

TRANSACTIONAL LEADERSHIP AND ITS EFFECT ON SUPPLY CHAIN MANAGEMENT IN MANUFACTURING SMEs

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Abstract

The continued lacklustre performance of small and medium enterprises (SMEs) in South Africa has brought the quest for lasting solutions. One of the options available is to tap into the areas of leadership and supply chain management (SCM) as potential sources of SME growth.

This study analysed the link between transactional leadership and SCM in manufacturing SMEs in South Africa. The research constructs included transactional leadership, supply chain execution (SCE), and performance.

The research was conducted in Gauteng, North-West and the Free State provinces. Furthermore, the study focused on established manufacturing SMEs, registered with the Small Enterprise Development Agency (SEDA).

A quantitative research approach using a correlational design was used. 411 SME owners, managers and professional employees participated in the study.

Management by exception exerted a positive effect on SCE. In turn, SCE positively impacted customer service (CS) but did not affect supplier performance.

The impact of transactional leadership on the execution of SCM in manufacturing SMEs is minimal and is demonstrated through management by exception. Effective implementation of SCM in these businesses is essential for optimising CS.

Keywords: Supply chain performance; transactional leadership; supply chain execution; customer service; manufacturing SME.

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1. Introduction

Small and medium enterprises are contributors to economic development in most countries globally. Their economic impact is most noticeable in employment and wealth creation [1, 2]. In the context of South Africa, SMEs have been acknowledged to account for roughly 52 % to 57 % of South Africa's gross domestic product (GDP) and have poured in an estimated 65 % of employment generation in the past few years [3]. However, the success of manufacturing SMEs has not shown sustainability and growth, which is attributed to numerous challenges. Despite interventions by the government through the Ministry of Small Business Development (MSBD) to promote growth, sustainability, and viability, manufacturing SMEs in South Africa are facing numerous complex and dynamic micro and macro environmental challenges [4]. Hurdles in business success are present far more in these modern times than previously [2].

The main challenges, facing SMEs in South Africa, include leadership, marketing, management, social, political, human resources, and financial matters [5]. Lack of suitable leadership is one of the most dominant challenges the manufacturing SMEs face in South Africa to enact and promote formidable SCE initiatives [2, 6]. According to current leadership developments, pressure has mounted on South African SMEs to re-engineer their business activities and processes [7]. Most manufacturing SMEs are characterised by the erratic and unsustainable SCE practices and SCP, high failure rate, lack of corporate governance, ineffective leadership, and poor risk management, part of which is attributable to their preoccupation with outdated supply chain business models [8]. SMEs cannot afford to continue moving along conventional business trajectories but

must innovate and realign their strategies in line with leadership currents [1]. This is experienced more in South Africa, where the manufacturing SME sustainability rates are meagre [2].

Effective leadership has become one of the most valuable tools for acquiring a competitive advantage that leads to enhanced SCP [8]. The future of every supply chain organisation depends on developing and retaining good leaders [3]. However, no standard leadership model exists [3]. Research shows that leadership encompasses more than supply chain and operations management; it includes satisfying personal, professional, and organisational strategic goals and requirements [3, 9]. Thus, leaders and managers with sundry orientations in their practice [7] manage supply chains. Since supply chain networks are becoming more challenging, leadership becomes less gruelling and more meticulous [10]. Inconsistencies and variations in leadership processes and approaches within the supply chain create complications in its execution that cascade to low and poor SCP [11].

The May 2019 Global Entrepreneurship Monitor [12] report states that South Africa's small business landscape neither shows progressive changes nor has enough start-ups been realised. However, there are enough surviving and growing small businesses. The primary underlying constraint to their growth is a lack of leadership skills [13]. Statistics show that SMEs' role in a country's economy is indispensable. With the significance of these enterprises, a thorough understanding of the role that leadership and its practices play within them is becoming a fundamental requirement [6]. A real problem that inhibits the growth of SMEs is the lack of leadership and management capability to drive SCE and SCP and enable them to succeed [14]. Against this background, this study investigated the influence of leadership (transactional) on SCP in manufacturing small to medium enterprises in South Africa. It proposes that effective leadership facilitates effective SCE, which leads to better and improved SCP in manufacturing SMEs.

This study examined the relationship between transactional leadership, SCE and SCP performance in the manufacturing SMEs in South Africa. Strong and robust SCM has reliably become one of the essential techniques for attaining a competitive advantage, cascading into the improved SCP in business organisations [14]. However, people manage supply chains, including managers and leaders who have different attitudes and orientations in their practice [7, 15]. Since supply chain processes and systems are becoming advanced and complex, leadership should become less complicated and more logical [16–18]. Irregularities and variations in leadership styles and processes within the manufacturing industry create complications in the SCE initiatives [14]. One area where leadership is essential is inspiring high quality within SCM processes, systems, and outcomes [18–20]. Leaders in businesses have an essential part in warranting an acceptable quality of their supply chains [15]. The fact that SCM leads to competitive advantages stimulates a constant reflection on the relationship between leadership, SCE and SCP [14]. Though there are many leadership styles, such as autocratic, servant, democratic, transformational, distributed, transactional, or other supporting leadership styles, this study places particular attention on the transactional leadership style. Transactional leadership is the most appropriate and natural quality improvement model among the available array of leadership styles [21]. In addition, the new vital indicator of the efficiency of all SCE in organisations is the level of SCP [22]. Therefore, it is essential to carry out this study to understand the influence of transactional leadership practices on SCE and SCP in the manufacturing SMEs in South Africa.

There is much research on leadership, although only a few are on SCM and leadership. An examination of the general research trends revealed that most general studies [23, 24] are associated with either some SCM practices or lean management, transformational leadership practices, and business performance. Nevertheless, more studies should be directed in the areas of SCE concerning leadership practices and SCP [16]. In South Africa, studies, conducted in the specific area of leadership and SCE in manufacturing SMEs, are scarce. The closest evidence was by [25], who incorporated some leadership characteristics in their study. However, the fact nonetheless is that the study was outside the field of SCM. Therefore, this study contributes to the body of knowledge by being one of the first to be carried out on the relationship between transactional leadership, SCE and SPC in the manufacturing SMEs in South Africa.

2. Literature review

This section discusses the literature review.

2.1. Manufacturing SMEs in South Africa

As the manufacturing SME industry continues to develop and grow in South Africa, so are the difficulties and challenges it experiences. Various studies [26–29] note that the challenges, encountered by the manufacturing SMEs, are in the form of changes in supply chain patterns, supply chain integration, consumer retention, and political as well as social pressures for change. The social challenges include focusing on environmental and climate sustainability issues. Several scholars [30, 31] underline that the manufacturing SMEs are overwhelmed by a high level of unpredictability in demand, which cascades to poor forecasting. Poor forecasting leads to unsatisfied consumers and faults, embedded in the interactions between manufacturing SMEs' supply chains [26]. For instance, SCM structures in South Africa have transformed considerably in the last decade since the advent of the worldwide economic crisis that started around 2008 [27]. The supply chain processes are now advanced [28, 29]. In addition, the manufacturing SMEs in South Africa encounter a relentless triumvirate of political, economic, and financial volatility. This is worsened by poorly performing supply chains and problems, caused by social instability.

