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Strategic Human Resource Metrics: A Perspective of the General Systems Theory

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Abstract: Measuring and quantifying strategic human resource outcomes in relation to key performance criteria is essential to developing value-adding metrics. **Objectives** This paper posits (using a general systems lens) that strategic human resource metrics should interpret the relationship between attitudinal human resource outcomes and performance criteria such as profitability, quality or customer service. **Approach** Using the general systems model as underpinning theory, the study assesses the variation in response to a Likert type questionnaire with twenty-four (24) items measuring the major attitudinal dispositions of HRM outcomes (employee commitment, satisfaction, engagement and embeddedness). **Results** A Chi-square test (Chi-square test statistic = 54.898, p=0.173) showed that variation in responses to the attitudinal statements occurred due to chance. This was interpreted to mean that attitudinal human resource outcomes influence performance as a unit of system components. The neutral response was found to be associated with the 'reject' response than the 'acceptance' response. **Value** The study offers suggestion on the determination of strategic HR metrics and recommends the use of systems theory in HRM related studies. **Implications** This study provides another dimension to human resource metrics by arguing that strategic human resource metrics should measure the relationship between attitudinal human resource outcomes and performance using a systems perspective.

Keywords: HR metrics; HR strategy; general systems theory; employee attitudes

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1. Introduction

Attitudinal human resource management (HRM) outcomes (such as employee engagement, satisfaction, commitment and engagement) have been found to relate to superior performance as distinct constructs (Boyd & Sutherland, 2005; Greenberg, 2011; Dalal, Buysinger, Brummel & Lebreton, 2012; Kaifeng, Lepak, Jia & Baer, 2012; Chinomona, Dhurup & Chinomona, 2013; Imran, Arif, Cheema & Azeem, 2014). This study aimed to explore the argument that the constructs should be interpreted as a unified system that randomly attracts response. The study also uses the systems view to argue that the neutral response to the performance effect of attitudinal HRM outcomes represent a construct that signifies the influence of other performance factors. This analysis is meant to infer that strategic human resource (HR) metrics should measure the relationships linked with HRM outcome systems. The queen problems of what and how to measure HRM related strategic imperatives represent an HR metrics crisis among practitioners and academics. As such the view in this paper is that strategic HRM metrics should have holistic perspectives that measure the relationships between HRM and organisational outcomes. Thus, the study tackles the two problems through the lenses of the general systems theory to argue that for HR metrics to be strategic, they ought to measure the relationship between attitudinal HRM outcomes and employee performance. While empirical evidence exists in support of the influence of attitudinal HRM outcomes on employee performance (Paaawe & Boselie, 2008), the postulation that such relationships could be used to generate HR metrics of strategic importance has been missing. In addition, the general systems theory has been used widely, almost semantically, with no particular emphasis on how it is applied in HRM research, including strategic HRM research to enhance ideological and methodological rigour.

If HR metrics were to be embedded within the theoretical arguments associated with the resource based view (RBV) theory and also within high performance work systems (HPWS), then their strategic role would become more explicit. A valid proposition would hold that for HRM to offer competitive advantage and contribute to business strategy, it ought to provide measurable value adding deliverables. To this end, HR metrics have become of interest to quantify HRM functions and activities within the HRM value chain. While a range of HR metrics have emerged, critics have observed that these metrics are evaluative rather than predictive and therefore lack a strategic appeal. Modern conceptualisation of HR metrics is credited to the seminal work of Fitz-en (1987) and the United States based Saratoga Institute (Carlson & Kavanagh, 2012, p. 150). However, there is evidence that the need for HR metrics in organisations has been felt since HRM emerged as a profession during the industrial revolution (Fitz-en, 1987, p. 3). Notions of HR measurements in the era of the scientific school of management were championed by Frederick Winslow Taylor in the ‘work and motion’ studies which were conducted in search of the ‘one best’ method of doing work. In giving a brief history of HR metrics and analytics,

Carlson and Kavanagh (2012) noted that most of the HR metrics that are in use today were developed during the industrial expansion period that followed the end of World War II.

Taylor (1911), who is widely regarded as the father of scientific management, laid the foundations for HR metrics and measurements in his early work. According to the National Humanities Center (2005), Taylor argued that there is a need to '…develop a science for each element of a man's work so as to replace the old rule-of-thumb methods.' Later on, Fitz-en (1987, p. 7) in his first publication on HR measurements and metrics noted that:

While their peers in other departments are focusing on income, assets, liabilities, sales, costs and profits, personnel people are talking about feelings and unquantified personnel issues which they do not know how to measure objectively.

At about the same time the renowned management writer, Drucker (1988, p. 92) observed that 'the measurements available for the key areas of a business enterprise are still haphazard. We do not even have adequate concepts, let alone measurements….' More recently, Fitz-en (2010, p. 20) argued that there is a crisis in the HR measurement system whereby most indicators of human capital management are more closely related to processes and practices than to results. Kavukcuoglu (2012), writing for the HR Agenda suggested the use of measures that will produce an action and not measures that create 'messtrics.'

