. Similarly, Picariello et al. (2017) suggested a minimum of 12 interviews to achieve data saturation in qualitative research. Namey et al. (2016) propose that a sample size ranging from 8 to 16 interviews is necessary to comprehensively address a research question. In this study, 15 interviews were conducted, a sample size deemed sufficient as data saturation was reached, and no new information emerged.

3.3 Data collection

The list of registered SMEs was acquired from the CIDB headquarters in Pretoria on November 8, 2021. To ascertain SMEs' willingness to participate, contractors were randomly selected from this list. The chosen contractors were contacted via telephone, where the study's purpose was explained. Subsequently, the research questions were emailed to participating contractors, accompanied by a request to familiarise themselves with the queries. A purposive sampling approach was employed to select research participants from each construction organisation. This technique enables the selection of knowledgeable participants capable of offering pertinent insights into the investigated topic. As directors, site managers, and supervisors possess competence in addressing productivity issues, their viewpoints were actively sought.

Respondents were engaged through semi-structured interviews, allowing them to express their unique perspectives on the subject (Silverman, 1993). Both on-site and online interviews were conducted. Eight interview sessions were conducted on-site, while seven were facilitated online via Microsoft (MS) Teams. Owing to COVID-19 regulations on physical distancing, online interviews were employed to gather a portion of the research data. The interview phase spanned over four months (December 4, 2021 - April 8, 2022), with each session recorded and transcribed. The research questions were categorised into two sections. The first section encompassed socio-demographic details of the respondents, including their years of experience, their organisation's CIDB rating, and their organisation's duration of delivering construction projects. Before presenting the second part of the research questions, the study's specific definition of productivity was elucidated to prevent misinterpretation. Productivity was evaluated based on SMEs' utilisation of project resources to achieve project cost, quality, and time objectives. The second part of the inquiry involved three distinct questions. Respondents were prompted to succinctly depict labour productivity within their projects, pinpoint factors influencing the observed productivity, and share their perspectives on viable approaches to enhancing SME productivity.

3.4 Data analysis

Content analysis is a research technique employed to derive meaningful insights from written, verbal, or visual communication messages, either through qualitative or quantitative methods, contingent on the project's nature and research objectives (Krippendorff, 2018). This approach proves valuable for collecting and structuring information, as well as discerning trends and patterns within documents (Creswell, 2014). Qualitative content analysis organises data into relevant categories, while quantitative content analysis assigns numerical values to categorised data, such as frequencies, ratings, and rankings, by tallying mentions of specific topics (Chan et al., 2009).

In this study, qualitative content analysis was undertaken. On-site interviews were recorded using a recording device, while MS Teams interviews were recorded within the platform. Transcription of electronic data converted it into qualitative data. Following transcription, the data patterns were examined, leading to manual encoding. Data were subsequently categorised into relevant themes, formed by merging distinct codes under each theme. Content analysis assesses the presence, significance, and relationships of specific themes within qualitative data. It emphasises the essence of meanings over quantifiable

frequencies, proving suitable for studies abundant in exhaustive information rather than predefined categories (Schutt, 2012).

4. RESULTS

Table 2 provides the sociodemographic characteristics of the study participants. Among the participants, site managers constituted 20%, directors comprised 26.7%, and forepersons accounted for 53.3%. Chosen as key players driving production on-site, these roles held crucial insights into productivity and its influencing factors. The participating organisations were classified according to the CIDB grade system, encompassing grades 1 through 5, which aligns with South African SME categories. Among the participants, 53.3% were registered within grades 1 to 3, categorising them as small contractors, while 46.7% fell under grades 4 to 5, identifying them as medium-sized contractors.

In terms of industry experience, 53.3% of respondents held a construction background of 16 years or more, while 46.7% had amassed 5 to 13 years of experience. The average construction experience of the respondents stood at 18.3 years. The organisational tenure data revealed that 33.3% of surveyed organisations had been operational for 16 years or more, with the remaining 66.7% operating within the 3 to 14-year range.

