PARTICIPATIVE MANAGEMENT FOR TEAM EFFECTIVENESS AND INNOVATION

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ABSTRACT

This study investigates the effect of a participative management practice, 'mini-business activities' (MBAs), on three outcome variables: team effectiveness, team innovation, and job satisfaction. An empirical approach is employed, with survey data gathered from 340 individuals working in 50 teams in South African manufacturing organisations. The results indicate that MBAs have a significant and positive effect on team effectiveness and team innovation in a similar way to that of quality circles. However, MBAs are found to have no direct or indirect effect, through employee engagement, on job satisfaction. The findings contribute to a more nuanced understanding of the impact of participative management practices in different contexts, and indicate that future research considering the impact of high unemployment levels on the relationship between participative management practices and job satisfaction would be valuable.

OPSOMMING

Hierdie studie ondersoek die impak van 'n deelnemende bestuurspraktyk, 'mini-besigheidsaktiwiteite', op drie uitkomstes: span-doeltreffendheid, span-innovering, en werksbevrediging. 'n Empiriese benadering word gevolg en vraelysdata word ingesamel by 340 individue wat werksaam is in 50 spanne in Suid-Afrikaanse vervaardigingsorganisasies. Die bevindinge dui aan dat mini-besigheidsaktiwiteite 'n statistiesbeduidende positiewe impak het op beide span-doeltreffendheid en span-innovering, soortgelyk aan vorige navorsingsbevindinge oor die impak van gehalte-sirkels. Daar word egter ook bevind dat mini-besigheidsaktiwiteite geen direkte of indirekte impak het op werksbevrediging nie. Die bevindinge dra by tot 'n dieper verstaan van die impak van deelnemende bestuurspraktyke in verskillende kontekste, en dui ook aan dat daar waarde sou wees in toekomstige navorsing oor die impak van hoë werkloosheidsvlakke op die verhouding tussen deelnemende bestuurspraktyke en werksbevrediging.

1. INTRODUCTION

'Participative management' refers to the philosophy of involving employees in corporate decision-making, and has been found to have a positive impact on organisational outcomes [1]. Participative management uses techniques such as quality circles (QCs) to drive these organisational outcomes. The QC concept is a form of participative management that originated in manufacturing organisations in Japan [2]. A QC can be described as a small group of employees (mostly first-line employees) who are in the same work area and meet regularly and voluntarily to identify and solve problems that affect them and the organisation [1]. Previous empirical research has confirmed a wide variety of outcomes of QCs, including improvements in quality of work; teamwork; employee engagement; employee turnover; productivity; and job satisfaction. QCs have therefore been shown to improve both outcomes that are primarily meaningful to the organisation and outcomes that are particularly meaningful to employees.

Several South African organisations are implementing management techniques that are based on the same principles that underpin QCs. Small group activities (SGAs) and mini-business activities (MBAs) are two such techniques that are being implemented in the South African context. Much of the empirical research that has been conducted on the outcomes of QCs has been set in Japan and in the United States of America (USA). Thorough search protocols on the Web of Science and Scopus platforms did not uncover any published research on the outcomes and effects of QCs or variations of QCs in a South African manufacturing environment. In a more general sense, research on participative management in South Africa has also been limited, with a systematic search protocol not uncovering any empirical studies on the outcomes of participative management (as a business management / organisational behaviour construct) in the South African context. This represents an important research gap. Because of aspects such as the socio-economic context, and therefore perceived levels of job security, the influence of both national and organisational cultures, the multilingual context, and the level of education, it cannot necessarily be assumed that participatory management practices or QCs would lead to identical outcomes in a South African environment as they do elsewhere. Furthermore, it cannot be assumed that findings on the outcomes of QCs in their original form will be directly transferable to variations of QCs such as SGAs or MBAs.

Several outcomes of QCs that have been established in other contexts are salient in the South African environment. Both employee engagement and job satisfaction have received significant attention in publications in South African management journals in recent years. The 2021 Gallup survey [3] indicates that only 17% of the South African workforce is actively engaged, and this percentage is 2% worse than the previous survey. The survey further indicates that most of the South African workforce does not feel that they are given the opportunity to contribute to decisions about their work. As pointed out by Zondo [4], QCs have the ability to enhance participation and employee engagement in work-related decisions. Similarly, a case study by Mapadimeng [5] reported high levels of discontent among workers in South African factories. Thus there is evidence of challenges related to job satisfaction and employee engagement in South Africa.