Nienhueser (2011) advances the argument that HRM research has failed to holistically create a true image of HRM because it has focused on performance related variables that are of interest to the employer, thus producing a one-sided view. The essence of a theoretical framework that offers a holistic study of phenomena is, therefore, clearly fundamental to HRM research. Abbott, Goosen and Coetzee's (2013) study on HRM was premised on the proposition that current HRM practice and research does not address certain human development concepts. It is, arguably essential for HRM to have holistic and rigorous theoretical framework that ensures that researchers are not biased or restricted to certain research perspectives. According to Nienhueser (2011, p. 377) HRM research has been biased to 'human resource practices, attributes of the workforce, employee behaviour, organisational behaviour and determinants of human resource practice.' The argument of this paper is that the general systems framework which is also explained in this paper offers a theoretical framework that enhances a more holistic study of the HRM phenomena.

For impact, the questionnaire used in this study was (1) aligned to the four distinct attitudinal constructs (employee commitment, satisfaction, engagement and embeddedness) to find out if the constructs could create identifiable patterns of responses among participants. In addition, the study took a holistic interpretation of the responses from the participants by investigating the effect of the neutral response with an assumption that other factors that influence performance manifest

themselves as trade-offs in response to decisions among participants and this can be understood by analysing the neutral response. This was to advance the view that the neutral response represents a distinct construct in itself; one that creates dynamism within the systems.

1.1 Problem Statement

Even though research has established that HRM outcomes relate to superior performance particularly within the RBV theory and HPWS framework, measuring HR contribution has remained a challenge. Quantification and measurement of the human resource function has not met the expectations of practitioners (Fitz-en, 1987; Yeung and Berman, 1997; Fitz-en, 2010; Boudreau & Lawler, 2014). Specific questions exist on what to measure and how to measure it. Boudreau and Lawler (2014, p.233) reiterated a problem stated in Cascio (2000, p.1) that key strategic business imperatives are missing from what HR is currently focusing on. Without a focus on strategic HR metrics, the measurement challenge in HRM cannot be met and the HRM function will not gain the recognition that equals that of other functions (Grobler, Bothma, Brewster, Carey, Holland & Warnich, 2012, p. 200).

1.2 Problem Conceptualization

As shown in Figure 1, a system such as the HRM subsystem can be decomposed into its partial components (Severance, 2001, p. 1). This partial decomposition results in subsystems which are characterised by cause-effect relationships. In a mathematical interpretation of systems thinking, Severance (2001, p. 1) posits that (1) all the environmental influences on a system can be interpreted as inputs in a vector of *m* real variables and of the form $x(t) =[x_1(t), \ldots x_m(t)]$; and (2) all system effects can be summarised by *n* real variables that vary with time and $z(t) =[z_1 (t), \ldots z_n(t)]$ where z(t) is the output and the components z_1 (t) are the processes. Therefore for suitable functions f and g, $z(t) = [f_2x(t), y (t)] \equiv g[x(t)]$. This interpretation necessitates that attitudinal HRM outcomes exist as functional variables that form a subsystem which can be assumed to associate with superior employee performance.

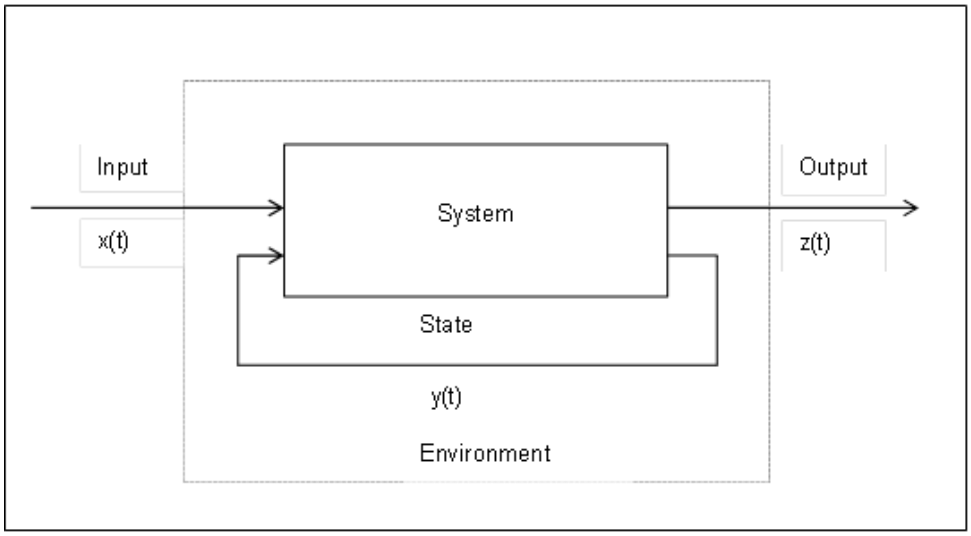

Figure 1. The general systems concept

Source: Severance (2001, p. 1)

1.3 The hypothesis

If attitudinal HRM outcomes influence employee performance as a system, then strategic HR metrics should measure the strength of the inter-relationship between them, their antecedents or determinants and organisational level outcomes. Hence strategic HR metrics should interpret strategic HRM relationships which are outcome oriented and scrutinise the strength of the interrelationships within HRM outcomes and organisational level outcomes. Quantification of the interaction of HRM outcomes and the organisational outcomes such as profitability, stakeholder satisfaction or quality has greater implications for strategy and puts the role of HRM into a focal position. For instance, HRM metrics that measure employee satisfaction and profitability or employee engagement and service quality become predictors of profitability and other variable resources.