The above challenges present manufacturing SMEs in South Africa with serious obstacles to overcome in their quest to remain relevant and successful in contributing to its development. In addition to the problems above, another dominant challenge, facing the manufacturing SMEs in South Africa, is the need for appropriate leadership skills. The significant leadership gaps are apparent in the manufacturing SMEs in South Africa [29]. Challenges in leadership are worsened by the 4.0 industrial revolution, which began to dominate the whole economy. Other studies [28, 32] indicate the presence of myopic leadership in manufacturing SMEs. Management in most manufacturing SMEs in South Africa is branded by the absence of a swift and efficient decision-making process [33]. In addition, the same leadership has an otherwise astray focus on cash flows and operating margins at the expense of other crucial contributions, such as the SCM practices and the human resources management (HRM). A damaging and critical outcome of these leadership challenges in the manufacturing SMEs in South Africa is the underperformance of the SCE initiative, presented through, but not limited to, lack of technological advancement, low profits, an increase in unemployment and declining competitiveness within the SMEs [15]. Therefore, to obviate these leadership concerns, leaders in manufacturing SMEs are obliged to offer proficient, reliable, and virtuous leadership within their enterprises for the robust performance of their supply chains [7].

2.2. Transactional leadership

Transactional leadership happens when leaders encourage obedience by subordinates through remuneration, rewards, and retributions [34, 35]. Transactional leaders offer subordinates something they need in return for something the leader anticipates them to attain, basing it on the accomplishment of prescribed obligatory contracts. Transactional leadership comprises four sub-components that is contingent reward, management by expectation (active); management by expectation (passive); and passive-avoidant [36].

2.3. Contingent reward practices

Contingent reward implies expounding the role and task requirements and giving followers material or psychological rewards depending on the execution of prescribed duties, obligations, and responsibilities [37, 38]. Thus, it emboldens leaders to exchange rewards or recognition for delivering good performance and accomplishments [39]. Contingent reward describes the exchange and transactional efficiency amongst the leader and his followers [40]. Transactional superiors who embrace this antecedent can provide all the necessary help in return for the followers' efforts [41]. Those superiors can merely be contented when their objectives are achieved accordingly. Incentives or rewards can be the enticing factor leaders use to ascertain their anticipated results [40].

2. 4. Management by exception

Management by exception practice denotes the dynamic observance of leaders whose objectives are to guarantee adherence and devotion to standards [42]. Leaders keenly observe workers for deviations from the standard and enable them to take suitable and fitting curative action [39]. In management by exception (passive), leaders only arbitrate and intervene after a non-conformance or mistakes transpire [43]. Passive management by exception permits leaders to stay unreceptive and intervene if there is a deviation from set standards.

2. 5. Transactional passive-avoidant leadership

Transactional passive-avoidant leadership represents the nonexistence of a transaction of sorts regarding leadership. The leader escapes making decisions, resigns responsibility and does not use their authority [25]. It is an action to the extent that the leader elects to circumvent acting [18]. This component is considered the most impassive and ineffectual form of leadership [44]. Superiors who use and apply passive management by exception practices are not involved in preventing problems except when the issues become serious [45]. These superiors keep themselves at bay and only interfere when the problems become too severe [46]. Passive management-by-exception is a practice of leadership whereby the leader intervenes only after the appearance of behaviours or mistakes against the stipulated standards and requirements [45].

2. 6. Supply chain execution

The SCE's role is becoming imperative in small, medium, and large-scale manufacturing industries in these prevailing years. SCE is an essential and fundamental practice in achieving the determined operating effectiveness, agility, responsiveness, and flexibility. As a result, it is significant in sustaining businesses [47]. The revolving of new technologies, such as blocking technology, Industry 4.0, Artificial Intelligence, and extensive data analysis, impacts and plays an indispensable part in promoting competitive capabilities in the manufacturing SMEs sector [48]. However, there is no consensus on a single definition of SCE. Various studies have defined the concept differently. SCE is the management, integration, and implementation of the whole supply chain [49]. SCE provides interconnection amongst the supply chain members, supply chain processes, and the products [50]. SCE practice distributes materials amongst the supply chain partners and involves the circulation of cash and sharing of information and knowledge [51, 52]. The elements comprise the processes of sourcing, planning, manufacturing, distribution, and returning logistics [53, 54]. In each of these, different forms of uncertainties occur and have different levels of impact on the supply chain.

2. 7. Supply chain performance

In SCM, organisational performance is the extent of significance that the business provides to its supply chain [52, 55]. However, SCP dimensions significantly influence supply chain procurement, involving inter-organisational and intra-organisational issues [56]. SCP is, therefore, defined as the capacity of the supply chain processes to convey the correct product to the right location at the appropriate time at the least logistical cost [56]. There are many SCP measurements in the field of SCM. For example, the SCOR model evaluates responsiveness, reliability, efficiency in asset utilisation, cost, and flexibility. For this study, supplier performance and CS measure SCP in South African manufacturing SMEs. The following subsections analyse and discuss these two antecedences or measures of SCP in detail.

2. 8. Customer Service

Customer service is an SPC measurement that deals with the direct one-on-one interaction between a consumer, making a purchase, and a representative of the organisation, selling it [57]. Most SCM professionals perceive this direct interaction as a critical factor in ensuring buyer satisfaction and encouraging repeat business [58]. CS plays a significant role in the SCM tactic-alignment dynamics [59]. Most SCM literature introduces customer service as a set of activities, classified into pre-transactional, transactional, and post-transactional [57, 59, 60]. This approach

prompts the perception that there is only an operational level for customer service when, its contribution to the organisation lies within the tactical and strategic levels [59]. In today's SCM world, the process of dealing with existing customers and trying to get more customers is predominant and considered a dilemma [57]. Setting up a CRM system in manufacturing SMEs in South Africa can certainly improve the situation and help challenge the new ways of SCE in an effectively compelling fashion. In this prevailing era of SCM, every business organisation should have a flawless CRM system to manage all the customer service requirements [58, 60].

2. 9. Supplier performance

Conceivably the most imperative benchmark to define the achievement of suppliers is their enactment and performance. Supplier performance is how well a supplier delivers the prerequisite goods and services to the supply chain as replicated through functioning effects, such as delivery, quality, cost, responsiveness, and technical support [61]. In most cases, a well-performing supplier is expected to persist in the supply chain and propagate its relationship with the buying businesses. Moreover, suppliers play an imperative role in impelling and influencing the general performance in supply-performance networks, especially in a competitive business environment [62]. Hence, monitoring suppliers' performance and capabilities are critical from the SMEs' supply chain perspective [61].