Productivity is another topic of concern in South Africa, with Zondo [4] specifically highlighting labour productivity in the manufacturing sector as problematic. Data provided by the Organization for Economic Co-operation and Development indicated that, comparatively, the South African workforce is underperforming in respect of productivity [6]. The Global Competitiveness Report for 2019 supports the data provided by the OECD, as it ranks South Africa 83rd out of 141 economies in respect of productivity [7]. The 2019 report provides the latest available Global Competitiveness Index, since the more recent report for 2020 had a special focus on the Covid-19 pandemic and therefore did not perform a competitiveness analysis. However, based on the trend presented by Munyai, Mbohwa, Makinde and Ramatsetse [8], labour productivity in South Africa has been on a declining trajectory since 2007.

This study presents empirical research on the outcomes of MBAs in South African manufacturing organisations. The conceptual model that is developed and tested is depicted in Figure 1. As shown, team effectiveness and team innovation are investigated as potential team-level outcomes of the team-level antecedent, maturity of MBAs. Job satisfaction, mediated by the level of engagement of the employee, is investigated as a potential individual-level outcome.

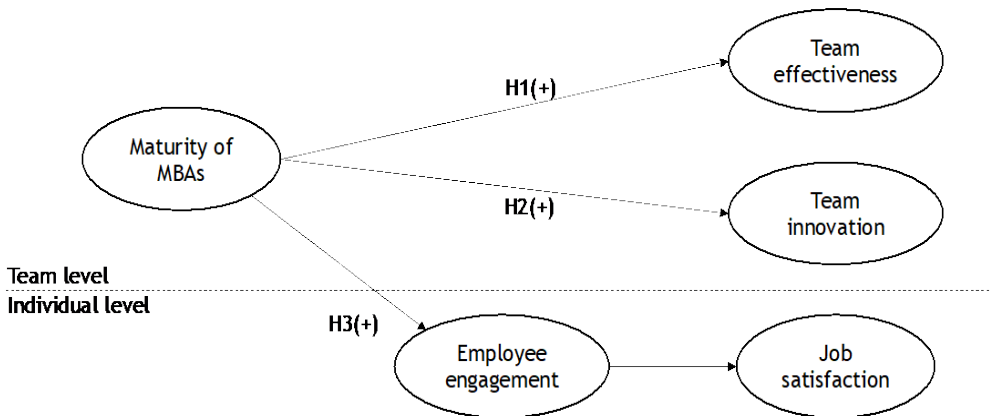

Figure 1: Hypothesised model

From a theoretical perspective, this research contributes to a more nuanced understanding of the impact of participative management practices in different contexts. Furthermore, it contributes to an understanding of MBAs as a variant of participative management practices. The research also has value from a practical perspective, as it supports more informed decision-making on whether to implement participative management by enacting MBAs with a view to achieve specific outcomes.

2. BACKGROUND: QCS AND MBAS

QCs were initially aimed at solving problems pertaining to the quality of manufactured goods, but the use of QCs has subsequently expanded to different industries, and QCs are now also used to solve a variety of problems that are experienced in the workplace — not only those pertaining to quality. A QC typically consists of six to twelve members, and each circle has a facilitator who ensures that the QC operates efficiently. Traditionally, QCs used to meet in their own time, but present-day industries allow their members to meet during the company's time [9]. Typically, there are no financial rewards for QC participation, but circle members might get recognition for their contribution [10]. Organisations often modify the design of their QCs according to their specific needs [9], [11]. The amount of training provided, number of circles, number of members in a circle, and who acts as the facilitator are among the factors that differ from one organisation to another.

Dale, Elkjaer, Van der Wiele and Williams [12] examined 36 articles dealing with QCs, and found that 11% of the articles viewed QCs as a fad, while some of the remaining papers viewed QCs as being on the boundary of a fad. A possible answer provided by the literature as to why QCs were not as successful in the USA as in Japan (and why they were passed off as a fad as a result) was that they were not correctly implemented in the USA. For example, Guthrie [13] investigated the causes of the failure of QCs at the Ford Motor Company in the USA during the early 1980s, and identified three main causes for their failure: trade union opposition; resistance from middle management, which sprouted from a fear of losing control and authority; and senior management's insistence that minutes needed to be taken at every meeting, which employees interpreted as a sign of distrust.

Graban [14] reports that QCs are still being successfully implemented in Japanese organisations, and that these organisations have managed to create a workplace where continuous improvement forms an integral part of the organisational culture and where quality is an activity for everyone to participate in — not just management or a quality department. The main priority of the Japanese organisations that were visited by Graban [14] was to develop employees by teaching them problem-solving skills through QC activities. Financial results were only a second priority in these Japanese organisations, whereas, according to Holm [15], USA organisations were mainly focused on the financial benefits of QCs. O'Donnell and O'Donnell [16] measured the effectiveness of QC programmes by surveying 417 respondents from a variety of organisations. Most of the responses received were positive (63% of respondents felt that their QCs were either moderately or extremely successful), indicating that there is merit in the conclusion that QCs can be efficient and successful if implemented correctly.