Several studies (for e.g. Christian, Garza & Slaughter, 2011; Gruman & Sacks, 2011; Reijseger, Schaufeli & Peeters, 2012) have provided evidence of association between positive attitudinal HRM outcomes and employee performance. These studies have, however not interpreted the systematic relationship within the attitudinal HRM outcomes. One hypothesis to support this is that attitudinal HRM outcomes such as employee commitment, engagement, satisfaction and embeddedness are system functions whose performance effect is due to their holistic integration. If this claim is true then there should be a relationship between attitudinal HRM outcomes and level of agreement on their performance effect. As in other

studies, the causal relationship between attitudinal HRM outcomes and performance is assumed. The hypothesis stated below for this study further postulate that different HRM outcome constructs operate as a system and any variation in effect among them is due to chance. In light of the above, we hypothesise as follows:

H_0: Variation in agreeableness on the performance effect of attitudinal dispositions of HRM outcomes is due to chance.

H_1: Variation in agreeableness on the performance effect of attitudinal dispositions of HRM outcomes is not due to chance.

1.4. Objectives of the Study

The main objective of this study was to determine the relationships that HRM outcomes have among themselves and with performance using the general systems view. Its fundamental position is that HR metrics are of strategic relevance if they can quantify and predict value-adding relationships. The specific postulation is that HRM functions result in outcomes viewed as distinct constructs but with a holistic singular impact on performance.

2. Theoretical Framework

2.1. Background

Wright and McMahan (1992) acknowledge the critique that HRM research lacks a coherent theoretical framework but propose six theoretical models for HRM research, namely behavioural perspectives, cybernetic models, agency/transaction cost theories, resource based view of the firm, power/resource dependence models and institutional theory. Behavioural perspectives are concerned with people behaviours and HRM practices; the resource based view focuses on human capital pool, HRM practices and strategy while cybernetic and agency/transaction cost theory is concerned with relationships between HRM strategy, HRM practices and both human capital pool and behaviours. The most popular HRM theoretical views have been the contingency and the universalistic paradigms (Paauwe, 2009; Truss, Mankin & Kelliher, 2012). This paper took the position that, rather than splitting HRM theory into perspectives and taxonomies, the general systems theory offers a comprehensive and holistic view that is more powerful for researchers than other theoretical models.

2.2. General Systems Theory

Mele, Pels and Polese (2010, p.126) claim that the origins of systems theory can be traced back to the philosopher Aristotle, who advocated the principle of 'holism,' which is widely associated with the quote 'the whole is greater than its parts.' The systems approach was first used in the 1920s in the field of Biology to explain the order and functional relationships of living organisms. Hunter (2012, p.24) also observed that:

The systems approach to management started developing during the 1950s and influenced the development of management techniques such as Total Quality Management (TQM), the learning organisation concept popularised by Peter Senge during the 1990s, Management by Objectives (MBO) and the Balanced Scorecard (a development of the MBO).

The extract above serves to show how powerful systems thinking has been in the development of the most popular and successful management theories of our time. Hunter (2012, p.24) further asserts that the systems approach has been influential in the development of the functions of HRM such as job analysis, performance appraisal and performance management. Following this significant role that systems thinking has had; both in management science and in HRM, this study is based on the argument that systems thinking is a lens through which HRM phenomena can be understood and interpreted. The literature shows that the seminal work on general systems theory was first presented in the 1930s by a biologist named Ludwig von Bertalanffy at the University of Chicago. A definition of a system by Von Bertalanffy, cited by Mele *et al.* (2010), is that: a system is a complex of interacting elements. Earlier, Laszlo and Krippner (1998) had postulated that a system may be described as a complex of interacting components together with the relationships among them that permit the identification of a boundary-maintaining entity or process. One broad classification of systems is that of 'open' and 'closed' systems (Von Bertalanffy, 2008). In the simplest interpretation, closed systems are merely the opposite of open systems. For purposes of this study, the current focus will be on open systems because business organisations are generally described as open systems in the literature.

Open systems theory refers simply to the concept that organizations are strongly influenced by their environment (Bastedo, 2006). The main elements of a system are the inputs, processes, outputs, feedback and subsystems. Fleetwood and Hesketh (2007, p. 132) refer to Jackson and Schuler (1995) who state that "in general systems theory, skills and abilities are inputs from the external environment, employee behaviour is the cellular mechanism and organisational performance is the output." According to Hunter (2012, p. 24), "it is helpful to view organisations and the people that work in them as systems as this approach provides a framework for managing people and the understanding of the relevant concepts." Therefore, organisations

acquire resources (as inputs) and process them (through business processes) and produce goods and services as outputs**.**

2.3. Conceptual Framework

If attitudinal HRM outcomes operate as a system to influence employee performance, then they should satisfy i.e. Q = (Y_1, Y_2, Y_3…, Y_n), where Q is the set of HRM outcomes and Y_n are the attitudinal components of HRM. Figure 2 below depicts the conceptual diagram, linked to Figure 1 and showing the relevant subsystems for analysis in this exposition.

