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Job Satisfaction and Job Performance: The Case of Research Productivity

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ABSTRACT In order to meet social needs, and address societal challenges, the University is dependent upon the research productivity of its staff. Satisfaction contributes to the retention of, as well as the job performance of, academic staff. However, knowledge of the relationships between job satisfaction and research productivity is absent from the literature in the South African context. An exploratory cross sectional quantitative research design is applied to a sample of 225 respondents of academics from a large regional South African university. Correlation, partial correlation, and multiple linear regression analysis are used to test seminal theory that predicts relationships between job satisfaction and research productivity as a dimension of job performance. Findings indicate that academics that produce more internationally accredited journals are relatively more job-dissatisfied. Junior academics, particularly those without doctoral degrees, are found to be more job-satisfied. It is argued that remuneration and retention systems need to address this discrepancy. Self-efficacy and an internal locus of control were found to be predictors of job satisfaction in this context. Recommendations are made on the basis of the findings.

I. INTRODUCTION

The South African educational institution, nested as it is within an increasingly globalised and increasingly competitive milieu, has educational and developmental obligations to societal stakeholders (Beckmann and Prinsloo 2009). However, at the heart of the ability of such organisations to deliver on these societal obligations is the performance of such institutions; their performance is underpinned by the individual performance of its human resources. Within such a globally competitive environment, these universities are not isolated from increasingly globalised competition for highly skilled human resources (HSRC 2012). South Africa, as a country, is experiencing a 'brain drain' of a significant magnitude (HSRC 2012). Such a loss of staff, particularly highly skilled research staff, is associated not only with costs to organisations but also with costs to society itself (HSRC 2012).

Job satisfaction has been found to be positively associated with organisational performance (Edmans 2012; Maharani et al. 2013). Job satisfaction or, alternatively, job dissatisfaction, has also been found to be an important predictor of employee turnover, or the exit of skilled human resources from organisations (Mobley 1977; Aydogdu and Asikgil 2011; Delobelle et al. 2011; Liu et al. 2012). A substantial volume of literature, including work by certain seminal theorists, predicts a significant and positive association between job satisfaction and individual job performance (see, for example, Herzberg 1966; Scott 1966; Hackman and Oldham 1976; Organ 1988; Chen et al. 2011; Maharani et al. 2013). This relationship has also been found to be supported by meta-analysis findings (Judge et al. 2001). Dissatisfaction can therefore result in forms of withdrawal such as absenteeism (Anderson and Geldenhuys 2011) or the exodus of skilled personnel (Aydogdu and Asikgil 2011).

Despite much research that relates to the relationships between job satisfaction and work performance globally and in the South African context, absent from the literature is evidence of the relationships between individual job satisfaction and research productivity, a dimension of work performance in the Southern African University context. It is argued that without such knowledge universities run the risk of losing staff, most particularly the staff that is most able to leave and work for other institutions, either in South Africa or abroad.

Using an exploratory research design, this research attempts to address this deficiency in knowledge, by investigating the relationships between job satisfaction and job performance,

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measured as research productivity, in the South African higher education context of a large regional research university, the University of the Witwatersrand. Research productivity is measured as (i) Thomson Institute for Scientific Information (ISI) and Proquest IBSS (International Bibliography of the Social Sciences) listed (accredited) journal article publications; (ii) South African Department of Higher Education accredited journal publications (a specific list of publications excluding ISI and IBSS accredited journals); (iii) conference presentations, (iv) the publication of conference proceedings, (v) the publication of books, and (vi) the publication of book chapters. A further measure of research output is also tested; gross research productivity. This measure included both forms of journal article publication together with conference papers presented and book chapter publications. It was a measure of quantity of output rather than quality of output. Relationships between job satisfaction and different types of work experience and other biographical and contextual factors are also interrogated. This research attempted to delve deeper into the literature; to identify seminal theory to test in the contemporary context of higher education employment. It is argued that by testing seminal theory a deeper understanding of the phenomena under study is enabled. The research problem is now introduced.