Although the MBAs that have been implemented in South African organisations and that form the subject of this study are similar in structure to QCs, they are not identical, as the QC concept has been modified to suit the needs of the specific organisations. These MBAs originated from the implementation of a framework called '20 keys to workplace improvement' or, in short, '20 keys', which was developed by Kobayashi [17]. The third 'key' defines 'improvement team activities', and emphasises the importance of team activities as a tool to improve the quality of manufactured goods and to improve morale in the workplace [17]. The term 'improvement team activities' is a collective name for various team activities that can be implemented to bring about improvements. QCs, and the variation of QCs referred to as MBAs, are two examples of such activities.

An MBA consists of employees who work together in the same workgroup or team; therefore, members of different organisational units cannot be members of the same MBA. The MBAs in the South African manufacturing organisations where this research was conducted consist mostly of a team of employees who work together on the same production line and who are employed at the same level in the organisation. The name of this activity (mini-business activity) originated from the principle that the team is part of a value chain in the factory, and that they have their own suppliers and customers within that value chain — almost as if they were a miniature business inside of the organisation as a whole. Therefore, an MBA team's suppliers and customers would typically be regarded as the activities that directly precede and follow the team's activity in the value chain respectively.

Most of the teams observed during site visits held their MBA meetings during the first 10 minutes of their shift. The teams whose work conditions did not allow them to meet during the first 10 minutes of the shift held their meetings at another convenient time during the day. Topics of discussion in the MBA centred around five themes: quality; cost; delivery; safety; and morale. The discussions typically included conversations about the previous day's production and the number of defects that were produced, the targets for the current day, bonuses earned, as well as problems, suggestions, and ideas for improvement. To encourage employees to be forward-thinking and innovative, each team member of an MBA is required to come up with a specific number of suggestions each year.

Whenever an MBA team failed to reach a target, they would discuss the reasons for that failure and discuss possible ways in which this could be avoided in future. Graphs and other information were also placed on the walls of the work area so that the whole team could see what their performance looked like over time. The meetings were usually facilitated by the first line manager (FLM) but, to encourage leadership development, the role rotated often so that different team members took turns to facilitate the meetings.

3. THEORY AND HYPOTHESES

This section starts by providing a motivation for the selection of each of the outcome variables studied in this research, and then presents the various hypotheses

3.1. Selection of outcome variables

Previous empirical studies on the outcomes of QC programmes have ascertained various benefits that can be derived from the implementation of QCs. A summary of some of empirical findings on the outcomes of QCs that are described in the literature is provided in Table 1. Some of the organisationally relevant outcomes summarised in Table 1 are improved quality, financial savings, and productivity. Outcomes that are particularly meaningful to employees include job satisfaction, opportunities for career advancement, and communication among employees.

Table 1: Previous empirical findings on outcomes of QCs

Broad category	Outcome that was measured	Source	Finding
Quality	Improved quality	a) [18] b) [19] c) [20] d) [19]	QCs improved quality. QCs improved quality. QCs improved quality. QCs reduced number of customer complaints (thus increased quality).
Teamwork	Teamwork	[18]	QCs improved teamwork.
	Relationships and cooperation	[18]	QCs improved relationships and cooperation among team members.
	Gender interactions	[21]	QCs had no significant influence on gender interactions.
	Communication	[22]	QCs increased intergroup and intragroup communication.
Employee involvement/ engagement	Employee involvement and engagement	a) [20] b) [18] c) [23]	QCs improved involvement. QCs improved engagement. QCs improved engagement.
Employee growth	Opportunities for advancement	[22]	No correlation between QCs and advancement opportunities — mixed results on opportunity were found.
	Increased knowledge	[18]	QCs increased employees' knowledge.

Table 1: Previous empirical findings on outcomes of QCs (cont.)

Broad category	Outcome that was measured	Source	Finding
Attendance	Absenteeism	a) [11] b) [21] c) [20]	QCs decreased absenteeism significantly. No correlation could be found. No correlation could be found.
	Turnover	a) [21] b) [20]	QCs reduced turnover intent. QCs reduced turnover/attrition.
Problem-solving and innovation	Problem-solving	a) [24] b) [20]	QCs had no significant effect on problem-solving. QCs increased problem-solving capabilities.
	Innovation	[25]	QCs significantly lead to innovation.
Productivity	Productivity	a) [11] b) [21] c) [18]	QCs increased productivity significantly. The overall results obtained for productivity were varied. QCs improved productivity.
	Documentation outputs	[18]	QCs improved and increased documentation outputs.
	Process outputs	[18]	QCs increased and improved process outputs.
	Material flow	[18]	QCs improved material flow in some instances.
	Reduction in cycle time	[19]	QCs caused a reduction in cycle time.
Quality of work life and job satisfaction	Motivation & morale	[18]	QCs increased motivation.
	Grievances	a) [21] b) [20]	QCs reduced number of grievances. No correlation could be found.
	Job satisfaction	a) [26] b) [27] c) [28] d) [11]	QCs improved job satisfaction significantly. QCs improved job satisfaction. QCs improved job satisfaction significantly. QCs did not necessarily lead to an increase in job satisfaction, but QCs could possibly have prevented a decrease in job satisfaction.
	Perceived individual power	[22]	QC participation produced mixed results on perceived individual power and influence.
	Feelings of belonging	[22]	No correlation — mixed results on feelings of belonging were found.
	Perceived quality of work life	[11]	QCs increased quality of work life overall (or at least prevented a decrease for participants).
Financial savings	Reduced cost	a) [19] b) [20]	QCs reduced cost. QCs reduced cost/ showed a very good return on investment.