Table 2: Participants' information

Interviewee	Position	Years of experience	CIDB grading	Years of operation
Participant 1	Construction manager	30	5	16
Participant 2	Director	12	1	3
Participant 3	Foreman	25	4	11
Participant 4	Foreman	7	5	13
Participant 5	Foreman	16	2	9
Participant 6	Director	9	3	14
Participant 7	Foreman	13	4	8
Participant 8	Construction manager	23	5	13
Participant 9	Director	31	4	20
Participant 10	Foreman	8	3	12
Participant 11	Construction manager	13	2	13
Participant 12	Director	38	5	32
Participant 13	Foreman	25	2	20
Participant 14	Director	5	1	5
Participant 15	Director	20	2	20

Source: Authors's compilation

4.1 Productivity in construction organisations

This section presents the prevailing state of productivity within construction SMEs. Through an analysis of participants' responses, the findings are categorised into four themes: poor productivity, somewhat productive, experience, and unpredictable, as outlined in Table 3. A significant portion (46.6%) of participants conveyed their perception of poor productivity across construction operations. Expressions such as 'below average,' 'poor productivity,' 'not encouraging,' 'not impressive,' 'lowest level,' and 'below expectation' were commonly used by participants to articulate their viewpoints. Notably, Participant 1 spotlighted that merely around 20% of SME-executed projects adhere to the proposed completion dates and costs. Evidently, approximately 80% of SME projects encounter both cost and time overruns, underscoring the magnitude of the challenge.

Certain participants acknowledged some dimensions of productivity. Participant 12 noted that workers exhibit some level of productivity, but material shortages and government interference emerge as notable constraints. Conversely, Participant 14 primarily attributed productivity struggles to workers, while praising the performance of materials,

tools, equipment, and management. Participant 15 highlighted noteworthy productivity within specific aspects of construction, although specific details were not disclosed. The significance of SMEs' experience in the industry was emphasised by multiple participants, indicating that longer-tenured contractors generally outperform their newer counterparts. This sentiment was echoed by three participants (P3, P6, and P9).

Notably, two participants indicated the unpredictability of SMEs' productivity. Participant 5 described instances of sporadic high productivity interspersed with periods of lower performance, while Participant 7 encapsulated this unpredictability using the term 'uncertainty'.

Table 3: State of productivity in construction SMEs

Participant	Response
Poor productivity	
P1	"...contractors' productivity is below average. Only about 20% of projects are completed within actual completion date and budget..."
P2	"...many construction businesses suffer setbacks due to poor productivity, which is aggravated by the current pandemic..."
P4	"...the present productivity is not encouraging..."
P8	"...productivity on most construction projects is not impressive..."
P10	"...our projects usually experience low productivity due to a lot of delays..."
P11	"...productivity is at the lowest level..."
P13	"... my opinion, our productivity is below expectations..."
Somewhat productive	
P12	"...workers perform fairly well, but there are problems with materials shortage and government interventions..."
P14	"...tools and equipment, management, materials are doing better with respect to productivity, but workers are not helping matters..."
P15	"...will say productivity is good in some area of construction..."
Experience	
P3	"...contractors that have been in the industry for more years have higher productivity than the ones that are new in the industry..."
P6	"...one thing is important. The longer we stay in business, the better our productivity..."
P9	"...those who have operated in the construction business for a while have better productivity in their projects..."
Unpredictable	
P5	"...productivity is not stable, occasionally productivity is great, and some other time we experience the worst..."
P7	"...productivity is not always certain; productivity is high at a time and sometimes it is poor..."

4.2 Productivity influencing factors

Table 4 outlines the key variables exerting an impact on SMEs' productivity. The data revealed four pivotal themes: workers' skills, directors' competence, government interference, and remuneration. A notable 73.3% of respondents pointed to workers' skills as a substantial productivity impediment for SMEs. Phrases such as 'not good enough,' 'poor experience,' 'not qualified,' 'lack experience,' 'less experienced,' 'not skilful,' 'incompetent,' and 'inexperience' were commonly employed to articulate concerns about the skills deficit. Participant 9 remarked that approximately 70% of construction workers lack the essential job-required skills.