Problem Investigated

The specific tasks associated with research productivity, as a dimension of job performance, it is argued, belong to a set of work activities which differentiate academic work as a specific 'type' of work. As such, the extent to which human resources or management theory generalises from other contexts into this specific professional cohort is not clear; empirical evidence to support management practices based upon such theory and practice in this specific context seems absent from the literature. It is argued that theory that is developed and tested in other contexts, cannot be assumed to be able to inform human resources and management practices for people in such institutions without research that validates these practices in this context. Further, it is also argued that different 'levels' of skills and knowledge of academic knowledge workers differentiate the experience of work in such an 'academic industry'. For example, individuals that are more internationally research productive are perhaps part of, and more exposed to, a more globalised network, or cohort, of research practitioners. It is argued that this tension, between exposure to the global, and the influence of the global, and the influence of the local, is reflected in this context in relatively lower levels of job satisfaction of academics that publish more extensively in international journals. It is further argued that knowledge of the dissatisfactions of this specific cohort of professionals is increasingly important in a context where such skilled workers are scarce. A lack of knowledge of such dissatisfactions may lead to attrition, and the loss of skilled personnel. More skilled personnel may have higher levels of international exposure and opportunities for employment elsewhere. Such a loss of human resources in the form of institutional capital may entail further societal costs; the retention of such people is needed to facilitate skills transfer to new generations as well as to provide research outputs that can solve societal problems. It is therefore argued that any factor that constrains the retention of such important sources of institutional capital will be associated with a cost; to the individual, to the institution, to the stakeholders that are serviced by such institutions; and to the broader society itself. The problem addressed in this research, therefore, is the lack of literature that relates to generalised job satisfaction, or job dissatisfaction in this specific population of knowledge workers and its relationships with research productivity. More specifically, this research attempts to address the lack of knowledge around (i) job satisfaction and research productivity, a dimension of job performance in this context; that is specific to this cohort of professional workers; (ii) job satisfaction and the influence of different past work experience, including work experience in other, non-research, contexts; and (iii) job satisfaction and the influence of biographical and contextual factors, derived from the literature, such as financial incentives for research; levels of self-efficacy, affectivity, locus of control; and seniority. This research seeks to contribute to the literature that relates to job satisfaction and research productivity.

Research Objective

The objective of this research is to test theory, and more specifically, seminal human resources theory, that relates job satisfaction to job performance, and also to experience and oth-

er intrinsic and extrinsic aspects of academic work. The subordinate objective of this work, as already indicated above, is to empirically investigate the 'associative structure' of job satisfaction, or job dissatisfaction, in this context, and derive recommendations and implications for theory and for practice that can help such institutions to improve the job satisfaction of their staff, which might result in reduced losses of institutional capital and a lessening in the broader costs to stakeholders and society that are related to such losses. Derived from this research objective are the following research questions, around which this research is structured:

- What is the relationship between job satisfaction and job performance, measured as research productivity?
- What is the relationship between job satisfaction and different forms of work experience?
- What is the optimum typology between job satisfaction and individual biographical and contextual factors?

An exploratory descriptive research design appropriate for the answering of these research questions is applied in this research. The paper proceeds as follows. First, literature is reviewed, and theory and previous research findings that are relevant to the investigation are discussed. Then, hypotheses are derived and the methodology of the research is introduced and discussed. After this, the results of the testing of the hypotheses are reported and discussed. The paper concludes with a discussion of the recommendations for further research and for practice. The literature is now reviewed.

Literature Review

Although there is much literature that supports the positive relationship between job satisfaction and job performance (Chen et al. 2011; Maharani et al. 2013), the global literature that relates to the link between job satisfaction and job performance has typically developed from the basis of work by certain seminal theorists. This study provides a test of seminal theory. Job satisfaction has been defined as the "pleasurable emotional state resulting from the appraisal of one's job as achieving or facilitating one's job values" (Locke 1969:317). Job satisfaction and job performance have historically been the two most significant foci of industrial/organisational psychology research (Judge and Bono 2001). Satisfaction is expected to contribute to performance because dissatisfaction can cause a withdrawal of intrinsic investment in tasks (Organ 1988). For Organ (1988:4), Organisational Citizenship Behaviour (OCB) is "individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system". This definition locates OCB at the individual level. However, Organ (1997:91) also offers a further definition of OCB as a group-level construct, as "contributions to the maintenance and enhancement of the social and psychological context that supports task performance (or the technical/technological/production system)". Satisfaction is, therefore, premised to underpin OCB, which is, in turn, expected to contribute to work performance, both at the individual level (Organ 1988), and at the group level (Organ 1997). The extent to which this mechanism of transmission (from job satisfaction to job performance) posited by Organ (1988, 1997) does operate in organisational contexts is not, however, independent of other influences. Higher levels of job satisfaction has been found to be associated with higher levels of organisational citizenship behaviour (Lu et al. 2013; Samanvitha and Jawahar 2013). OCB theory offers perhaps one dimension of a multi-dimensional relationship between job satisfaction and job performance. Other theory has supported the notion that different types of work are, of themselves, more likely to be related to higher levels of satisfaction and motivation. For example, Herzberg's (1966) two factor theory stresses the relative importance of intrinsic aspects of a job versus the more extrinsic aspects. Hackman and Oldham (1976) also stress the psychological, or intrinsic, aspects of work that are posited to result in higher levels of satisfaction and motivation. Meta-analysis findings offer a perspective of the 'net' relationship between job satisfaction and job performance. Meta-analysis findings based upon 312 samples and 54417 respondents have found a mean true correlation between job satisfaction and job performance of .30 (Judge et al. 2001). As indicated, in this context, however, it is expected that generalised job satisfaction is the net manifestation of a host of satisfaction loci. To the extent that OCB theory is prioritised in the performance literature, and also explains the relatively high levels of performance of certain individuals in the absence of