The outcome variables that were selected for measurement in this study were team effectiveness, job satisfaction, and team innovation. Employee engagement was selected as a mediator between the independent variable — the maturity of the MBA — and the outcome variable job satisfaction.

Aubé and Rousseau [29] describe team effectiveness as consisting of three different elements: team performance; quality of group experience; and team viability. It is therefore a construct that gives a good, generalised overview of how a team is functioning, incorporating an evaluation of the affective state within the group, together with the more traditional perspective of team performance. With reference to the findings on productivity in South Africa presented in the introduction section, it is reasonable to conclude that there is room for improvement. Although there is a lack of an established set of outcome measures for use in productivity research [30], one frequently used quantitative measure of labour productivity is the gross domestic product per hour worked [6]. This quantitative measure for productivity performance could not be used in this study, however, as the participating organisations manufactured different products with different lead times and different financial value, making like-for-like comparisons inappropriate. Productivity is, however, included in the scale used for team effectiveness in this research.

The World Bank has remarked that South Africa is falling behind its market peers and other international technological and knowledge frontrunners when it comes to innovation, and has recommended that, for South Africa to remain economically competitive and to reduce poverty, the country's untapped potential for innovation should be used [31]. As shown in Table 1, a comprehensive literature review uncovered only one previous study that evaluated the impact of QCs on innovation. Evaluating MBAs as antecedents to team innovation would contribute to the limited knowledge on the relationship between QCs or MBAs and team innovation in the literature, and it is therefore deemed valuable to include team innovation as an outcome variable to investigate in this study.

As discussed in the introduction section of this article, recent research has established that there are significant levels of job dissatisfaction in South Africa. The literature is replete with studies that show that job satisfaction is a salient topic in contemporary South African management research [8], [32]–[35].

3.2. Outcome 1: Team effectiveness

MBAs are expected to have a positive impact on team effectiveness. Each of the three elements of team effectiveness defined by Aubé and Rousseau [29], namely team performance, quality of group experience, and team viability, are discussed separately.

The first element of team effectiveness, team performance, is defined as reaching assigned goals, producing good quality work, and attaining high levels of productivity [29]. MBAs are expected to contribute to the attainment of goals, as their meetings provide an opportunity for team members to clarify goals, to discuss obstacles that prevent goal attainment, and to reflect on past goals in order to learn from previous mistakes or successes. MBAs are also expected to assist teams in producing good quality work, since matters pertaining to quality are discussed during their meetings. MBAs are also expected to improve productivity, because their meetings provide an opportunity for team members to discuss problems relating to productivity and to suggest improvements.

The second element of team effectiveness, quality of group experience, is defined as the extent to which the social climate in the team is positive [29]. Research by Li and Doolen [10] indicates that the implementation of QCs has the potential to improve the social climate in a team. In the same way, MBAs are expected to impact positively the social climate in a team and therefore the quality of the group experience. It was further observed that the MBA meetings at the participating organisations provide an opportunity for team members to resolve any conflict among themselves, which is expected to promote the quality of the group's experience further.

The third element of team effectiveness, team viability, is defined as the team's ability to adapt to external and internal changes and the likelihood that team members will continue to work together in the future [29]. MBAs are expected to increase a team's viability, since they provide a platform for team members to ask questions about any changes and to communicate concerns about those changes. Marks *et al*. [11] found that QCs provided emotional, social, and informational support to QC participants during a time of restructuring at their organisation. Li and Doolen [10] also reported an increase in solidarity among team members in a QC. Similar to QCs, MBAs are also expected to increase a team's viability. The following hypothesis is constructed for the effect of MBAs on team effectiveness:

H1: The implementation of MBAs improves team effectiveness.

3.3. Outcome 2: Team innovation

According to Band [36], participative management in general has a direct and positive relationship with team innovation and efficiency. The author attributes this direct relationship between participative management and innovation to the notion that participative management encourages openness to new ideas, which lead to innovation. To this end, Park, Lee and Kim [37] point out that participative management promotes a culture of innovation; and they draw from various studies done in public agencies in South Korea that implemented participative management and promoted innovative culture through organisational reform. It could be postulated that organisations implementing participative management by enacting QCs will promote a culture of innovation in the organisation. Prester and Bozac [25] found that QCs lead to innovation in organisations, and explain that this relationship exists because QCs cause teams to be focused on a specific task and to be motivated to complete the task successfully.