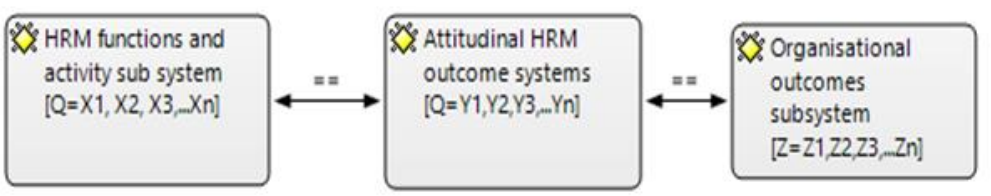

Figure 2. Conceptual framework

Source: Authors' conceptual mapping

While there are many intangible HRM outcomes, some scholars have singled out the major ones. This study has followed the same approach. The decision to select the few major ones is also justified when considering studies about HPWS from the literature review and also about strategic HRM. Several studies on HPWS and HRM strategies emphasise 'high commitment' HRM strategies that empower employees to perform exceptionally. According to Robbins *et al*. (2009, p.74), most research in organisational behaviour has considered three attributes, namely job satisfaction, job involvement and organisational commitment. Llobet and Fito (2013) also made an almost similar claim by identifying organisational commitment and job satisfaction as major job related HRM outcomes or organisational behaviours.

3. Methodology

Informed by the general systems theory, this study aimed to advance the argument that strategic HR metrics should quantify the relationship between outputs and attitudinal HRM system outcomes. The general systems theoretical framework facilitated the identification of the constructs namely HRM outcomes and employee performance. As argued earlier, the HRM system outcomes consist of attitudinal concepts, namely employee commitment, engagement, satisfaction and embeddedness while employee performance output consists of various concepts such as quality, profitability, growth or client satisfaction. The ontological position of the study is that the relationship between the concepts linked to employee performance construct and attitudinal HRM constructs can be formalised and therefore can be analysed deductively. Embedded within this is the positivistic paradigm of systems which is the epistemological basis of this study. The general systems theory proposes that: $z(t) = [f_2x(t), y(t)] \equiv g[x(t)]$. Where $z(t)$ is the output construct and $g[x(t)]$ is identical to the combination of the input and process construct. This implies that attitudinal HRM outcomes as predictors of performance should correlate significantly with each other if they form a system of concepts. Previous studies have missed this analysis of assessing the inter-correlation of the concepts within the HRM subsystems. As hypothetically stated, strategic HRM metrics should measure the relationship between HRM outcome system components and employees' performance output construct. The methodological implication of the lattice nature of attitudinal HRM outcome systems was to employ a deductive formal analysis of relationships within the system components and the outcomes.

3.1. Data Collection

Open systems are subject to environmental influences, implying that every sector/industry should perform its own analysis of the strength of the relationship between HRM outcomes and performance. Chosen for analysis were hotels and restaurants within the service oriented hospitality sector in Cape Town central city. The choice was based on the likely importance of affects and attitudes in oganisational performance. Cape Town central city lies between Table Mountain and the Atlantic Ocean. With respect to size, it is 1.6km^2, has 57 of which 8 of them are 8-star hotels (Cape Town Central City Report, 2012). The exact number of restaurants could not be ascertained; however, The Cape Town Central City Report (2012) indicates that the city has more than 1 200 retailers, 200 of them are restaurants, coffee shops and take-away outlets. The sampling frame was taken to be the 3-star and 4-star hotels in the city following the South Africa hotel market sentiment survey (2010), which stated that the 3-star and the 4-star hotels provided the majority of respondents, and that the average person would choose a 3-star or 4-star hotel. Also a Labour Research Service (2012) survey showed that more beds

were in the 3-star and 4-star hotels, implying that most of the clients in the hotel sub sector are accommodated in 3-star and 4-star hotels. Therefore, employees who work in 3-star and 4-star hotels face more clients daily, resulting in a need for high performance, since profits are realised by serving many clients, as compared to higher star hotels where service is likely to be based on higher prices for quality service to a few clients. A total of 24 *3-star* and *4-star* hotels operate within the delineated area (Cape Town International Convention Centre, 2013). The six major fast food restaurants in the city were also considered, based on a list provided in the Euromonitor Consumer Food Service in South Africa (2005). The researchers attempted the N=1 sampling technique, e-mailing letters of request for consent to conduct the study within the organisations. Only ten (42%) of the 24 hotels responded positively to the request. Of the 14 that did not accept the offer, five (21%) did not respond, while nine (38%) cited business pressure and could not accommodate the researchers. On the restaurant side, five (83%) of the six fast food restaurants to which the request letter was sent responded positively. Therefore, 10 hotels and five restaurants participated in the study. Stoker in De Vos et al. (2005, p.196) suggest guidelines for sample size, which show that for populations less than 30, all the units should be selected. This study, however, could not follow the same guideline owing to the convenience sampling technique that had to be adopted for ethical purposes. This may be viewed as a limitation for the study even though the samples were above 30% of the population, noting that samples that are at least 30% are considered large for statistical purposes.

A questionnaire was self-administered to waiters, till operators, office employees and supervisors, while in hotels the participants were front office employees, receptionists and office employees. Permission was first sought and dates and times were allocated for the researchers to administer the questionnaire. Through interaction with the organisations prior to administering the questionnaire, the managers of the organisations indicated that, generally, at most fifteen employees may be available, but less than ten will be able to complete the questionnaire owing to business imperatives. The researchers then expected eight employees per organisation, thereby issuing 120 questionnaires, of which 75 of them were returned. However, only 71 of them were considered useful after they were screened for usability (i.e. removing those that severely omitted responses and those with unclear responses).