commensurate remunerative systems (Organ 1988, 1997), Hypothesis 1 is offered, that generalised job satisfaction is significantly associated with research productivity. The satisfaction of an individual with a particular job is also influenced by person-job fit, and also person-organisation fit (Erdogan and Bauer 2005). The fit of an individual with certain tasks, and, consequently, affectivity, is dependent upon a match between the stimulation level of such a task and the unique level of tolerance an individual has for such a stimulation level, according to Activation theory (Scott 1966). This theory suggests that the performance of different tasks might be relatively more or less satisfying for different individuals. According to Activation theory, a mismatch between the stimulus level of certain tasks and the specific level of activation of an individual will result in dissatisfaction with such an activity (Scott 1966). Individuals will also be expected to leave such work if such a mismatch were to exist, due to dissatisfaction (Scott 1966). The effect of experience, then, would be expected to shape the work activities of different individuals. For example, activity level mismatches might result in individuals focusing on parts of a job that they are more satisfied with, such as the focus of some academics on teaching, and others on research. The role of experience, however, is also critically important in understanding satisfaction in individuals within organisations because satisfaction is not static; it might be declining or increasing at a point in time (Chen et al. 2011). Referent cognitions theory predicts that individuals make comparative evaluations of their work, or job, as experiences are contrasted with different scenarios and such evaluations have been found to predict different loci of satisfaction (McFarlin and Sweeney 1992). Time spent at tasks, and experience in jobs has been found to contribute significantly to job performance across contexts (Schmidt and Hunter 1992). Such experience can take the form of specific human capital, whereby this knowledge, or learning, cannot be transferred to (and obtain a return in) other work contexts, or can, alternatively, take the form of general human capital which can be transferred to (and obtain a return in) other contexts (Becker 1975). The critical notion in this regard is that time-related accumulated knowledge will be expected to represent an investment in human capital (Becker 1964). Such an investment in human capital is expected to obtain a return, on the basis of the increases in productivity associated with such investments (Becker 1975). According to Becker (1975), such investments also have an intrinsic reward, related to satisfaction. In some contexts, the influence of job satisfaction on performance has been found to be stronger for more experienced individuals (Ramendra and Gopal 2013). Age, as a proxy for cumulative experience, typically can represent a form of human capital, or the knowledge-related investments in individuals over time (Becker 1975). Age has been found to be associated with commitment and effort (De Clerq and Ruis 2007), and with higher levels of satisfaction (Ardelt 1997) in different contexts. Certain aspects of life have been found to be associated with higher levels of satisfaction as individuals grow older (McAdams et al. 2012). The relationship between age and satisfaction has typically been found to reflect a 'u-shaped' curve over age (Kallenberg and Loscocco 1983; Blanchflower and Oswald 2008). On the basis of the above literature, Hypothesis 2 is derived, that there is no significant association between job satisfaction and work experience. With regard to the relationship between individual biographical factors, an intrinsic factor at the individual level that has been found to be associated with job satisfaction is locus of control. Locus of control is a measure of an individual's perceptions of whether outcomes in such a person's life are either the results of his or her own efforts (an internal locus of control), or are the results of factors outside his or her control (an external locus of control) (Rotter 1966). Differences between different individuals along the dimension of external versus internal locus of control are predicted to be associated with differences in behaviour (Rotter 1966). Meta-analysis findings indicate that locus of control has been found to have an estimated true score correlation of .32 with job satisfaction and .22 with job performance (Judge and Bono 2001). Differences in levels of locus of control have been found to be associated with a range of different outcomes, both at the individual level (see Wallston and Wallston 1978; Miller et al. 1982; Littunen and Stormhammar 2000), and at the organisational level (see Miller et al. 1982). For example, on the basis of a review of the literature, individuals with an internal locus of control have been found to typically be more satisfied in work; to be more effective leaders; to be more task oriented; and