3. Conceptual model and research hypotheses

Fig. 1 presents the conceptual model of the study, which consists of three predicting constructs (CR, ME, PA), one mediator (SCE) and the outcome SCP, composed of two measurements (SP and CS).

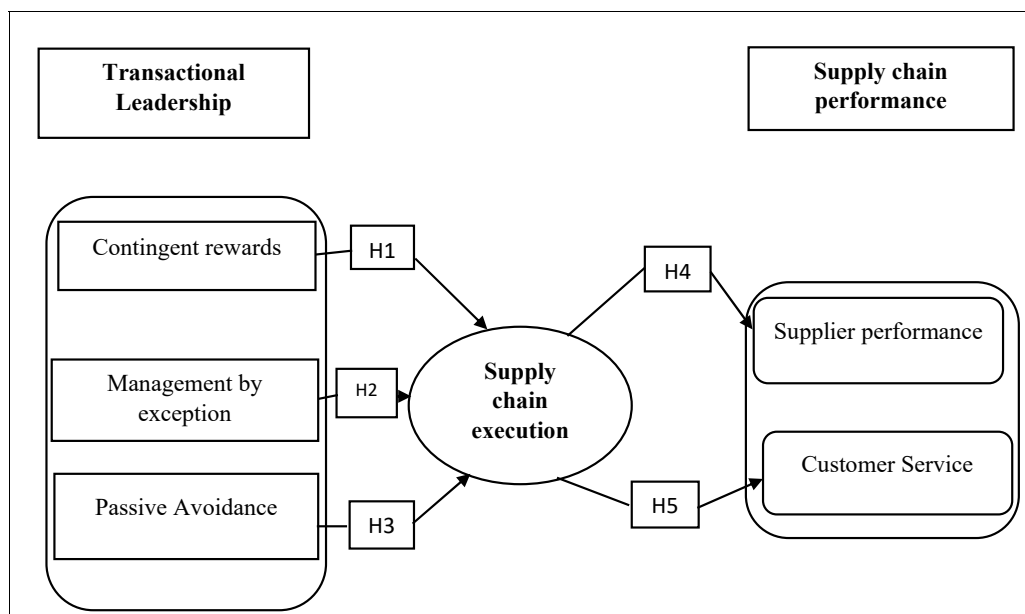


Fig. 1. Conceptual Framework. Source: Compiled by author

3. 1. Transactional leadership and supply chain execution

Transactional leaders are perceived as guiding or motivating their followers toward established goals by clarifying role and task requirements [63]. Transactional leadership practices are the foundation of exchange between followers and leaders [64]. Transactional leadership will provide rewards based on the parties, agreed upon in the agreement or contract [65]. Benefits can be negative or positive and might not be essentially financial. Transactional leaders understand that the reward system is indispensable amongst supply chain members to advance the organisational supply chain goals [65]. Transactional leadership is an exchange process, in which the

leader provides rewards in return for the subordinate's effort and performance [66]. Transactional leadership fundamentally influences organisational success at both individual and team levels [67]. Transactional leadership behaviour has an imperative relation with SCE practices. The contribution of transactional leadership style to the specific elements of the usefulness and efficiency of SCE has been renowned in several studies [68–70]. For example, [71] reveals that a contingent reward system as a dimension of transactional leadership in SCE decision-making creates an insight of fairness and trust amongst the supply chain partners. Such transactional leadership practice again encourages transparency in the supply chain and improves employees' job contentment [71].

Consequently, these social considerations (satisfaction, transparency, and trust) influence SCE quality, leading to an enhanced SCP [68, 71]. In the same way, a longitudinal study of about 90 trade stores, piloted by [72], indicates that satisfaction and trust, obtained from contingent reward practice, facilitates the execution of supply chains, product quality, and the overall performance of the supply chains in the retail stores. Similarly, [73] carried out a study in the United Kingdom's microelectronics sector. They established a positive association between transactional leadership practices (contingent reward and management by exception-active) and SCE's strategic development. However, [68] note that passive avoidance is not related to goal congruence, an element of SCE. Therefore, based on the abovementioned insights and discussions, the following hypotheses are formulated.

H1: In South African manufacturing SMEs, contingent rewards exert a positive influence on SCE.

H2: In South African manufacturing SMEs, management by exception exerts a positive influence on SCE.

H3: In South African manufacturing SMEs, passive avoidance leadership exerts a significant influence on SCE.

3. 2. Supply chain execution and supplier performance

Supplier performance is a range of supplier activities in terms of policies or actions, taken by suppliers. The activities range from offering comprehensive understanding in accordance with the requirements to providing goods/services according to their specifications and supplier delivery speed. Supplier activities include providing products/services as needed, doing deliveries well without any mistake, consistency in receiving orders, decreasing the number of consumer complaints after using certain suppliers and charging a reasonable price compared to its competitors [74, 75]. SCE practices are a succession of actions or events in the supply chain process, beginning from upstream suppliers (purchasing policies and supplier partnership), design, and production, until downstream customers. Each existing activity in the supply chain affects the company's performance. For example, a good integration of SCE activities between supplier and purchaser (supplier relationship) can become the pointer to the supplier's performance evaluation. This leads to a good relationship if there is mutual trust between buyers and suppliers. The SCE practices lead to the benefits, derived by an enterprise in terms of competition, market share, customer loyalty and brand equity [76]. Furthermore, SCE will improve the organisation's supplier performance. The performance ranges from operational cost (supply, production, distribution) and the time, needed to design a product [74]. In addition, the supplier performance includes the speed of response to the changing market demand, decrease in product/service delivery time cycle, how the company enters a new market timely and launching new products/services to the market swiftly [77]. Accordingly, supplier performance will be maximised if the SCE practices are in accordance with the companies' policies and procedures. In the end, the result could influence the market and operational performance and could become an assessment indicator of supplier performance. Therefore, the discussion above led to the formulation of the following hypothesis:

H4: In South African manufacturing SMEs, SCE exerts a positive influence on supplier performance.

3. 3. Supply chain execution and customer service

Efficient SCE can enhance CS by ensuring fast and accurate order fulfilment [78]. SCE can also reduce an organisation's operating costs by reducing its inventory [79]. SCE can give a company a competitive advantage that helps it pull in new customers and increase sales [80]. Sharing the valuable

information an SCE system provides with other departments or external suppliers can improve customer service [78]. For example, an organisation could better synchronise the movement of goods to delivery schedules, gain real-time insights that allow upstream and downstream partners to respond to changes, affecting supply or demand quickly, or measure performance to improve the future. There is a strong relationship between SCE initiatives and CS in manufacturing organisations [81]. However, supply chain integration, information sharing, and collaboration can also lead to more robust CS in supply chains [80]. Therefore, based on the abovementioned insights and discussions, the following hypotheses were formulated.