Since MBAs are a variation of QCs, it is reasonable to expect that MBAs will lead to innovation in the same way that QCs can. As mentioned earlier, MBAs require each of the team members to come up with a specific number of improvement ideas each year; thus team members in an MBA are expected intentionally to think creatively and innovatively. Furthermore, MBAs encourage team members to think proactively about their work area, the challenges it faces, potential solutions to these challenges, and opportunities for improvement in their work area in general. It is likely that, by encouraging employees to engage mentally with their work area in this way, MBAs would lead to innovation. The following hypothesis is formulated to evaluate the effect of MBAs on team innovation:

H2: The implementation of MBAs improves team innovation.

3.4. Outcome 3: Job satisfaction

The impact of QCs on various aspects of quality of work-life such as job satisfaction and motivation has been investigated, with findings that were either positive or neutral [11], [18], [19], [21]. Therefore, a theoretical basis for investigating QCs as an antecedent for job satisfaction is well-established. The following hypothesis is constructed for the effect of MBAs on job satisfaction:

H3a: The implementation of MBAs improves overall job satisfaction within the team.

Previous research has found that employee engagement has a positive and significant impact on job satisfaction [38]–[40]. Biswas and Bhatnagar [40] offer a possible explanation for this positive relationship: that employees find their work more motivating and satisfying when they experience a specific level of engagement, and this causes them to see their work and workplace as something enjoyable. Consequently, they experience more satisfaction with their jobs. In respect of the impact of QCs on employee engagement, Li and Doolen [10] found that QCs have a positive effect on employee engagement. More recently, Kpakol and Okpu [23] also found that QCs have a significant and positive relationship with employee engagement, and suggest that QCs improve employee engagement because they provide employees with an opportunity to be involved in the decision-making process, create feelings of belonging, and act as a motivating factor to employees because they feel valued and heard. Similar to QCs, MBAs also encourage employee involvement in the decision-making process by providing team members with an opportunity to make suggestions and to implement them. MBAs can also contribute to a sense of belonging in the team, as each MBA has its own team name and its own designated meeting area, and the names and photos of all members of the MBA are placed on posters inside their meeting area. Furthermore, MBAs can serve as a source of motivation to team members by providing a platform where they can raise concerns, make suggestions, ask questions, and solve problems.

Thus there is an established theoretical basis for studying QCs as an antecedent of employee engagement and, in turn, for studying employee engagement as an antecedent for job satisfaction. As shown in Figure 1, employee engagement is positioned as the mediator between the antecedent, maturity of MBAs, and the outcome, job satisfaction. It is therefore expected that MBAs have an indirect impact on job satisfaction through their impact on employee engagement. Schaufeli and Salanova [41] argue that engagement consists of three facets: vigour, dedication, and absorption. Each of these elements of engagement is assessed individually in this study. Thus a separate hypothesis is constructed for each facet of engagement, and the following three hypotheses are formulated:

H3b: Vigour (a facet of employee engagement) mediates the effect of the implementation of MBAs on job satisfaction.

H3c: Dedication (a facet of employee engagement) mediates the effect of the implementation of MBAs on job satisfaction.

H3d: Absorption (a facet of employee engagement) mediates the effect of the implementation of MBAs on job satisfaction.

4. METHODOLOGY

This study was classified as non-experimental, hypothesis-testing research. It was conducted as a field study by collaborating with partner organisations that were implementing MBAs in South Africa. By following a correlational design, measurements were taken once. Linear regression was used to analyse team effectiveness and team innovation, while job satisfaction was analysed via a multilevel mediation model using the multilevel structural equation modelling framework.

4.1. Sample and procedures

Africa. The first organisation manufactures specialised parts that are mostly used in the aviation industry; the second and third organisations produce agricultural feed; and the fourth and fifth organisations produce aluminium extrusions.

Data from 340 respondents was deemed usable in the study. Out of those 340 respondents, 21 were senior managers who were not members of the team (some of them supervised more than one team) and 319 were team members, excluding team managers. From a total of 57 teams for which data was collected from at least one respondent, the data for 50 teams was deemed fit for use in the analyses. A team's data was deemed unfit for use if it had been gathered from only one member, since a single individual's response was not deemed sufficiently representative of the entire team. The average team size was 6.36 members per team, excluding the team manager and senior manager. Most of the teams were directly involved with the production process, while the remaining 8% fulfilled supporting roles that included administration, orders, and sales.