3.2. Measurement of Variables

The independent variables for the study were the attitudinal HRM outcomes. Employee commitment was measured using the affective commitment component of Meyer and Allen's (1991) three component model of commitment. Meyer, Stanley, Herscovitch and Topolnytsky (2002) found that affective commitment has the strongest correlation with performance. Items for job satisfaction were developed from the short form of the Minnesota Satisfaction Scale. The actual scales were an adaptation of the Minnesota scales based on Macdonald and Maclntyre (1997). Based on this work, nine items were utilised to constitute the satisfaction section of the questionnaire. Items for work engagement were developed from the Ultrecht Work Engagement Scale (UWES). The UWES has three sections for the measurement of work engagement namely vigour, dedication and absorption. Items from the 'dedication' element were included in the questionnaire because they resemble the concepts of this study more closely than the other items. Items for embeddedness were those involving 'fit to the organisation' (Lee, Mitchell, Sablynski, Burton & Holton, 2004). Seven items were included in the questionnaire. The research instrument was developed from generally accepted instruments. Items were also selected based on the opinion of other researchers. SPSS was used to analyse data while frequencies were checked to determine if they cluster around certain responses or they are dispersed. The questionnaire was found to be reliable since it was clear from the frequencies that the responses clustered with high frequencies notable for some responses and low frequencies for certain responses. Few outliers were observable, which demonstrated some form of internal consistency of the questionnaire.

The questionnaire had four sections: Section A for biographical information, Section B (organisational commitment), Section C (employee satisfaction), Section D (employee engagement) and Section E (employee embeddedness). The questionnaire was first pre-tested with 20 employees from one hotel and one restaurant from organisations other than the 15 from which the study was actually taken. Their responses were analysed by a statistician and a panel discussion involving the authors, the statistician and two other senior researchers resulted in the modification of the measurement instrument to remove some items, which did not correlate well with the objectives of the study. After two weeks, the new questionnaire was re-administered twice to the same group of 20 employees, allowing a three week period between the two last administrations. Based on the test-retest procedure, the questionnaire was found to be reliable with four items for organisational commitment, nine for employee satisfaction, four for employee engagement and seven items for employee embeddedness.

4. Analysis and Discussion

The respondents were organised into three groups namely those who accepted the propositional statements (strongly agree and agree responses), those who rejected them (strongly disagree and disagree responses) and those who were neutral. Chi-square test of association among the groups was used to test if variation in agreeableness was due to chance or there was an association between the three responses and the attitudinal statements. The hypothesis postulated that variation in agreeableness on the performance effect of attitudinal dispositions of HRM outcomes is due to chance. A holistic interpretation of HR metrics was taken to consider the relationship between input, subsystems, process and output. While several HRM outcome or attitudinal studies have established the relationship between attitudinal HRM outcomes and outputs, they have neglected the neutral response within the system. A holistic interpretation ought to consider all response levels within the system. It can also be argued that the neutral response represents indifference and should be considered an attitude of its own type because it can play a key role in upsetting the relationship between the attitudinal HRM outcomes and employee performance. If the strategic goal of measuring and predicting the strength of the relationship between attitudinal HRM outcomes and employee performance is to be achieved, then indifference should be seen as an attitudinal disposition in itself that can significantly impact on the relationship. The hypothesis formulated amounted to a claim that the tendency to accept or reject the statements on the Likert scale was independent of the statements. In other ones, rejection or acceptance was random. To test this claim, the attitudinal statements were analysed as a whole ignoring the categories. If the null hypothesis is true, then employees' agreeableness responses should be independent of attitudinal dispositions.

4.1. Chance and the Association between Response and Attitudinal Items

The frequencies of the responses were combined into three categories namely *Accept*, *Reject* and *Neutral*. The frequency table below shows the distribution of frequencies. The four attitudes from which they were derived were ignored and they were analysed to establish if employee responses showed any associations or the responses were those that can be expected due to chance. A Chi-square test of independence was then performed to establish if the variance in agreeableness (tendency to accept, reject or to be neutral) was independent of the attitudinal statements.

Table 1. Count and Frequency Table for responses to attitudinal statements

			Response			
			Accept	Neutral	Reject	Total
Attitudinal	1	Count	53	11	7	71
		% within Attitudinal	74.6%	15.5%	9.9%	100.0%
	2	Count	56	11	4	71
		% within Attitudinal	78.9%	15.5%	5.6%	100.0%
	3	Count	51	15	5	71
		% within Attitudinal	71.8%	21.1%	7.0%	100.0%
	4	Count	51	15	5	71
		% within Attitudinal	71.8%	21.1%	7.0%	100.0%
	5	Count	55	10	6	71
		% within Attitudinal	77.5%	14.1%	8.5%	100.0%
	6	Count	45	15	11	71
		% within Attitudinal	63.4%	21.1%	15.5%	100.0%
	7	Count	50	13	8	71
		% within Attitudinal	70.4%	18.3%	11.3%	100.0%
	8	Count	51	10	10	71
		% within Attitudinal	71.8%	14.1%	14.1%	100.0%
	9	Count	53	14	4	71
		% within Attitudinal	74.6%	19.7%	5.6%	100.0%
	10	Count	57	7	7	71
		% within Attitudinal	80.3%	9.9%	9.9%	100.0%
	11	Count	56	8	7	71
		% within Attitudinal	78.9%	11.3%	9.9%	100.0%
	12	Count	59	10	2	71
		% within Attitudinal	83.1%	14.1%	2.8%	100.0%
	13	Count	59	10	2	71
		% within Attitudinal	83.1%	14.1%	2.8%	100.0%
	14	Count	53	9	9	71
		% within Attitudinal	74.6%	12.7%	12.7%	100.0%
	15	Count	57	9	5	71
		% within Attitudinal	80.3%	12.7%	7.0%	100.0%
	16	Count	57	11	3	71
		% within Attitudinal	80.3%	15.5%	4.2%	100.0%
	17	Count	55	11	5	71
		% within Attitudinal	77.5%	15.5%	7.0%	100.0%
	18	Count	53	9	9	71
		% within Attitudinal	74.6%	12.7%	12.7%	100.0%
	19	Count	46	13	12	71
		% within Attitudinal	64.8%	18.3%	16.9%	100.0%
	20	Count	60	8	3	71