to be more likely to resort to persuasive forms of power use in work contexts (Miller et al. 1982). Other reviews of the locus of control literature indicate that differences between individuals on the basis of internal versus external locus of control has been found to be associated with differences in bodyweight and other health related behaviours (Wallston and Wallston 1978). Spektor and O'Connel (1994) also found individuals with an internal locus of control to be associated with significantly levels of job satisfaction and lower levels of work anxiety than individuals with an external locus of control. Activity theory offers further insight into the relationship between biographical and contextual factors and job satisfaction. According to activation theory, if an individual is faced with over-activation, such a state might be characterised by stress and negative affectivity due to the difference between an uncharacteristically high activation level and the individual's own characteristic level (Scott 1966). Similarly, if an individual experiences under-activation, then negative affect is expected to motivate a "greater effort on the part of the organism to increase stimulation" (Scott 1966:14). This theory offers a neurologically-oriented perspective of the relationship between job satisfaction and job performance. For Scott (1966:14), the characteristic activation level of an individual is a generalised threshold of sensitivity to stimulation from all sources, which is primarily related to biochemical structure, which, in turn, is "in part, genetically determined", yet also determined upon a subjective component, that is related to meaningfulness. The repetition of tasks, related to monotony, is expected to be associated with a decline in the individual's activation level (Scott 1966). If this activation level drops below the individual's characteristic level then the individual will be expected to experience negative affect, and will be motivated to increase impact, and increase stimulus exposure (Scott 1966). If, however, the individual is not able to increase impact, then performance will typically decline (Scott 1966). If the individual is, however, able to increase the impact of stimulus then positive affectivity will result as the activation level approaches the characteristic level (Scott 1966). However, if stimulus impact is not increased the individual will be expected to leave the situation if this is possible, either temporarily or permanently (Scott 1966). To the extent that the specific tasks associated with research productivity will be expected to offer a certain degree of stimulation (that is task-specific) to an individual engaged in such tasks, it is also the degree of subjective engagement with the task, and the meaningfulness of the task, which enables a match between the individual and the task. It is argued, however, that, according to Scott's (1966) conception, meaningfulness of such tasks can influence the individual's threshold to stimulation over time, so that a match between the activation, or stimulus levels, of such work and the specific stimulation threshold of an individual is enabled over time. It is argued, therefore, that the potential monotony of tasks such as data capture and analysis or other aspects of research work are associated with a certain activation level, but that a match between an individual and this work can be learned, and that job satisfaction is a function of the extent to which person-job fit exists in such a context. An overarching implication of activation theory is that variety or complexity associated with the task itself might have an intrinsic influence upon productivity and satisfaction that may also be greater than the influence of external or extrinsic factors (Scott 1966). Further, the effect of job enlargement upon work processes will be expected to be associated with higher levels of job performance and positive affect (Scott 1966). However, it is argued that certain aspects of research work are not easily subject to job enlargement by an individual researcher. Other more extrinsic measures have been found to be associated with higher levels of research productivity, such as the use of professional awards which might also work through intrinsic mechanisms of recognition to facilitate higher levels of research productivity (Young 2005). Extrinsic incentivisation in the form of financial rewards has also been found to be effective at motivating higher levels of research productivity (Hales et al. 2005). An individual-level factor that has been found to be associated with higher levels of work performance is self-efficacy (Bandura 1982). According to evidence from meta-analysis findings, self-efficacy has been found to be significantly associated with work related performance (Stajkovic and Luthans 1998). Self-efficacy has been defined as a personal judgement of "how well one can execute courses of action required to deal with prospective situations" (Bandura 1982:122). However, the strength of the associa-

tion between self-efficacy and task performance is weaker for more complex tasks, although the relationship is typically still significant across levels of task complexity (Stajkovic and Luthans 1998). On the basis of their findings, Stajkovic and Luthans (1998) suggest that, over time, the influence of self-efficacy might reduce as individuals develop effective task strategies to deal with complex tasks, and higher levels of self-efficacy might also enable better task strategies. The lagged effects between self-efficacy and work performance for different levels of work complexity also suggest that learning effects might be reflected in such a finding (Stajkovic and Luthans 1998). Situations can influence self-perceptions and individual behaviours (Rosenthal and Jacobson 1968). For instance, Rosenthal and Jacobson (1968) found that teachers with false expectations of learners which were in fact chosen at random behaved differently to such children on the basis of their expectations. The behaviour of these teachers was found to influence the performance of these children in the direction of the expectations of the teachers (Rosenthal and Jacobson 1968). The behaviour of the children, as measured as Intelligence Quotient (IQ) tests therefore was found to align toward the expectations of the teacher (Rosenthal and Jacobson 1968). This effect, or the "self-fulfilling prophecy" refers to the case where "one person's prediction of another person's behaviour somehow comes to be realised", and the "prediction may, of course, be realised only in the perception of the predictor" or may be "communicated to the other person, perhaps in quite subtle and unintended ways, and so has an influence on his actual behaviour" (Rosenthal and Jacobson 1968: 20). On the basis of this literature, it is argued that intrinsic factors such as self-efficacy dominate in their relationships with job performance, and, to the extent that person-job fit is enhanced through higher self-efficacy, self-efficacy is expected to be significantly and positively associated with job satisfaction. Another internal mechanism, related directly to satisfaction, might direct behaviour in a manner that is aligned with affect (Scott 1966).