The data from 21 senior managers was gathered via a manual survey that each senior manager completed independently. The surveys were printed and hand-delivered to the factories. The data from the 319 team members was gathered via a structured interview with each respondent. All of the interviews were conducted by the same member of the research team; they were conducted anonymously, and respondents were given the option of completing the questionnaire in lieu of the interview if preferred. The structured interviews were found to be the most suitable method for gathering data from team members because these individuals generally have limited access to computers at their place of work, and their low level of literacy would have impeded the use of a paper-based survey.

Steps were taken to control for the risk of two types of common method bias. Bias because of common rater effects was avoided by gathering data for the antecedent (the maturity of the MBAs) and the three outcome variables from different parties. According to Krumpal [42], gathered data can be biased because respondents give their answers in a socially desirable way. In line with the practice established in previous studies [42], [43], the data gathered from senior managers rather than team managers or team members was used in the analyses of team effectiveness and team innovation to limit the risk of bias because of social desirability. However, since an individual's behaviour does not always reflect their attitude [44], it was deemed prudent to use self-reported data for team members' levels of engagement and job satisfaction.

The majority (36%) of respondents were between 35 and 44 years old and male (76%). In respect of the highest educational attainment, 59% had completed high school or an equivalent, 26% had completed vocational training, and 10% had not completed high school. Most respondents' first language was Afrikaans, although various other first languages were also represented: Xhosa (15%), Zulu (10%), Sesotho (10%), Northern Sotho (8%), English (6%), and Tswana (6%). Fifty per cent of the respondents had worked at their current organisation for ten years or longer, while a small minority (7%) had worked there for less than one year. Most of the MBAs that were included in the study had been in existence for between four and ten years (42%), while 32% had been in existence for more than ten years and a small minority (8%) had been

in existence for seven to twelve months. Many respondents were long-standing members of their MBA, with 25% having been a member for more than ten years, 19% for between five and ten years, and 13% for less than one year. Finally, in respect of the dyadic relationship between senior managers and MBAs, 32% of the MBAs had been reporting to the senior manager for more than ten years, 21% for between five and ten years, and 26% for less than one year.

4.2. Measures

The measure that was used for each of the variables is described here. A five-point Likert scale was employed for the team effectiveness, team innovation, job satisfaction, and employee engagement measures.

Maturity of MBAs. The data for the predictor variable, maturity of MBAs, was acquired directly from the participating organisations. A representative of each organisation scored the MBAs with a rubric used to measure their maturity. The rubric is copyrighted to a consulting company that provided the implementation framework for the MBAs to all five of the participating organisations, and provided ongoing support during the operationalisation of the MBAs at each organisation. Therefore, the MBAs were implemented similarly in all of the participating organisations. The rubric consists of five subsections that cover different aspects of the MBA: the physical work area, the visual displays used, the use of key performance indicators, the MBA meetings, and the use of action plans. As an example, the following statements are included in the rubric: Display boards for visual management displays (white boards, flip charts, etc.) are available and are not dirty; The standard list of visual displays (e.g., suggestions list and action plans) is in place; The (key performance indicator [KPI]) graphs are clearly understood by all, and the team members can align their KPIs with those of the company. Each item in the rubric is rated as needing improvement (a score of one), at the required standard (a score of three), or good (a score of five).

Team effectiveness and team innovation. Data on team effectiveness was gathered from senior managers using the scale developed by Campion, Papper and Medsker [45]. The scale developed by Campion *et al*. [45] captures all of the facets of team effectiveness defined by Aubé and Rousseau [29], as discussed in the theorising section of this paper. Data on team innovation was gathered from senior managers using the scale developed by De Dreu and West [46]. Both team effectiveness and team innovation were measured at the team level.

Job satisfaction and employee engagement. Job satisfaction was measured at an individual level with the widely used five-item version of Brayfield and Rothe's [47] measure, completed by the team members. The mediator in the model, employee engagement, was measured with the UWES-9 scale [48]. The theory that underpins the UWES-9 scale models engagement as consisting of three different components: vigour, dedication, and absorption [49]. The scale contains three items for each component. Similar to job satisfaction, employee engagement was measured at an individual level based on data gathered from the team members.

Scale alterations. The surveys and structured interview guides were in English, since this was the language that was generally used for formal communication at the organisations included in the research. Since English was most of the respondents' second language, however, there was a risk that some of the words and phrases in the measurement scales could be misunderstood, thereby have an impact on the integrity of the data that was gathered via the questionnaire. This risk was deemed to be most prevalent in the case of team members, while the risk in the case of senior managers was considered small. Consequently, minor alterations were made to some of the questions on the measurement scales used in the team member interviews to simplify the wording and/or sentence structure. An example of an adjustment to the wording of a question from Brayfield and Rothe's [47] job satisfaction scale is that the phrase "I consider my job to be rather unpleasant" was replaced with the phrase "I think my job is unpleasant".