		% within Attitudinal	84.5%	11.3%	4.2%	100.0%
	21	Count	52	13	6	71
		% within Attitudinal	73.2%	18.3%	8.5%	100.0%
	22	Count	53	16	2	71
		% within Attitudinal	74.6%	22.5%	2.8%	100.0%
	23	Count	51	9	11	71
		% within Attitudinal	71.8%	12.7%	15.5%	100.0%
	24	Count	58	6	7	71
		% within Attitudinal	81.7%	8.5%	9.9%	100.0%
Total		Count	1291	263	150	1704
		% within Attitudinal	75.8%	15.4%	8.8%	100.0%

The Chi-square test for the independence of response categories from the twenty attitudinal statements was 54.898 (p=0.173). See Table 2 below.

Table 2. Chi-square tests for acceptance, rejection and neutral responses

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-square	54.898[a]	46	.173
Likelihood ratio	56.121	46	.146
N of valid cases	1704		

a. 0 cells (0%) have expected count less than 5. The minimum expected count is 6.25.

Therefore, there is enough evidence that the difference between the expected and the observed frequencies is due to chance. Acceptance, rejection and neutrality occurred independently from the statements. This shows that even though the attitudinal statements measured different constructs, this was not evident in the responses. Differences that occurred in the responses with respect to the statements were simply random with no pattern. The implication is that employee commitment, satisfaction, engagement and embeddedness influence employee performance as a system. A strategic HR metric will therefore measure the holistic influence of the attitudinal HRM outcomes on employee performance rather than focusing on attitudinal outcomes.

4.2. The Neutral Response

The study held the belief that employee performance can also be attributable to other factors which cannot fall within the attitudinal analysis. As postulated earlier, the neutral category of response can be taken to arise due to psychological trade-off created when an employee makes a decision whether to agree or reject the statements in the question. It is assumed that a decision to select the neutral element could imply the strength of other factors within the system. This was investigated by determining the changes that can occur to the Chi-square statistic when calculated using, firstly, frequencies for acceptance and rejection, secondly, frequencies for rejection and neutrality and thirdly, acceptance and rejection. The Chi-square tests outputs from SPSS are shown below.

Table 3. Chi-square test for acceptance and reject responses

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-square	36.653[a]	23	.035
Likelihood ratio	37.410	23	.029
N of valid cases	1441		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.73.

Table 4. Chi-square test for reject and the neutral response

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-square	28.487[a]	23	.198
Likelihood ratio	29.904	23	.152
N of valid cases	413		

a. 4 cells (8.3%) have expected count less than 5. The minimum expected count is 4.00.

Table 5. Chi-square test for accept and the neutral response

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-square	19.101[a]	23	.695
Likelihood ratio	19.120	23	.694
N of valid cases	1554		

a. 0 cells (0%) have expected count less than 5. The minimum expected count is 9.99.

In all cases, the responses were independent of the attitudinal statements (Chi-square statistic = 36.653, p=0.035 for the acceptance and rejection responses; Chi-square =28.487, p=0.198 for the reject and neutral responses while Chi-square = 19.101, p=0.65 for the 'accept' and 'neutral' responses). When considering both the Chi-

square statistic and the *p* values for these categories of responses as shown in the tables above the effect of neutral response seems to be that of weakening the evidence to support the null hypothesis. It can also be seen that the 'neutral' response had the greatest impact on the 'accept' category of response. This seems to support the propositions made earlier that the neutral response is more inclined to other factors that make the attitudinal factors of the system weak. It appears that the neutral response is suggestive of stronger factors that influence employee performance other than the attitudinal HRM outcomes.

5. Conclusion

The study applied the general systems theory to analyse how responses to attitudinal HRM outcomes related to the construct defining the statements. The specific focus was to establish if construct differences set in the questionnaire development stage would manifest in response patterns. The ultimate aim was to elucidate how attitudinal HRM components are perceived to influence performance, as a single construct or as a unit. Construct differences in the questionnaire items were not reflected on the responses. The perceived implication was that responses were independent of the attitudinal statement (Chi-square statistic = 54.898, p=0.173) which meant that participant's responses were nearer to those that can be expected due to chance. This suggested that the attitudinal statements were in a system which cut across construct differences and can be regarded to form a unit. It is, therefore, suggested that strategic HR metrics should measure the relationships that the HRM outcomes have among themselves and with organisational outcomes. Another focal point for the study was the meaning of neutral responses to the attitudinal statements. The assumption was that the neutral responses represented another construct and this construct signifies the strength of non-attitudinal HRM outcomes in affecting employee performance. An analysis of the association that the neutral response had with accept and reject responses shows that neutrality was more inclined to rejection and it represented a trade-off between the desire to accept and some other psychological stimuli in favour of other variables. The paper therefore asserts the essence of the general systems theory in (1) problem conceptualisation; (2) research philosophy; (3) design and methodology; and (4) analysis of results with specific reference to the study of HR metrics.