The competence of construction organisation owners was identified as a hindrance to productivity growth. A significant 66.7% of participants highlighted owners' inexperience in effectively managing construction businesses. Issues stemming from directors' competencies were conveyed through phrases like 'not qualified,' 'poor experience,' 'inadequate experience,'

'lack the experience,' and 'incompetence of director.' Participant 1 astutely observed that while most directors consider themselves competent, this belief does not always align with reality.

Government interference emerged as another significant challenge impacting SMEs' productivity. This category encapsulated challenges like unfavorable government policies and inadequate support systems for training programs. Participant 10 noted instances where contractors hired workers due to specific government policies. The issue of workers' remuneration emerged as a less pronounced productivity challenge. Approximately 33.3% of participants conveyed concerns about the low wages that SMEs offer their workers. Participant 1 attributed this to contractors' financial constraints, which consequently led to limited recruitment of workers (P9). The predicament of insufficient funds among SMEs may stem from both inadequate funding (P8) and suboptimal fund management by contractors.

Table 4: Factors affecting construction productivity

Participant	Response
Workers' skills	
P1	"...majority of the workers that contractors employ are not good enough..."
P3	"...inexperience of workers..."
P5	"...poor experience of workers is a critical factor..."
P6	"...some contractors hire workers that are not qualified..."
P8	"... primarily due to workers skills shortage..."
P9	"...employ less experienced workers. 70% of the workers lack skills for their tasks..."
P11	"...majority of workers do not have the right skills to deliver..."
P12	"...some workers lack experience and they are difficult to manage..."
P13	"...large number of the worker is also not skilful in their jobs..."
P14	"...will say it is majorly incompetent workers..."
P15	"...inexperienced workers..."
Directors' competence	
P1	"...most owners lack the experience. 80% think they are competent, but they are not..."
P2	"...poor planning by business owners..."
P3	"...poor business management skills of owners, particularly those that are new in the industry..."
P4	"... competence problem.... ready to learn business management strategies..."
P5	"...poor experience of business owners..."
P6	"...owners are also not qualified to deliver their responsibilities..."
P7	"...some bosses are not well versed to conduct a construction business effectively..."
P8	"...inadequate experience of directors..."
P13	"...shortage of capital arising from poor management of funds by company owners..."
P15	"...incompetence of directors leading to poor management of process and funds..."
Government interference	
P1	"...poor productivity is largely due to government policies..."
P3	"...there is no right law in place that can guarantee the productivity of contractors..."
P8	"...inadequate support from the government for training, coaching, and mentorship programs..."
P9	"...government enforces unqualified workers on us..."
P10	"...regulation requires us to recruit within project location. The majority of the people do not have experience for the job, but we must hire them..."
P11	"...workers know the government has provision for them for jobs whether they are competent or not..."
P14	"...inadequate support from the government..."
P15	"...insufficient government intervention and bad policies..."
Remuneration	
P6	"...sometimes contractors pay workers less because of inadequate funds..."

P8	"...poor funding of small contractors ..."
P9	"... also, we usually don't employ the right number of people due to low capital to pay workers. We usually employ workers who can be paid lower rates..."
P14	"...most of the contractors pay their workers lesser amount..."
P15	"...payment of low rates for workers..."

4.3 Strategies for productivity improvement

In this section, strategies aimed at enhancing productivity within SMEs are elucidated (as indicated in Table 5). Participant responses have been systematically grouped into three distinctive themes: skills development, government intervention, and contract rates. An overwhelming consensus emerged among participants, emphasising the pivotal role of skills enhancement for both directors and workers through robust training initiatives. Notably, 69.2% of participants advocated for training programs encompassing both directorial and staff levels. A subset of 15.4% believed that directors' competence alone would suffice, while a parallel 15.4% echoed the importance of comprehensive staff training in bolstering SMEs' productivity. Participants identified corporate management and cash flow as key competencies for company owners. Strategies, including enhanced interactions among directors and formal training interventions were also identified as potential avenues for amplifying SMEs' success rates (P3; P8). Some participants underscored the value of on-the-job mentoring and training facilitated by more experienced workers to elevate the skills of their less-experienced counterparts.