5. RESULTS

The descriptive statistics and zero-order correlations are given in Table 2. As evidenced by the Cronbach's alpha values presented on the diagonal in Table 2, all of the scales had an acceptable level of internal consistency.

5.1. Linear regression analyses

Two of the outcome variables, team effectiveness and team innovation, were analysed by performing a linear regression analysis, using the software package SPSS. Prior to the analysis, various assumptions were tested to confirm that linear regression was appropriate, including: confirming that the residuals of observations were independent via the Durbin-Watson statistic; confirming that the relationship between the independent and dependent variables was linear and that there were no significant outliers via a scatterplot; and assessing for homoscedasticity by plotting the standardised residuals versus the standardised predicted values.

Impact of MBAs on team effectiveness. There was a statistically significant and positive relationship between MBA maturity and team effectiveness. The effect of MBAs accounted for 43.9% of the variation in team effectiveness with an adjusted R^2 value of 42.7%, which is regarded as a medium-size effect [50]. The p-value was positive and significant ($p < 0.0005$). Thus hypothesis H1 was not rejected, and it was concluded that an increase in the maturity of an MBA leads to an improvement in team effectiveness.

Table 2: Descriptive statistics

Variables	M	SD	1	2	3	4	5	6	7
Maturity of MBAs	3.516	1.123	—						
Team effectiveness (SM)	3.193	0.620	.66**	**.913**					
Team innovation (SM)	3.510	0.589	.48**	.49**	**.805**				
Employee engagement: Vigour (T)	3.882	0.848	.11	.10	-.04	**.834**			
Employee engagement: Dedication (T)	4.045	0.839	-.06	.22	-.06	.53**	**.831**		
Employee engagement: Absorption (T)	3.963	0.701	-.04	.20	-.02	.55**	.60**	**.608**	
Job satisfaction (T)	3.753	0.681	.04	.26	-.02	.47**	.78**	.49**	**.707**

Note. n = 319 team members and 50 teams. T = rated by team members; SM = rated by senior managers. Variables 1, 2, and 3 are team-level (i.e. Level 2) variables. As Variables 2 and 3 are substantive variables of interest, the inter-correlations in the table are calculated at the team level. For individual-level variables, a team average was calculated and used in the calculation of the intercorrelations. Cronbach's alpha is shown in bold on the diagonal; it is not calculated for the maturity of MBAs, as this is not measured using a scale. For individual-level variables, the mean and standard deviation are based on the individual-level data — i.e., on 319 observations.

* $p < 0.05$ (two-tailed). ** $p < 0.01$ (two-tailed).

Results: Impact of MBAs on team innovation. There was a statistically significant and positive relationship between MBAs and team innovation ($p < 0.0005$). MBAs accounted for 23.1% of the variation in team innovation with adjusted $R^2 = 21.5\%$. This is regarded as a small effect size according to Cohen [50]. Therefore, hypothesis H2 was not rejected, and it was concluded that an increase in the maturity of an MBA leads to an improvement in team innovation.

5.2. Multilevel structural equation modelling

Job satisfaction was analysed using multilevel structural equation modelling (MSEM), as it was measured at the individual level while the antecedent (maturity of MBAs) was measured at the team level. Employee engagement, the mediator between the MBA scores and job satisfaction, was included in the MSEM. The MSEM framework that was developed by Preacher, Zhang and Zyphur [51] was employed, and the software package MPlus 8.1 [52] was used in the analysis. Both the direct effect of MBAs on job satisfaction and the indirect effect of MBAs on job satisfaction through employee engagement were analysed, using a model of the form 2-1-1.

In line with the best practice described by Enders and Tofighi [53], decisions about centring the variables for the MSEM were based on the substantive research question of interest. More specifically, the individual-level variables (employee engagement and job satisfaction) were centred at the grand mean, as the research question primarily related to the impact of the team-level variable [53], while the raw values

were used for the team-level variable (maturity of MBAs). In line with the approach recommended by Hayes (2006), the intercept was estimated as a random effect in the MSEM. Finally, as there was no theoretical basis to expect that the relationship between employee engagement and job satisfaction would differ for each employee based on the MBA score, the slopes were set as fixed, in line with the approach recommended by Hayes [54].

As employee engagement, the mediator in the model, was divided into three facets, the MSEM was performed separately for each of the three facets. Owing to missing data points, 315 team members clustered in 49 teams were included in the MSEM.

Results: Direct impact of MBAs on job satisfaction. The analysis indicated that the MBAs did not have a significant direct effect on job satisfaction, with the p-value for the direct effect exceeding 0.05 in each of the three models. (Specifically, the p-values for the direct effect were 0.441, 0.468, and 0.870, for the vigour, dedication, and absorption models respectively.) Therefore, hypothesis H3a was rejected.