A review of the neuropsychological literature reveals a neurological aspect to motivation as 'reward' and 'punishment' centres of the brain have been found to respond to electrical stimulation differently (Scott 1966:10). On the basis of reviewed physiological neurological research, Scott (1966:10) argues for an affective component of behaviour "which is perceived as a bipolar continuum ranging from extreme negative effect (feelings characterised as unpleasant) through indifference to extreme positive affect (feelings characterised as pleasant)". For Scott (1966:10), "this affective construct does not specify behaviour direction" but "is one of the determinants of overt response". Implicit in this seminal conception is the notion that over time affect can influence behaviour, even if it cannot direct behaviour. To the extent that an individual's neuropsychological structure might influence behaviour, and, in turn, job performance and research productivity, a justification is derived for the inclusion of affectivity as a factor in the analysis. In contrast to Scott's (1966) conception of a bipolar continuum, affect has been found to manifest differently for positive versus negative affect (Watson et al. 1988). Positive and negative affect have been found to consistently dominate results of studies into the structure of affect, as independent factors (Watson et al. 1988). The mood states that comprise positive and negative affect are related to trait positive affectivity (PA) and negative affectivity (NA), which correspond broadly to the "dominant [Big Five] personality factors of extraversion and anxiety/neuroticism, respectively" (Watson et al. 1988:1063). Another factor suggested by the literature that has been associated with significantly different effects in academic contexts is gender.

Gender, as a variable, is taken to be a measure of more than biological differences between the sexes. Such a measure, therefore, might also act as a proxy for the complex interplay between cultural norms and different societal expectations, which might constrain the advancement, and productivity, of individuals, depending on context. The academic context is expected to be no different. Rachal et al. (2008) found in a review of two leading higher education journals over an 11 year period, from 1995 to 2005, that 56.7% of the authors were male. Barbezat (2006) found male academic respondents to report less time spent on teaching and more time spent on research than female academic respondents. Barbezat (2006) also found that total publications, as a measure of research productivity, were significantly associated with gender, in that male researchers were significantly associated with

more total publications. However, Barbezat (2006) found most male and female academics to include the following factors as constraints to research: high teaching loads, large courses, doctoral courses, and an 'excessive emphasis' on teaching. Other factors identified as constraints by a smaller subset of respondents were found to include: the lack of co-authors amongst colleagues, colleagues that did no research at all, family responsibilities, marital problems, and administrative and service commitments (Barbezat 2006). According to Barbezat (2006), however, female perceptions of constraints to research productivity were similar to that of male respondents. Barbezat (2006) concludes, on the basis of her research, that the differences between female and male researchers seem to span many variables, but that such differences might be decreasing over time. Other factors that might influence an individual academic's Job Satisfaction over time are expected to be related to the progression of such an individual 'up the organisation' over time. It is argued in this research that a sort of a 'ladder' of progression exists within such institutions, where one dimension of this ladder is comprised of rungs of research productivity which need to be mastered. These 'rungs' range from conference presentations (the most accessible form), to conference proceeding publication, to DOE accredited journal publication, and then to the highest form of research production: ISI and IBSS accredited journal publication. These rungs, however, it is argued, conform to a parallel ladder, of 'rungs' made up of ranks, the lowest being the Mr./Ms. designation, followed by the doctoral, or Dr. Designation, which is then followed by the Associate Professor and Professor designations. It is a fundamental argument of this work that the experience of Job Satisfaction is differentiated at different levels, or rungs, of this 'ladder' in such organisations. Central to this argument is the notion of learning, and knowledge acquisition.

In terms of research productivity as a measure of job performance, the indirect effect of mental ability, though enabling knowledge acquisition, is expected to be stronger than its direct effect upon job performance (Schmidt and Hunter 1992). According to this conception, differences in mental ability will be expected to reflect in differences in the influence of job specific experience on research productivity. Individual differences in learning will, therefore, be expected to be found, and these are expected to be associated with the movement of individuals up this 'ladder' of progression over time. An integrative perspective, it is argued, is required in order to reconcile the notion of mental ability (Schmidt and Hunter 1992) with the conceptions of accumulated specific and general human capital (Becker 1964). It is argued that, in the context of this research, the conception of mental ability (Schmidt and Hunter 1992) effectively reduces to a factor that reflects the differing rates at which different individuals are able to accumulate specific and general human capital, all else being equal. Mental ability, it is acknowledged, in its measured form, is also dependent upon the education history of individuals, and also through their subjective engagement with the education process (Rosenthal and Jacobson 1968). Progression upwards on this 'ladder' of research productivity is taken to be related to the investment of time and learning in this process. Over time, a substantively different type of individual might be evident at the higher levels of such organisations; individuals that have, over time, learned how 'to learn', and have perhaps 'learned' a better person-organisation fit (Erdogan and Bauer 2005) in a specific context of knowledge creation. Over time, however, individuals might tend to accrue family commitments.