H5: In South African manufacturing SMEs, SCE exerts a positive influence on CS.

4. Materials and Methods

The current study adopted the quantitative approach based on the correlational design. The quantitative research approach seeks to institute evidence, test hypotheses and make predictions that have already been indicated using a deductive approach and introducing impartial understanding [82]. A correlational design endeavours to explain relationships rather than describe them [83]. Though correlational research does not infer causality, it permits forecasts to be made even though one may not understand why a relationship exists.

4.1. Sample

The sample consisted of 411 owners, managers and professional employees of manufacturing SMEs in Gauteng, Free State and North-West provinces of South Africa. Only those SMEs, registered by the Small Enterprises Development Agency (SEDA), were invited to participate in the study. A total of 180 manufacturing SMEs, based in the indicated three provinces, were contacted to participate in the study. The actual respondents were selected using a purposive sampling technique to ensure that only those individuals that had some knowledge of the research area participated in the study. To participate in the study, one had to have a basic understanding of SCM. A screening question, placed on the questionnaire cover page, was used to determine the eligibility of respondents.

4.2. Data collection

In this study, data were collected using a survey questionnaire. A questionnaire is a list of carefully structured questions [84]. The questionnaire technique collects primary data by asking a sample of respondents to answer a list of carefully structured questions, chosen after considerable testing to elicit reliable responses [85]. Measurement scales, contained in the questionnaire, were adapted from previous scales. Transactional leadership was measured using an eight-item scale, adapted from [35]. To measure SCE, a six-item scale, adapted from earlier studies by [74], was used. Both CS (3-items) and SP (8-items) scales were adapted from previous scales by [86]. Response options were presented using a five-point Likert-type scale, anchored by: 1=strongly disagree; and 5=strongly agree. The questionnaire items were close ended, which denotes that the respondents were limited to indicating their answers to the structured questions, provided in the survey questionnaire. The questionnaires were self-administered, suggesting that respondents were expected to complete them independently and without additional assistance. This enabled respondents to be free and objective as they answered the questions without compulsion. The survey was conducted over six months in 2020 using a combination of face-to-face and online methods.

4.3. Data Analysis

Data analysis is the practice of outlining, classifying, deducing and interpreting the gathered data into practical and applicable demonstrations that allow the achievement of the study's objectives [84]. Data were captured using the Statistical Package for Social Sciences (SPSS) version 25. Descriptive statistics were used to analyse the demographic characteristics of the sample. Thereafter, data were subjected to Pearson correlations and regression analysis to ascertain the relationships between the constructs.

4. 4. Ethical considerations

Ethical approval to conduct the study was acquired from the Central Research Ethics Committee (CREC) at the Vaal University of Technology, number FRECMS-22072020-042 dated 13 August 2020. The principal researcher visited each manufacturing SME in the province and requested respondents to fill out consent forms before their voluntary participation. The respondents were also informed of their right to withdraw from the study if they felt any harm or threat. To maintain confidentiality, data were stored in an aggregate form.

5. Research results

This section discusses the results of the study, beginning with the demographic results.

5. 1. Demographic profile of respondents

Five hundred (500) questionnaires were distributed to all targeted respondents. From the 500 questionnaires, 472 were returned, of which 61 were discarded because they had errors. This resulted in 411 valid questionnaires, presented for use in the final analysis. The valid questionnaires represented a response rate of 82.2 %, which is considered acceptable by [87]. The demographic details of the final respondents are presented in **Table 1**.

Table 1
Descriptive Statistics Results

Variable	Category	Frequency (n)	Percentage (%)
(A1) Gender	Male	238	57.9
	Female	173	42.1
	Total	n= 411	100
(A2) Age	25 years and below	45	10.9
	26–33 years	82	20.0
	34–41 years	158	38.4
	42–49 years	92	22.4
	50 years and above	34	8.3
Total		n= 411	100
(A3) Race	Black	213	51.8
	White	84	20.4
	Indian	63	15.3
	Mixed Race	51	12.4
	Other	0	0
Total		n= 411	100
(A4) Highest qualification	Matric	30	7.3
	Certificate	26	6.3
	Diploma	186	45.3
	Degree	118	28.7
	Postgraduate	51	12.4
	Other		
Total		n=411	100
(A8) Department	Logistics and SCM	179	42.3
	Operations	104	25.3
	Finance and Accounting	51	12.4
	HR	26	6.3
	Marketing	56	13.6
Total		411	100
(A9) Position in the organisation	Owner	88	21.4
	Manager	75	18.2
	SCM professional	78	19.0
	Supervisor	82	20.9
	Employee	88	21.4
Total		411	100

Source: Compiled by Author

The results from **Table 1** show that 238 (57.9 %) of all respondents, participating in this survey, were male, while 173 (42.1 %) were female. Regarding the race distribution of the respondents, 213 (51.8 %) were Blacks, followed by 84 (20.4 %) that were White. In terms of age distribution, 158 (38.4 %) of the respondents were aged between 34 and 41 years, followed by 92 (22.4 %) that were aged between 42 and 49 years. With respect to their levels of education, 186 (45.3 %) of the respondents were in possession of a diploma, followed by 118 (28.7 %) who were in possession of a degree. Regarding the occupational departments of respondents, 179 (42.3 %) were in the logistics and SCM departments, followed by 104 (25.3 %) from the operations department. With regards to positions in the organisation, 88 (21.4 %) were owners, 88 (21.4 %) were employees, 82 (20.9 %) were supervisors, 78 (19 %) were professional SCM employees, while 75 (18 %) occupied managerial positions.

5. 2. Exploratory factor analysis

In this study, the exploratory factor analysis (EFA) procedure was applied to evaluate the factor structure of the collected data. This indicates that the exploratory factor analysis was used to test if the data, loaded as arranged in the constructs, were proposed initially in this study. The EFA considered the factor loadings (which should be greater than 0.5), the eigenvalue criterion (selection of factors with eigenvalues greater than 1) and the percentage of variance (which should be above 60 %). The results for the EFA for all constructs, considered in the study, are presented in **Table 2**.