Additionally, the government's potential contribution to boosting SMEs' productivity was underscored by the findings. Three prominent areas emerged where government intervention could be impactful: policy reviews, heightened commitment to training, and improved access to funds. Each of these factors garnered endorsement from 30% of study participants as essential catalysts for SMEs' productivity enhancement. Furthermore, three participants pinpointed the significance of contract rates in the pursuit of heightened productivity. Noteworthy areas illuminated by respondents encompassed the necessity to augment SMEs' contract rates and expedite payments. These measures could enable SMEs to attract skilled workers and fulfil their financial obligations with increased efficiency.

Table 5: Productivity improvement strategies

Participant	Response
	Skills development
P1	"...training for owners and workers on skills and competence..."
P2	"...contractors must learn about business management and cash flow. Train their workers using more experienced workers..."
P3	"... directors should learn the nitty gritty of business management through interaction with other contractors. They must improve their workers' skills through training..."
P5	"...owners must subject themselves to continuous training and champion the system that promotes skills acquisition for their employees..."
P6	"...directors should ensure skill development in their companies across the board..."
P7	"...owners need more training to operate construction works..."
P8	"...directors should get formal training on construction operations and business management..."
P9	"...company owners and their workers must should acquire the right skill and qualifications..."
P10	"...workers should be allowed to learn from more experienced colleagues..."
P12	"...owners of construction organisations must imbibe mentorship for upskilling in construction"

P13	"...owners are not above training and should also be committed to their workers training..."
P14	"...workers should be trained on the job to become more competent..."
P15	"...directors must go for training to manage their companies, employ experienced workers, and train those that are less experienced..."
Government intervention	
P1	"...the South African government should review her policies through consultations with necessary construction stakeholders..."
P3	"...the government should develop and monitor better operation frameworks for contractors..."
P4	"...our government must organise training for directors and improve on the current skills development initiatives for workers..."
P8	"... more funds like soft loans should be made available to contractors by the government, banks usually give requirements that we are unable to meet..."
P9	"...government should improve access to funds with proper monitoring..."
P10	"...and the government must cancel the law forcing us to recruit incompetent people..."
P12	"...skills development funds from government must be properly utilised to train enough workers for the industry..."
	"...increase commitment to skill development by the government..."
P14	"...we need the government to make funds more accessible to us..."
P15	"...our government must expunge policies of imposing on contractors whom they must employ and they must support contractors to get loans for efficient operations..."
Contracts rate	
P6	"...our contracts rate must be improved to enable us to hire qualified individuals..."
P10	"...contractors' rates should be reviewed because it is important to their production efficiency..."
P13	"...contractors should be well paid to hire the right workers..."

5. DISCUSSION OF THE FINDINGS

The study delves into the state of productivity within SMEs, delving into the key influencers of productivity and outlining pivotal strategies for fostering desired productivity growth. Notably, SMEs form a substantial presence in South Africa's construction sector (Wentzel et al., 2016). By enhancing their productivity, these enterprises stand to not only fortify their own viability but also amplify the construction industry's contribution to the broader South African economy.

Through qualitative investigation, the research underscores the prevalence of inadequate productivity within SMEs. Respondents collectively identify poor productivity as the most daunting challenge confronting contractors. This outcome resonates with findings from a recent Malaysian study, wherein low productivity has remained an enduring concern over the last decade, impacting job creation and economic advancement (Kamal et al., 2022). It's a trend observed across developing countries, with productivity setbacks recurring over time (Agrawal et al., 2020; Alaghbari et al., 2019; Hiyassat et al., 2016; Alinaitwe et al., 2007). The ramifications of this deficiency cascade into cost and time overruns, jeopardising SMEs' survival and tarnishing the industry's reputation. Poor productivity emerges as a pivotal challenge in the construction landscape (Jarkas, 2015; Gupta et al., 2018), with fluctuating worker productivity exacerbated by inadequate management and government intrusion. Evidences of erratic productivity underscore the challenges of predictability, hinting at organisational limitations in steering productivity trajectories.