Results: Indirect impact of MBAs on job satisfaction through employee engagement. The analysis also indicated that MBAs did not have a significant indirect effect on job satisfaction through any of the three facets of employee engagement. (The p-values for the indirect effect were 0.968, 0.830, and 0.799, for the vigour, dedication, and absorption models respectively.) Therefore, hypotheses H3b, H3c, and H3d were also rejected.

6. DISCUSSION

6.1. Recommendations

Implementing participative management by enacting MBAs is recommended as a useful tool that could help manufacturing organisations to improve team effectiveness and team innovation. MBAs are not recommended if an organisation's sole aim is to increase job satisfaction among team members, since the study found that MBAs did not influence job satisfaction. The fact that some organisations in this study have managed to implement MBAs successfully for more than a decade is an indication that MBAs can be successful if implemented correctly. During the study, insights into the successful implementation of MBAs were obtained.

It was noticed that those in leadership, and specifically the FLMs that are responsible for facilitating the work of the MBAs, play a critical role in their successful implementation. For example, these individuals decide which suggestions to pass on to senior management for further consideration. During the interviews, several team members complained that the FLMs did not take their team's ideas seriously or wrongfully took credit for ideas, causing team members to become discouraged. There was also evidence that, in some instances, FLMs and other colleagues found team members who often speak up about issues intimidating. For example, the following statements were made by team members during interviews: "*If you speak up the whole time, the manager starts saying that you have an attitude problem, which prevents team members from speaking up when there is a problem or coming up with new ideas*"; and "*People get intimidated if you come with too many ideas. Such a team member is cast out to the side and it discourages the members from providing ideas*". This highlights the importance of training the individuals who facilitate participative management practices with a view to equipping them to create environments in which colleagues feel safe to contribute, and assisting them not to view strong contributions from members of the team that they are leading as threatening.

In addition, the implementation of MBAs in South Africa comes with unique difficulties. From the interviews it became apparent that team members refrained from mentioning problems during an MBA meeting out of fear for getting themselves or others into trouble and ultimately losing their jobs. It is suspected that the high unemployment rate of 34.9% [55] in South Africa heightens this fear, since team members might fear that they would not be able to find a new job if they lost their current job. This could be counterproductive, and it is recommended that management find ways to create an environment in which employees are comfortable to address problems for the sake of improvement without the fear of losing their jobs. One of the senior managers noted that the MBAs are cyclical in nature, and that their level of activity varies over time. Therefore, it is recommended that management have a strategy in place to get the MBAs functioning to their full potential again as soon as a phase of lower activity is detected.

Finally, it should be noted that MBAs evolve uniquely within each organisation, depending on the needs of the organisation and the intensity of the involvement of leadership, and that each organisation should identify the goals that they want to achieve with the MBAs and devise a plan to achieve them.

6.2. Relation to previous findings

The findings on the positive impact of MBAs on team performance (operationalised as team effectiveness) concur with the findings of three previous studies ([11], [18], [19]) on the impact of QCs on team performance (operationalised as productivity). The current study also found that MBAs had a significant positive impact on team innovation, echoing a finding by Prester and Bozac [25] that QCs led to innovation.

The current study found that MBAs did not have a significant effect on job satisfaction. In contrast, three previous studies found that QCs significantly improved job satisfaction [26]–[28], while a fourth found that, although QCs did not necessarily increase job satisfaction, they did possibly prevent a decrease in job satisfaction during times of uncertainty [11]. It is not clear whether previous findings on the positive impact of QCs on job satisfaction would hold true in the contemporary South African environment, as no previous empirical research on the topic was found. It is therefore unclear whether the discrepancy between the findings in the current study and those in previous research should be attributed to differences between MBAs and QCs, differences in other contextual variables associated with the study setting, or both factors. Based on anecdotal evidence gathered during site visits for data collection, however, it is proposed that future research investigate the potential impact of a high unemployment rate, such as that found in South Africa, on the relationship between participative management practices and job satisfaction. During the semi-structured interviews, several team members voiced fears of losing their employment if they were to raise criticisms or offend their team supervisors in other ways during MBA meetings. Previous research has established that high unemployment rates negatively impact job satisfaction [56], [57].

6.3. Limitations

The two most important perceived risks to the study were (1) that some of the questions in the questionnaire could be misunderstood, as English was not most respondents' first language, and (2) the literacy proficiency of respondents. As discussed in the methods section, minor adjustments were made to the wording of some questions in the team-member questionnaire to simplify the wording without altering the meaning. The demographic data indicating that 33 of the respondents had not completed high school or its equivalent demonstrated that the concern over literacy proficiency was indeed warranted. To overcome this potential limitation, the team-member questionnaire was completed using an interview format. This interview approach most likely also contributed to overcoming any language barrier that might have existed, as it provided respondents with an opportunity to clarify questions where required.

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