Table 2

Factor analysis, descriptive statistics, and tests for data normality

Scale	Items	Factor Loadings	Eigenvalue	% of Variance	Cronbach's Alpha	Descriptive Statistics		Tests for data normality	
						Mean	S.D	Skewness	Kurtosis
ME	TL11	0.912	2.938	67.369	0.790	3.66	1.117	-0.531	-0.399
	TL16	0.922							
	TL21	0.922							
CR	TL4	0.597	3.554	74.655	0.884	4.13	0.747	-0.530	-0.717
	TL5	0.843							
	TL7	0.646							
SCE	TL9	0.713	4.479	63.267	0.932	3.48	1.178	-0.707	-0.419
	SCE1	0.875							
	SCE2	0.891							
CS	SCE3	0.920	3.470	5.061	0.790	2.90	1.230	-0.153	-1.339
	SCE4	0.898							
	SCE5	0.851							
SP	SCE6	0.737	5.061	63.267	0.915	3.81	1.058	-1.662	2.488
	SCR5	0.669							
	SCR6	0.719							
SP	SCR10	0.932	5.061	63.267	0.915	3.81	1.058	-1.662	2.488
	SP1	0.573							
	SP2	0.514							
	SP3	0.803							
	SP4	0.767							
SP5	0.732								
SP6	0.528								
SP7	0.552								
SP8	0.590								

TL= transactional leadership; ME= management by exception; CR- contingent reward; SCE= supply chain execution; CS= customer service; SP= supplier performance.

Source: Compiled by Author

EFA for the transactional leadership scale yielded two factors, namely ME and CR. Two factors, CS and SP, were extracted from the supply chain performance scale. SCE was unidimensional. The factor loadings, derived from the EFA for all the constructs, were acceptably high, surpassing the 0.5 minimum cut-off value. Eigenvalues were higher than the lowest prescribed cut-off value of 1.0 and ranged from a minimum of 2.938 (ME) to a maximum of 5.061(SP). In terms of the cumulative percentage of variance explained, all the scales exceeded the recommended minimum of 60 % [88]. Therefore, all the variables, indicated in **Table 3**, were accepted and retained in the study. The range for the overall mean scores for the scales (2.90–4.13) indicated an inclination towards the ‘neutral’ and ‘agree’ positions on the Likert scale. This result demonstrated that respondents generally answered in agreement with the questions on each measurement item. Consequently, respondents alleged that most practices were applied in their manufacturing SMEs. Standard deviations for all constructs were close to each other (0.747–1.230), signifying that data were normally distributed. Additional tests for normality of data were performed using D’Argostino’s K-squared test. Most scores for skewness and kurtosis were within acceptable ranges, indicating that the data had good symmetry to assume a normal distribution. Hence, the data were normally distributed, allowing for the application of parametric statistics.

5.3. The revised conceptual model developed based on exploratory factor analysis

A conceptual model was developed based on the data structure, generated in the exploratory factor analysis. The EFA identified two factors, linked to the transactional leadership constructs out of the initial three. The two factors retained their labels. The first factor is Management by exception (TL11, TL16, and TL21). The second factor is contingent reward with items (TL4, TL5, TL7, and TL9). Passive avoidance was discarded because its factor loadings were less than 0.5. Subsequently, a new (revised) conceptual model was developed. **Fig. 2** presents the new model.

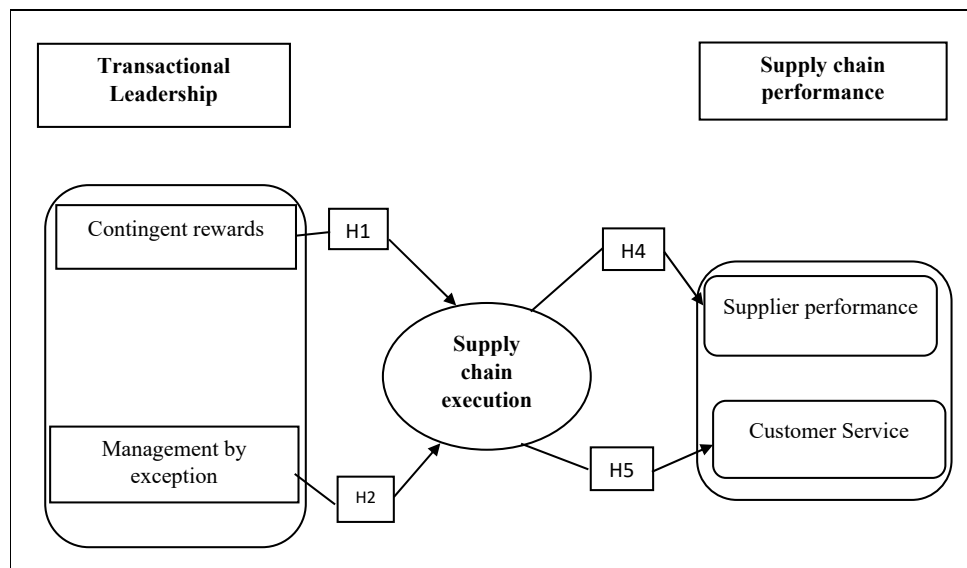


Fig. 2. Revised Conceptual Model for transactional leadership, Supply Chain Execution and Supply Chain Performance in the South African Manufacturing SMEs

Source: Compiled by Author

As shown in the revised conceptual model, one factor under transactional leadership, passive avoidance, was discarded. The conceptual model, indicated in Fig. 2, illustrates the new relationship structure. The revised hypotheses of the study read as follows:

H1: In South African manufacturing SMEs, contingent rewards exert a positive influence on SCE

H2: In South African manufacturing SMEs, management by exception exerts a positive influence on SCE.

H3: In South African manufacturing SMEs, SCE exerts a positive influence on supplier performance.

H4: In South African manufacturing SMEs, SCE exerts a positive influence on CS.

5.4. Validity and reliability

Validity is the degree, to which the instrument measures the construct it purports to measure [83]. A set of measures were taken to establish the face and content validity of the measurement scales. To test for face validity, three academics who specialise in SCM at a South African university of technology reviewed the questionnaire to ensure that the context of the study remains as transparent as possible in guiding the respondents in their understanding of the survey. After effecting the revision of the questionnaire, a pilot study was undertaken to test for content validity and reliability of the questionnaire. The pilot study tested the questionnaire using 54 conveniently chosen respondents in the Ekurhuleni region. This decision ensured that businesses, operating in this region, did not form part of the final survey. Constructive feedback was obtained from the returned questionnaires, which indicated several minor issues that still needed to be addressed. These ranged from complex and technical terminologies to acronyms, which made some questions vague. Further revisions were subsequently made in line with the feedback provided. Construct validity was first tested using factor loadings, derived from the EFA procedure. All factor loadings were higher than the recommended lowest cut-off value of 0.5 [82], indicating that construct validity was acceptable.

Construct validity was also tested using inter-factor correlations according to the recommendation by [84]. As indicated in **Table 3**, positive inter-factor correlations were computed, further illustrating that construct validity was adequate in this study. Predictive validity was tested using regression analysis. Results in the regression models (**Tables 4, 5**) indicate the existence of positive relationships between the dependent and independent constructs, thereby confirming that predictive validity was satisfactory in this study. Reliability refers to the degree, to which measures are free from errors and therefore yield consistent results [84]. Construct reliability was tested using Cronbach's alpha coefficient. Alpha values (**Table 2**) ranged between 0.790 and 0.992, way above the minimum recommended threshold of 0.7 [85]. Therefore, all measurement scales, used in the study, were internally consistent.