Crucially, an inverse relationship emerges between SMEs' productivity and their duration of operation in the industry. SMEs boasting longer operational histories tend to

exhibit superior productivity, contrasting with their newer counterparts. This dynamic accentuates the correlation between productivity and cumulative experience in project delivery. To stimulate sustainable productivity growth, particularly in nascent players, a systematic identification and rectification of factors hindering initial productivity are imperative.

Key factors undermining SMEs' productivity encapsulate worker skill deficiencies, directors' competence, government intervention, and remuneration shortcomings. Despite substantial strides in construction technology, skilled labour remains a fundamental requirement due to the partial realisation of construction automation. Instances of incompetent and inadequately skilled workers were reported, aligning with the persistent challenge of skill shortages in the industry (Alaghbari et al., 2019; Jalal and Shoar, 2019). A crucial facet of directorial competence surfaces, demanding a balance between capital investment and managerial proficiency. Some directors misconstrue capital as the sole requisition for effective construction business management, neglecting the imperative of skill enhancement. Ineffectual policies and limited support for training programs also emanate from the government sphere, with discontent voiced against policies mandating the employment of locally-sourced workers. This policy yields a pool of inadequately skilled labour, negating its intended impact. Surprisingly, workers' remuneration emerges as a relatively minor influence on SMEs' productivity. Many SMEs offer lower remuneration compared to larger contractors, potentially dampening workforce morale. This phenomenon intertwines with issues such as low contract rates, limited access to finance, and suboptimal financial management.

Addressing these intricacies, participants underscored critical strategies for fostering SMEs' productivity growth. The framework presented in Figure 1 encapsulates a comprehensive approach. It emphasises the pivotal role of both in-house and inter-organisational training and mentoring programs, synergistically reinforced by targeted government intervention through policy refinement and financial backing.