Barbezat (2006) found that the presence of children in a household, as a tested factor, was positively and significantly associated with increased research productivity, for both men and women. This is in contrast with the notion that family-to-work spill-over effects are expected to, if found, be negative rather than positive (Dilworth 2004; Dilworth and Kingsbury 2005). On the basis of the above review of the literature Hypothesis 3 is proposed, that there is a significant association between job satisfaction and individual biographical and contextual factors. It is argued that a specific typology of individual biographical and contextual factors will be associated with job satisfaction, and, alternatively, job dissatisfaction. The research methodology applied in this research is considered as follows.

II. METHODOLOGY

An exploratory empirical cross-sectional research design was applied in this research. The

sampling frame of this research was made up of about 1300 academic staff of the University of the Witwatersrand. Surveys were distributed to respondents who were then asked to return these, anonymously, via the internal mail system. Respondents were provided with addressed envelopes that could be sealed. Two hundred and twenty-five responses were obtained, resulting in a response rate of seventeen percent. Generalised job satisfaction was measured using seven-point Likert-type scales, derived from the Minnesota Satisfaction Questionnaire scales (Muchinsky 1983; Arvey et al. 1989). Three items were used to measure generalised job satisfaction. The items were reversed each time. The Cronbach Alpha obtained for these items was .859. Bivariate tests of association were applied to the data. Partial correlation analysis was used. Bootstrapping was applied to the partial correlation analysis in order to achieve higher levels of confidence in the results. Multivariate testing, in the form of multiple linear regression was also used. First, a phase of exploratory multiple linear regression testing was applied. Following Field (2007) each of the variables included in the model were derived from theory or from evidence derived from past research findings. The exploratory multiple linear regression analysis was applied using backward elimination in order to avoid suppressor variables. Variance inflation factor values and tolerance values were checked for evidence of multicollinearity. The final model, which included only variables significantly associated with the dependent variable at within the ten percent level of significance, was itself checked for significance. F-values and significance were reported. The Probability-Probability plot was checked for the dependent variable for deviation from the plotted line, and the histogram of the standard residuals was inspected for the extent to which it resembled a normal distribution. The Durbin-Watson statistic for the model was also inspected to ascertain the potential presence of serial correlation. In order to increase the confidence of the predications made on the basis of these results, the final model was run again using a bootstrapping procedure based upon 1000 iterations. The confidence levels associated with each of the coefficients was reported. The results of the findings are reported and discussed as follows.

III. RESULTS AND DISCUSSION

The descriptive statistics for the measures of research productivity are reported in Table 1, and the descriptive statistics for the entire sample are reported in Table 2. Table 3 and Table 4 report certain of the results of the testing of hypothesis 2 that relate to the use of partial correlation analysis. Table 5 reports the significant correlations between job satisfaction and biographical and contextual variables. Table 6 reports the multiple linear regression results with job satisfaction as the dependent variable.

Hypothesis 1: There is a significant association between job satisfaction and research productivity. According to the bivariate analysis of the associations between job performance and the seven dimensions of research productivity, no significant bivariate associations were found. When parametric partial correlation analysis was applied to the data, with negative affectivity and positive affectivity controlled for, job satisfaction was also not found to be significantly associated with either of the dimensions of research productivity.

With regard to the net relationships, this finding does not support findings from other con-

Table 1: Descriptive statistics for the research productivity items

	Minimum	*Maximum*	*Mean*	*Standard deviation*
Accredited DOE journals	0	100	4.27	10.139
Accredited DOE ISI/IBSS	0	100	7.19	14.690
Conference proceedings	0	40	3.42	6.051
Conference presentations	0	150	8.82	16.695
Books	0	100	1.05	6.802
Book chapters	0	30	1.70	3.271

Key to initials and abbreviations: DOE: Department of Education; ISI: Institute for Scientific Information; IBSS: International Bibliography of the Social Sciences.