5.5. Pearson correlations

Correlation analysis uses available statistical data to test the strength and direction of the linear association between two or more variables [83]. In this study, correlations were tested using the Pearson correlation coefficient. Since data were normally distributed, the parametric Pearson correlation was preferred instead of its non-parametric equivalent, the Spearman correlation. The results of the Pearson correlations are presented in **Table 3**.

Table 3
Pearson's Correlation results

Constructs	ME	CR	SCE	CS	SP
ME	1.000				
CR	0.433**	1.000			
SCE	0.159**	0.104*	1.000		
CS	-0.009	0.051	0.191**	1.000	
SP	0.324**	0.137**	-0.060	-0.088	1.000

Source: Own compilation

Table 3 depicts the correlation matrix of the constructs, considered in this study. The inter-factor correlations (r) specify the associations between the variables, while the p-value indicates the significance. The impression is to elaborate on how an association may occur between the variables, chosen in a study [84]. The strongest correlation occurred between SCE and CS ($r=0.191$;

$p=0.000$), while the weakest negative correlation was observed between SCE and supplier performance (SP) factors ($r=-0.060$; $p=0.225$).

5. 6. Regression analysis

Regression analysis is a technique for modelling the causal or predictive relationship between a dependent variable and an independent variable [82]. The current study used regression analysis to estimate the relationship between leadership practices, SCE and SCP in manufacturing SMEs in South Africa. Using the enter method, three regression models were run. The least-squares regression equations for the models were formulated as follows:

Table 4

Regression equations for all models

Regression model	Dependent variable	Independent variables	Equation
1	SCE	CR, ME,	$SCE=\beta_0+\beta_1(CR)+\beta_2(ME)+\epsilon$
2	CC	SCE	$CC=\beta_0+\beta_1(SCE)+\epsilon$
3	SP	SCE	$SP=\beta_0+\beta_1(SCE)+\epsilon$

0 is the constant or intercept, and β_1 -2 are the coefficients of the independent variables

SCE=supply chain execution; CS=customer service; SP=supplier performance; CR=contingent rewards; ME=management by exception

Source: *Compiled by Author*

In this study, there are three regression models tested. In Regression Model 1, the two transactional leadership practices (contingent rewards and management by exception) are the independent variables, while SCE is the dependent variable. In Regression Model 2, SCE is the independent variable, while customer service was entered as the dependent variable. In Regression Model 3, SCE is the independent variable, while supplier performance is the dependent variable.

Table 5

Regression Model 1: Two predictors and supply chain execution

Independent variables: transformational and transactional leadership practices	Dependent variable: supply chain execution							
	Unstandardised coefficients		Standardised coefficients	Sig.		Collinearity statistics		
	β	Std. error	Beta	t	Sig (p)	Tolerance	VFI	
(Constant)	3.212		0.596		5.384	0.000		
Age of SME	0.031		0.071	0.032	0.445	0.657	0.441	2.265
Regression Model 1	0.134		0.084	0.113	1.590	0.113	0.463	2.160
CR	-0.168		0.103	-0.098	1.636	0.103	0.655	1.528
ME	0.310		0.134	0.143	2.323	0.001	0.617	1.620

$R=0.1229$; $R^2=0.052$; Adjusted $R^2=0.036$; $F=3.182$ $p<0.05^*$

Source: *Extracted from SPSS (Version 27.0)*

Regression Model 1 analysis (**Table 5**) indicates that the influence of transactional leadership practices approximates four per cent (Adjusted $R^2=0.036$) of the variance of supply chain execution in manufacturing SMEs' supply chains. The remaining 96.4 per cent of the variance is thus, explained through factors that were not considered or included in this study. In general, an F-test in regression compares the fits of different linear models. Unlike t-tests that can evaluate only one

regression coefficient at a time, the F-test can measure multiple coefficients simultaneously. F-value is a good indicator of a relationship between our predictor and the response variables. The F-value ($F=3.182$) in **Table 4** indicates a relationship between the predictor variables and the independent variables. There is no stipulated range of the acceptable F-values, but the further the F-value is from one, the more positive and significant the relationship between variables is. However, how much larger the F-value needs to be, depends on the number of data points and the number of predictors. Commonly, when the number of data points is large, an F-value that is only slightly larger than one is already sufficient to reject the null hypothesis. The regression matrix indicates that age of SME ($\beta=0.032$; $p=0.441$), number of employees ($\beta=0.113$; $p=0.113$), IC ($\beta=0.038$; $p=0.560$), were not related to SCE. ME ($\beta=0.143$; $p=0.001$) contributes positively towards SCE. However, CR ($\beta=-0.98$; $p=0.103$) contributed negatively and so did inversely to SCE. The results, therefore, demonstrate that effective formulation and implementation of transactional leadership practice (ME) can lead to SCE in manufacturing SMEs' supply chains. However, (CR) inversely influences SCE, and the relationship is insignificant in this case.

5. 7. The effect of control variables on supply chain execution

Two control variables, namely the age of SME and the number of employees, were entered as control variables in regression model 1. The results showed that the two control variables were statistically insignificant. Age of SME was not related to SCE ($\beta=0.032$; $t=0.445$ $p=0.441$), while the number of employees ($\beta=0.113$; $t=1.590$; $p=0.113$) was also statistically insignificant. These results imply that the age of the SME and the number of employees in the manufacturing SMEs do not influence SCE. Therefore, the study confirms that these two confounding (extraneous) variables did not influence the relationships between the dependant and independent variables. The following sections discuss the results of regression models 2 and 3.

5. 7. 1. Regression Model 2: Supply chain execution (predictor) and customer service

The results regarding Regression Model 2 are presented in **Table 6**.

Table 6

Regression Model 2: Supply Chain Execution (predictor) and Customer Service

Independent variable: Supply chain execution	Dependent variable: customer service						
	Unstandardised coefficients		Standardised coefficients	Sig.		Collinearity statistics	
		Std. error	Beta	t	p	Tolerance	VFI
Construct	2.227	0.177		12.554	0.000		
SCE	0.192	0.049	0.191	3.932	0.000	1.000	1.000
$R=0.191$; Adjusted $R^2=0.034$; $F=15.467$; $p<0.05^*$							

Source: Extracted from SPSS (Version 27.0)

Regression Model 2 analysis (**Table 6**) specifies that SCE (Adjusted $R^2=0.034$) explained nearly 3.4 per cent of the variance in CS in manufacturing SMEs' supply chains. The remaining 96.6 per cent of the variance is thus explained through factors that were excluded or not considered in this study. The F-value ($F=15.467$) in **Table 6** indicates that the value is far greater than one, meaning a significant relationship between the SCE and CS. The results, therefore, establish that active SCE practices have an influence on CS and can cascade into improved CS in the manufacturing SMEs in South Africa.