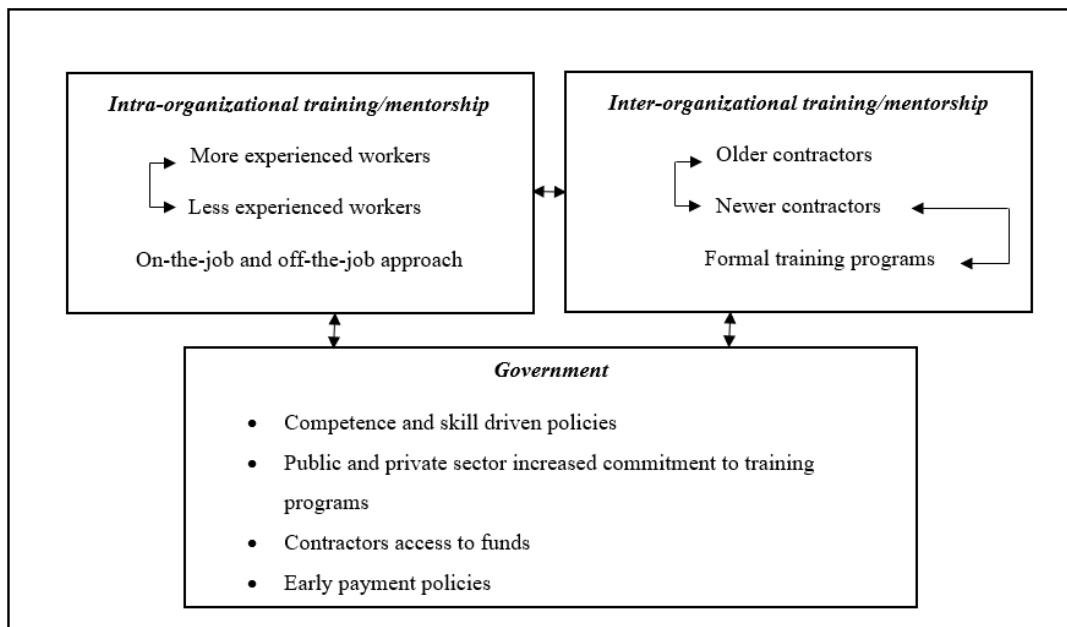


Figure 1: Construction SMEs productivity improvement framework

Source: Authors' compilation

Strategic enhancements for SMEs' productivity entail a triad of initiatives: ongoing skill development for workers and directors, judicious government intervention, and equitable contract rates. Diverse training methodologies are pivotal for fostering competence at various organisational tiers. For employees, on-the-job training stands as a potent vehicle for cultivating a proficient workforce. Additionally, leveraging the expertise of seasoned workers through mentoring – be it on-the-job or off-the-job – resonates as a pragmatic approach to amplify skills. In parallel, directors' efficacy could be bolstered through peer interactions within the industry's seasoned cohort. Substantive gains could be derived from formal training regimens, elucidating strategic management nuances germane to construction enterprises. Aghimien et al. (2019) spotlight the significance of directors' holistic growth, particularly in the spheres of business acumen and financial management.

Government intervention merits strategic recalibration through policy reviews to unshackle SMEs' productivity. Rigid employment stipulations ought to evolve, favouring competency-based hiring over undue curtailment. Such reforms could kindle the pursuit of skills, enhancing job prospects for less proficient workers. Concurrently, a concerted impetus from both the government and the private sector toward artisanal training programs is imperative. The metamorphosis is heightened access to finances. Escalating interest rates and stringent collateral requisites pose mounting challenges for small contractors (Aghimien et al., 2019). Remedying this calls for streamlined loan accessibility, ameliorating contractors' capacity to navigate financial encumbrances. Prudent implementation mechanisms and preventing misuse should be integrally woven into these efforts.

Furthermore, coherency within South Africa's construction landscape beckons harmonised monitoring of contract and labour remuneration. Propitious governmental policies mandating prompt contractor remuneration bolster industry resilience, ensuring optimal operational cadence.

6. CONCLUSION

In today's rapidly changing business environment, entrepreneurs across industries are reevaluating how they operate. In South Africa, the role of Small and Medium-sized Enterprises is crucial due to their large numbers. The productivity of these SMEs holds significant sway over the industry's overall output and its contribution to the economy. Unfortunately, many SMEs are facing a productivity challenge, which has led to business closures and increased unemployment. Given the importance of SMEs in South Africa's economy, it's essential to understand the problems affecting their productivity and suggest solutions. This study uses a qualitative approach to look closely at SME productivity issues, examining the factors that are causing problems and suggesting strategies for improvement. The results align with existing studies, showing that some SMEs struggle with low productivity. It is noteworthy that the length of time SMEs have been in business affects their productivity.

The main challenges affecting SME productivity are the skills of their workforce, the abilities of their directors, and government involvement. To address these issues, an evidence-based framework designed to boost SME productivity was developed. The framework can be adjusted to fit the unique circumstances of South African construction SMEs. Its practical use is expected to improve the skills of contractors and enhance business owners' understanding. At the same time, it aims to counteract government practices that hinder productivity in SMEs, leading to sustained improvements and fewer business closures. This positive shift has a ripple effect across society. Improved SME productivity leads to more jobs, benefiting South Africa's development. However, the study acknowledges its limitations, as it focuses on a select group of SMEs, making it unsafe to generalise the findings. Nevertheless, similar challenges faced by contractors in other developing countries suggest the potential applicability of these findings to different regions of South Africa. This

study underscores the importance of conducting further research centred on SME productivity. Acknowledging the distinct nature of SMEs, the study emphasises the need for tailored approaches to boost their productivity, as general methods may not be suitable. Therefore, exploring strategies that cater to SME dynamics becomes crucial, ultimately fostering a more resilient and vibrant SME sector.

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