6. Recommendation

Considering the debate surrounding HR metrics as well as the findings of this study, the researchers are inclined to recommend that the general systems theory be used as a lens to analyse relationships whose variables could be used to generate HR metrics. Within the framework, the variables informing relationships should be analysed holistically in order to identify all the cause effect patterns within the system. The study has confirmed that attitudinal HRM outcomes form a unit rather than a separate construct when considering their effect on performance. Therefore, their combined effect in relation to employee performance is a critical measurement of the contribution of HRM to organisational success.

7. Future Research

Future research can focus on the inclusion of the technological element in the calculation of HR metrics and other measures. The link between the technological context of business and HR metrics is discussed extensively in Dulebohn and Johnson's (2013) paper, which analyses the interplay between HR metrics, decision support systems (DSS), HR information systems (HRIS) and business intelligence (BI). According to Dulebohn and Johnson (2013, p.71), technological advancements have modernised HR work through the use of electronic HRM (e-HRM) and HRIS, which are being used in conjunction with DSS and BI. The use of computers and specialised software or technology has the potential to leverage the collection and analysis of HR data and metrics. In addition this study has set a foundation for further studies on the actual metric generation algorithms that can emerge from strategic relationships. Evidence to support the essence of attitudinal HRM outcomes in influencing performance within a systems interpretation has been found. It is, therefore, recommended that future research should also hinge on the systems framework.

8. References

Abbott, P., Goosen, X., & Coetzee, J. (2013). The human resource function contribution to human development in South Africa. *SA Journal of Human Resource Management*, 11(1): 408-424.

Bastedo, M. N. (2006). Open systems theory. *The SAGE encyclopaedia of educational leadership and administration.* SAGE Publications.

Becker, B. E., Huselid, M.A. & Ulrich, D. (2001). *The HR Scorecard: linking people, strategy, and performance.* Boston: Harvard Business press.

Boudreau, J. & Lawler III, E.E.(2014). Stubborn traditionalism in HRM: causes and consequences. *Human Resource Management Review*, 24:232-244.

Boyd, G. & Sutherland, M. (2005). Obtaining employee commitment to living the brand of the organisation. *South African Journal of Business Management, 37(1):* 9-20.

Cape Town Central City Report. (2012). New Media. http://www.capetowncid.co.za/docs/4697/Stateofthecentralcity.pdf [24 August 2015].

Cape Town International Convention Centre. (2013). Hotel Guide. http://www.interact2013.org/Interact2013/media/Store/documents/Hotels-and-Maps-2011-%2816-March%29.pdf [24 February 2015].

Carlson, K.D. & Kavanach, M.J. (2012). Human resource metrics and workforce analytics. In Kavanagh, M.J., Thite, M. & Johnson, R. D. (eds). (2012). *Human resource information systems: basics, applications and future directions. 2nd ed.* Los Angeles: Sage: 150 – 174. http://www.sagepub.com/upm-data/41672_6.pdf [2 October 2015].

Cascio, W.F. (2000). *Costing human resources: the financial impact of behaviour in organisations. 4th ed.* Johannesburg: South-Western College Publishing, Thomson.

Chinomona, R., Dhurup, M., & Chinomona, E.(2013). Does employee perceptions of fit to job, fit to organization and fit to community influence job performance? The case of Zimbabwe's manufacturing sector. *SA Journal of Human Resource Management/SA Tydskrif vir Menslikehulpbronbestuur,* 11(1):475-485.

Christian, M. S., Garza, A. S., & Slaughter, J. E. (2011). Work engagement: a quantitative review and test of its relations with task and contextual performance. *Personnel Psychology,* 64(1), 89-136.

Consumer Food Service in South Africa. (2005). Euromonitor International. http://www.restaurant.org.za/pdf/consumer_ foodservice_in_south_africa.pdf [23 February 2015].

Dalal, R.S., Baysinger, M., Brummel, B.J. & LeBreton, J.M. (2012). The relative importance of employee engagement, other job attitudes, and trait affect as predictors of job performance. *Journal of Applied Social Psychology,* 42 (1): 295–325.

De Vos, A.S. (2005). Scientific theory and professional research. In de Vos, A.S., Fouche, C.B. & Delport, C.S.L. 2005. *Research at grassroots: for the social sciences and human service professions. 3rd ed.* Pretoria: Van Schaik.

Drucker, P. F. (1988). *Management: tasks, responsibilities, practices*. London: Heinemann Professional Publishing.

Dulebohn, J.H. & Johnson, R.D. (2013). Human resource metrics and decision support: a classification framework. *Human Resource Management Review,* 23: 71-83.

Fitz-en, J. (1987). *How to measure human resources management.* International ed. Singapore: Mcgraw-Hill Book.

Fitz-en, J. (2010). *The new HR analytics: predicting the economic value of your company's human capital investments:* New York: AMACOM.