5. 7. 2. Regression Model 3: Supply chain execution (predictor) and supplier performance

The results regarding Regression Model 3 are presented in **Table 7**.

Table 7

Regression Model 3: Supply Chain Execution (predictor) and Supplier Performance

Independent variable: Supply chain execu- tion	Dependent variable: supplier performance						
	Unstandardised coefficients		Standardised coefficients	Sig.		Collinearity statistics	
		Std. error	Beta	<i>t</i>	<i>p</i>	Toler- ance	VFI
Construct	3.981	0.147		27.008	0.000		
SCE	-0.049	0.041	-0.060	-1.215	0.225	1.000	1.000
<i>R</i> =0.060; Adjusted <i>R</i> ² =0.001; <i>F</i> =1.476; <i>p</i> <0.05*							

Source: Extracted from SPSS (Version 27.0)

Regression Model 3 analysis (**Table 7**) indicates that SCE (Adjusted $R^2=0.001$) explained approximately 0.1 per cent of the variance in supplier performance in manufacturing SMEs' supply chains. The remaining 99.9 per cent of the variance is explained by factors that were not considered or included in this study. The F-value ($F=1.476$) in **Table 7** indicates that the value is very close to one, meaning an insignificant relationship between the SCE and supplier performance. Therefore, the results demonstrate that SCE practices may not lead to supplier performance in the surveyed manufacturing SMEs in South Africa.

6. Discussion of the results

This study investigated the connection between transactional leadership practices, SCE, and SCP in South African manufacturing SMEs. Four hypotheses were tested. This section discusses the individual results of each hypothesis. Four hypotheses were tested in this study, as shown in **Table 8**. The results show that two hypotheses (H2 and H3) were accepted, whilst two hypotheses (H1 and H4) were rejected. The discussion of the stated results is presented in the next subsections.

Table 8

Results of Regression Model Analysis on Hypotheses

Relationship	Hypothesis	Beta	t-value	p-value	Outcome
Contingent rewards → Supply chain execution	H1	-0.098	-1.636	0.103	Not supported and insignificant
Management by exception → Supply chain execution	H2	0.143	2.323	0.001	Supported and significant
Supply chain execution → Customer service	H3	0.191	3.932	0.000	Supported and significant
Supply chain execution → Supplier performance	H4	-0.060	-1.215	0.225	Not Supported and insignificant

Source: Compiled by Author

Hypothesis H1: Contingent reward has a significant positive influence on SCE in manufacturing SMEs in South Africa.

The hypothesis test on contingent rewards and SCE in **Table 8** shows an inverse insignificant influence on SCE ($\beta=-0.098$; $t=-1.636$; $p=0.103$). Therefore, the hypothesis (H1) was rejected and not supported. The result demonstrates that contingent rewards leadership practice does not predict the SCE in the surveyed manufacturing SMEs. As indicated in **Table 8**, if the implementation of contingent rewards increases, SCE, on the other hand, decreases by -9.8 per cent, which is an insignificant margin to be considered in determining a meaningful hypothesis relationship. The p-value ($p=0.103$) is greater than 0.001. This result shows that the relationship between the two variables of hypothesis H1 is insignificant. These outcomes align with the findings of [68], which provide similar insights into the relationship between transactional leadership practices and SCE. The results indicate that contingent rewards as a leadership practice in the

surveyed manufacturing SMEs are insignificant, and the continuous use of this leadership practice will negatively influence SCE.

Therefore, the result of this hypothesis (H1) is discussed under the following suggestions. It is conceivable, that the lack of an association between contingent rewards and business SCE could be attributed to a lacklustre approach towards leadership and SCM within the manufacturing SMEs in South Africa. Available evidence points to the lack of proper leadership structures for SCE in manufacturing SMEs. For example, [89] note that most SMEs apply the contingent reward practice, lacking fairness and openness. In addition, those who are rewarded, in most cases, are not working directly in a system [68]. Management and other senior members are awarded more than hands-on [62]. A poor contingent rewarding system is harmful to the success of SCE. The absence of clarity in the rewarding system could lead to extreme SCE failure [89]. Generally, the lack of a robust contingent rewarding system contributes to poor SCM practices that could hamper the SCE. Rewards are considered among the critical linkages between a business and SCE, potentially influencing overall performance and revenues. Hence, measures must be taken to deal with problems, related to contingent rewards practice at every level of the SCE in manufacturing SMEs in South Africa. This is essential for the manufacturing SMEs' supply chains, as specific issues may affect SCE.

Hypothesis H2: Management by exception has a significant positive influence on SCE in manufacturing SMEs in South Africa.

The hypothesis test results revealed that management by exception has a significant influence on SCE. This was shown by a positive coefficient of beta ($\beta=0.143$; $t=2.323$, $p=0.0001$). The p-value is less than 0.05, indicating that hypothesis H2 is supported and significant, and thus it is accepted. Furthermore, **Table 8** shows that if the implementation of management by exception leadership practice increases, SCE, on the other hand, increases by 14.3 per cent, which is a significant margin to be considered in determining a meaningful hypothesis relationship. These results agree with the results, obtained from studies by [41], whose studies reveal a positive and significant relationship between management by exception and SCE in manufacturing industries.

Therefore, the result of this hypothesis (H2) is discussed under the following suggestions. The above finding has practical implications in understanding how the management by exception can influence the SCE processes in manufacturing SMEs in South Africa. In addition, these outcomes, which show a positive and significant relationship, provide a critical piece of empirical evidence for supply chain research. Investigating the leadership practices, influencing SCE in manufacturing SMEs, particularly in South Africa, is crucial to realise the strategic value and competitive advantage of manufacturing SMEs' supply chains [32]. Therefore, the results from this relationship can practically mean that the expedition towards SCE pivots partly on manufacturing SMEs' ability to apply management by exception (mostly the active form) in the supply chain processes. This study shows that management by exception influences the SCE in the surveyed manufacturing SMEs in South Africa.

Hypothesis H3: Supply chain execution has a significant positive influence on customer service in manufacturing SMEs in South Africa.

The results of the analysis revealed that SCE has a significant influence on CS. This was shown by a strong positive path coefficient of ($\beta=0.191$ $t=3.932$; $p=0.000$), which shows a relationship between SCE and customer service. Therefore, H3 was supported and significant. This result illustrates that if SCE initiatives are increased manufacturing SMEs' supply chains, CS, on the other hand, increases by a margin of 19.1 per cent, which provides the manufacturing SMEs in question with an edge to revert to the robust SCE practices to service the supply chain partners in the entire supply chain process. This indicates a significant positive relationship between SCE and CS. Therefore, SCE improves the customer service in the manufacturing SMEs' supply chains. The hypothesis H3 is thus accepted. This result confirms the view of [8], who submits that effective implementation of SCE practices positively influences organisations' performance in terms of CS. The results of this hypothesis test also infer that the ability of manufacturing SMEs to satisfy their customers or supply chain partners highly depends on the robustness of their SCE initiatives. Customer service practices rely highly on the structure of SCE programmes, [52] also share this

view. Several other scholars [36, 57] also noted the success of meeting customers' requirements and giving them the best CS orbits around all-encompassing and effective SCE initiatives.