Table 2: Descriptive statistics: Minimum, maximum, mean and standard deviation

	Minimum	*Maximum*	*Mean*	*Standard deviation*
Job satisfaction	3	21	15.07	4.025
Satisfaction teaching	1	7	4.24	1.583
Satisfaction administration	1	7	2.23	1.529
Satisfaction research	1	7	4.87	1.552
Total self-efficacy research	80	600	425.25	106.358
Self-efficacy DOE journals	0	100	74.29	25.177
Self-efficacy DOE ISI IBSS	0	100	71.87	25.157
Self-efficacy proceedings	0	100	76.39	23.813
Self-efficacy presentations	0	100	81.50	21.383
Self-efficacy quantitative	0	100	49.88	33.404
Self-efficacy qualitative	0	100	71.33	27.471
Negative affectivity	9	41	17.75	6.629
Positive affectivity	6	86	38.13	6.870
Locus of control	30	95	69.56	10.622
Age	22	72	40.67	10.555
Gender male;#	0	1	.47	-
Gender Female#	0	0	.53	-
Years as a researcher	00	48.00	10.1989	-8.84216
Professional associations#	0	1	.81	-
Masters supervised	0	60	6.19	9.554
Preference for quantitative methods=1	.0	9.0	.456	.7213
Married#	0	1	.57	
Dependent children	0	7	1.09	1.279
RSA origin#	0	1	.56	
English#	0	1	.52	.501

Notes: #a binary variable, consisting of two values: 0 and 1. For example 1=Male and 0= Female.
Under the table heading 'Mean', for binary variables there is no mean. The proportion is reported instead.
Key to initials and abbreviations: DOE: Department of Education; ISI: Institute for Scientific Information; IBSS: International Bibliography of the Social Sciences; RSA: Republic of South Africa.

texts (Chen et al. 2011; Maharani et al. 2013) and does not support seminal theory offered by Hackman and Oldham (1976), Herzberg (1966), Organ (1988, 1997) or Scott (1966); arguably the seminal theorists in the field. This finding also runs contrary to meta-analysis findings of a true mean correlation of .30 between overall job satisfaction and job performance found over 312 samples and 54417 respondents by Judge et al. (2001). These results therefore contest theory that ranges from seminal perspectives of the influence of neurological or physiological factors (Scott 1966) to seminal theory that relates to the nature of work itself (Hackman and Oldham 1976; Herzberg 1966); it is therefore concluded that none of these bodies of theory is supported as an overarching explanation for this finding. According to self-determination theory (Gagne and Deci 2005), relatively more autonomous work, such as research work, is expected to be associated with higher levels of job satisfaction, yet this prediction is also not found to supported in this context. There are, according to these theoretical predictions, many different contributing effects that underpin the net association between job satisfaction and job performance. Another explanation, however, of these results might arise from the nature of academic work itself.

A tentative explanation for this effect may be the presence of range restriction (Sackett and Yang 2000). If academic staff are typically a relatively homogenous group of individuals that have been 'selected' into such work on the basis of the completion of higher degrees and other criteria which reduce the variability in job satisfaction relationships, or associations, then such a finding might be expected. Notwithstanding such potential range restriction, this sort of research, it is argued, is important in such contexts, in order to ascertain the extent to which such theory does extend to such cohorts of professional workers.

However, when specific work-role loci of satisfaction were also statistically removed using partial correlation analysis, the relationship be-

tween job satisfaction and international journal article publications (p<.069) and also total journal article publications (p<.078) were found to be negative, yet at just outside the five percent level of significance. According to the mechanism of OCB offered by Organ (1988, 1997), dissatisfaction can disable the extra, or not directly compensated commitment and effort that an individual applies to work. If dissatisfaction is associated with higher levels of research productivity once specific subordinate work-role related satisfaction is removed, then Organ's (1988, 1997) predicted mechanism does not seem plausible as an explanation of this net finding. Similarly, neurologically oriented psychology theory such as Activation theory (Scott 1966) is also not supported as a dominant effect if it predicts that as individuals, in meaningful work, over time become better aligned with the activation levels associated with monotonous work and thereby become more job satisfied and more productive.

The control, through partial correlation analysis, of the specific work-role related loci of satisfaction was expected to reveal relationships that were not confounded by such differences. To the extent that individuals with higher levels of research productivity are expected to have been able to adjust their work to a better job-person fit based upon the match between psychological states and their work activities, given the relatively autonomous nature of academic work, Hackman and Oldham's (1976) predictions are, similarly, not supported in this context. If research work is associated with meaningful recognition and this work is high in motivation related work factors as opposed to hygiene factors, then Herzberg's (1966) predictions are also not supported. Referent cognitions theory (Folger 1987) offers an explanation for why individuals with higher levels of international journal article publications might be less satisfied with their jobs in general. According to referent cognitions theory (Folger 1987), individuals who successfully publish in international journals might have a different structure of evaluations of their jobs because they might perceive themselves to have more opportunity for alternative employment globally because of their higher levels of ISI/IBSS publication. A tentative explanation for this effect, based on referent cognitions theory (Folger 1987), might be that individuals that successfully publish more in internationally accredited journals may 'frame' their evaluation of their job satisfaction with reference to their opportunities, which may differ from other researchers. On the basis of these results, it is argued that individuals at different stages of research productivity development are associated with substantially different structures of relationships around their experience of the academic context. Because international journal publication is the only measure of research productivity to be negatively associated with job satisfaction further research is suggested into this relationship. An implication of this finding is the support it lends to the notion that differ-