Fleetwood, S. & Hesketh, A. (2007). Theorising under-theorisation in research on the HRM-performance link. *Personnel Review,* 37 (2*)*: 126-144.

Greenberg, J. (2011). *Behavior in organizations. 10th d, Global edition*. Harlow: Pearson.

Grobler, P., Bothma, R., Brewster, C., Carey, L., Holland, P. & Warnich, S. (2012). *Contemporary issues in human resource management*. Cape Town: Oxford University Press Southern Africa.

Gruman, J. A., & Saks, A. M. (2011). Performance management and employee engagement. *Human Resource Management Review,* 21(2): 123-136.

Hunter, C. (2012). *Managing people in South Africa: human resource management as a competitive advantage. 2nd ed*. Durban: Sherwood Books.

Imran, H., Arif, I., Cheema, S. & Azeem, M. (2014). Relationship between job satisfaction, job performance, attitude towards work, and organizational commitment. *Entrepreneurship and Innovation Management Journal*, 2(2): 135-144.

Jackson, S. & Schuler, R. (1995). Understanding human resource management in the context of organizations and their environments. *Annual Review of Psychology*, 46:237-64.

Jackson, S.L. (2009). *Research methods and statistics: A critical thinking approach*. Wadsworth: Cengage Learning.

Kaifeng, J., Lepak, D., Jia, J. & Baer, J. (2012). How does human resource management influence organizational outcomes? A meta-analytic investigation of mediating mechanisms. *Academy Of Management Journal*, 55(6): 1264-1294.

Kavukcuoglu, E. (2012). *From strategy to value creation: measurement in HR. HR Agenda*. http://www.hragenda.net/hr-metrics.html [1 September 2015].

Labour Research Service. (2012). Organising in the hospitality sector in SA: a report on the context, challenges and strategies of organising hotel workers in SA. http://www.lrs.org.za/docs/2012%20Hospitality%20South%20Africa%202012.pdf [13 July 2015].

Laszlo, A., & Krippner, S. (1998). Systems theories: their origins, foundations, and development. *Advances in Psychology*, 126: 47-76.

Lee, T.W., Mitchell, T.R., Sablynski, C.J., Burton, J.P. & Holtom, B.C. (2004). The effects of job embeddedness on organizational citizenship, job performance, volitional absences, and voluntary Turnover. *Academy of Management*, 47(5): 711-722.

Macdonald, S. and Maclntyre, P., 1997. The generic job satisfaction scale: Scale development and its correlates. Employee Assistance Quarterly, 13(2):1-16.

Mele, C. Pels,J. & Polese, F. (2010). A brief review of systems theories and their managerial applications. *Service Science*, 2(1-2):126-135.

Meyer, J.P. & Allen, N.J. (1991). A three-component conceptualization of organizational Commitment. *Human Resource Management Review*, 1(1): 61-89.

Meyer, J.P., Stanley, D.J., Herscovitch, L. & Topolnytsky, L. (2002). Affective, continuance, and normative commitment to the organization: a meta-analysis of antecedents, correlates and consequences. *Journal of Vocational Behavior*, 61:20–52.

Mitchell, T. R., & Lee, T. W. (2001). The unfolding model of voluntary turnover and job embeddedness: foundations for a comprehensive theory of attachment. *Research in Organizational Behavior*, 23:189-246.

National Humanities Center. (2005). Frederick Winslow Taylor: The Principles of Scientific management. http://nationalhumanitiescenter.org/pds/gilded/progress/text3/taylor.pdf.[5 October 2015

Nienhueser, W. (2011). Empirical research on human resource management as a production of ideology. *Management Review*, 22(4): 367-393.

Paauwe, J. (2009). HRM and performance: achievements, methodological issues and prospects. *Journal of Management Studies*, 46 (1): 129-142, January.

Paauwe, J., & Boselie, P. (2005). HRM and performance: what next? *Human Resource Management Journal*, 15(4): 68-83.

Reijseger, G., Schaufeli, W. B., & Peeters, M. C. (2012). READY, SET, GO! A Model of the Relation between Work Engagement and Job Performance. http://www.wilmarschaufeli.nl/publications/Schaufeli/392.pdf [9 October 2015]

Robbins, S.P., Judge, T.A., Odendaal, A. & Roodt, G. (2009). *Organisational behaviour: global and southern African perspectives.* Cape Town: Pearson Education SA.

Severance, F.L. (2001). *Systems modelling and simulation: An introduction*. Chichester: John Wiley and Sons.

South Africa hotel market sentiment survey. (2010). Horwath HTL. http://www.horwathhtl.co.za/Publications_files/market/South%20African%20Sentiment%20Report%200210.pdf [23/02/2015].

Taylor, F.W. (1911). *The principles of scientific management*. New York: The Norton Library.

Von Bertanlanff, L. (2009). An outline of General Systems Theory. *ECO*, *10(3)*: 103-123. http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=11&sid=b8122a4b-1970-4983-a1a4-6e3c5a9dbe14%40sessionmgr111&hid=105 [10 May 2015].

Wright, P. M., & McMahan, G. C. (1992). Theoretical perspectives for strategic human resource management. *Journal of Management*, 18(2): 295-320.

Yeung, A.K. & Berman, B. (1997). Adding value through human resources: reorienting human resource measurement to drive business performance. *Human Resource Management*, 36(3):321-335, Fall.