The practical application of this result can be interpreted using the following essential suggestions. First, this result concurred with [52], who found that the SCE contributes to CS. Firstly, close relationships with customers have perhaps allowed the surveyed manufacturing SMEs to acquire precise and real-time demand information in the downstream supply chain. Close customer management can improve SCP [39]. Such information may perhaps allow the manufacturing SMEs to respond more to customer requirements. Furthermore, manufacturing SMEs in South Africa with high resilient SCE capabilities have better chances to sense disruptions and changes in the market and thereby react proactively in delivering the best CS to their supply chain partners in the entire supply chain. Manufacturing SMEs that focus on CS management exceed customer expectations and increase the level of customer satisfaction [49]. The relationship leads to customer loyalty, as shown through repeat sales. CS management indirectly affects SCE by increasing efficiency and reducing costs [57]. This hypothesis test result also exhibited that customer satisfaction is the supply chain's principal goal. Therefore, in this study, one may conclude that manufacturing SMEs, focusing on building SCE resilience into their supply chain processes, would significantly benefit by improving CS performance. The result makes it significant for manufacturing SMEs to focus on improving strategies, related to SCE, to realise the customer service benefits.

Hypothesis H4: Supply chain execution has a significant positive influence on supplier performance in manufacturing SMEs in South Africa.

Regarding the results for (H4), it was established, that SCE does not influence supplier performance. The hypothesis coefficient ($\beta = -0.060$; $t = -1.215$; $p = 0.225$) is close to zero, indicating no relationship between SCE and supplier performance. The p-value is above 0.01, which denotes that one cannot have confidence in the results. The result signifies that the implementation of SCE practices does not determine or predict the performance of suppliers. The result shows that if SCE initiatives increase, supplier performance increases by a marginal 6 per cent, which is an insignificant margin. Thus, hypothesis (H4), as observed in **Table 8**, was neither supported nor significant.

The study's results suggest that even if SCE practices are initiated in manufacturing SMEs' supply chains, they do not influence the performance of suppliers. These results collaborate well with the assertions, made by [90], who proposed that SCE has no direct and significant relationship with the overall supplier performance. However, results from other studies suggest otherwise, as they reflect that a relationship between SCE and supplier performance does exist. For example, [91] find that timeliness, accuracy, and calculated supplies frequency enhance supply chain coordination and supplier performance. The relationship connects with [92] study that verified that when SCE is implemented, the SCP is sustained.

The results of this hypothesis test indicate that SCE has no influence on supplier performance in the manufacturing SMEs' supply chains. The reason may be a lack of trust, collaboration, integration and confidentiality issues between the surveyed manufacturing SMEs and their suppliers. Businesses cannot just rely on their internal resources and capabilities to achieve performance [91]. Instead, they should realise the need to develop specific supplier-relationship development programmes, which would allow manufacturing SMEs in South Africa to engage in activities that improve the SCE, which results in better SCP. Another factor that may have caused this unsupported hypothesis relationship could be the lack of relevant information between the manufacturing SMEs and their suppliers. The relationship could result from the lack of proper infrastructure for communication between buyer and supplier organisations. Lack of sharing information hampers SCE, leading to poor supplier performance [90]. Therefore, reducing challenges, related to supplier performance in the manufacturing SMEs in South Africa, is essential for improving competitive performance that leads to optimum SCE and SCP.

The study's limited scope to three provinces in South Africa, namely, Gauteng, Free State and North West provinces, could be a drawback, given that the manufacturing SMEs' domain is broad and calls for a more extensive geographic scope. Given their economic contributions and size, expanding to two or three more provinces, such as the Western Cape and KwaZulu Natal provinces, may yield more informative results. Additionally, the study was only limited to a quantitative

approach, which provides room for applying the mixed methodology, which provides a more in-depth analysis of the study. Another limitation is that the study did not test the relationship between transactional leadership practices and supply chain performance, which is the response variable of the study. Future studies could also consider SMEs in specific manufacturing industries, such as automotive, electronics, petrochemical, and furniture. Furthermore, scholars might include other SCP dimensions, excluded in this study. Examples of such practices include supply chain flexibility, just in time, total quality management, supply chain risk management, supplier development, green SCM, and lean SCM. It would be interesting to measure how SCE influences such factors in manufacturing SME supply chains.

7. Conclusions

On transactional leadership style, the literature review concluded that this style uses the control and command rules that duplicate dictator and command leadership practices, such as unchanging instructions, procedures, and correct and compulsive principles. The review also validated that transactional leadership is better at improving financial and non-financial performance through the sturdy engagement of SCE processes. This study, therefore, concludes that owners, managers, and SCM professionals in the South African manufacturing SMEs, involved in this study, make use of management by exception in their manufacturing supply chains. Management by exception as a transactional leadership practice in the South African manufacturing SMEs is directly proportional to the SCE in the same SMEs. This study also concludes that manufacturing SMEs in South Africa use customer service and supplier performance to measure SCP, as perceived by the managers, owners, SCM professionals and other employees. The study concludes that SCE has a significant relationship with customer care in the South African manufacturing SMEs' supply chains as it does enhance or add value to CS.

The study contributes to the existing literature on the significance of transactional leadership practices (management by exception, contingent rewards) on SCE initiatives and SCP (measurements-customer service and supplier performance). In addition, the study provides a specific hypothesis test on the relationship between transactional leadership practices, SCE and SCP, which provides a platform for the theory's applicability to the South African manufacturing SMEs where no such study was conducted before. This study supports the suitability of methodical critical literature reviews to determine the theory building. It proposes that such a philosophical and reflective study is practical when transactional leadership practices, SCE and SCP measurements in manufacturing SMEs are strategic and intricate. The study also clarifies the conceptions of transactional leadership dimensions, SCE, SCP, and an improved understanding of these relationships by providing current empirical evidence.

One of the practical implications of this study is the comprehensive perception and understanding, provided by the three constructs: leadership style (transactional leadership practices), SCE and SCP dimensions. The contribution of this research is to bring about an understanding, based on theoretical assumptions, of how SCE initiatives can be established from a transactional leadership point of view and how they contribute to the general supply chain development. To this end, the leadership styles of transactional leadership practices, SCE, and performance models provide practical tools for manufacturing SMEs in South Africa.

Conflict of interest

The authors declare that there is no conflict of interest in relation to this paper, as well as the published research results, including the financial aspects of conducting the research, obtaining, and using its results, as well as any non-financial personal relationships.

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