Table 3: Hypotheses 1 and 2: Partial correlation significant associations of job satisfaction

Variable	*Controlled*	*Boostrap 95% confidence intervals Lower/upper*	*Coefficient/ Significance*
Totalwork experience	Negative Affectivity (NA); Positive Affectivity (PA)	-.25/-.01	-.130/p<.058
Institution-specific experience	NA; PA	-.269/-.007	-.130/p<.058
Satisfaction with financial incentives for research	NA;PA	.124/.381	.260/p<.0001
Internationally accredited journal articles	NA;PA; Satisfaction with research; Satisfaction with teaching; Satisfaction with administration	-.24/-.005	-.126/p<.069
Total journal articles	NA;PA; Satisfaction with research; Satisfaction with teaching; Satisfaction with administration	-.276/.005	-.122/p<.078

Notes: ^p<.10; *p<.05; **p<.01; **p<.001. Key to initials and abbreviations: NA: Negative Affectivity; PA: Positive Affectivity

ent structures of associations are associated with different 'levels' of development or progression in academic research. This particular finding supports the differentiation between international and local journal publication.

Null-Hypothesis 2: There is no significant association between Job Satisfaction and experience.

According to activation theory (Scott 1966), an individual's activation threshold can, over time, converge with the activation levels specific to certain types of work, if such work is meaningful. This theory predicts that, over time, work experience will be associated with Job Satisfaction. The results of the testing of the sub-hypotheses derived from this hypothesis are reported and discussed as follows.

***Hypothesis 2.a*:** There is a significant association between job satisfaction and total work experience. The partial correlation analysis of the association between job satisfaction and full-time work experience, with both positive and negative affectivity controlled for, revealed a negative association between job satisfaction and total work experience, albeit at just outside of the five percent level of significance. This does not support the notion that an individual's person-job fit will improve over time as predicted by Activation theory (Scott 1966). However, this variable (total work experience) is not limited to research-specific work, but includes all working experience. This finding, in the contexts of academics, might capture an evaluation of the current job with past job experience, according to the tenets of referent cognitions theory (Folger 1989). However, this result was not at the five percent level of significance, and is therefore not taken to be supported. When using the same control variables but adding years as a researcher as a control variable in the partial correlation analysis the association between total work experience and job satisfaction is also negative ($p<.07$), again at just outside the five percent level of significance. Again, this result was not taken to be supported because it was outside of the five percent level of significance. The testing of the variable that captured years as a researcher was expected to provide further insight into the relationship between Job Satisfaction and different forms of experience more precisely.

***Hypothesis 2.b*:** There is a significant association between job satisfaction and years as a researcher. No significant association was found between job satisfaction and years as a researcher, both in terms of zero-order correlations and when the control variables (negative affectivity and positive affectivity) were included. Whereas the association between total work experience and job Satisfaction was negative and significant at just outside the five percent level of significance, the association between years as a researcher and job satisfaction is even less significant. This finding might tentatively contest the notion that with experience a better person-job fit might result in higher levels of job satisfaction in this context. To the extent that person-job fit can be learned, or context specific learning in the form of specific human capital (Becker 1964) can enable more effective job performance, dissatisfaction associated with poor job-person fit is expected to reduce with experience. However, this finding, of no relationship between job satisfaction and years as a researcher might indicate that the relationship between job satisfaction and experience is more difficult to predict with such a work cohort in this context.

Hypothesis 2.c: There is a significant association between job satisfaction and years of experience within the institution. Years of experience within the institution were found to be negatively yet weakly associated with job satisfaction ($p<.058$). One possible explanation of such a negative association is the notion that as an individual gains specific human capital (Becker 1964) this might enable research productivity, which might, in turn, enable an individual to com-

Table 4: Hypothesis 2. Partial correlation significant associations

Variable	*Controlled*	*Boostrap 95% confidence intervals Lower/upper*	*Coefficient/ Significance zero order]*
Age with DOE Journal articles	Years as a researcher	.079/.092	-.014/p<.843 [.330/p<.0001]

Notes: ^p<.10; *p<.05; **p<.01; **p<.001 Key to initials and abbreviations: DOE: Department of Education

pare and contrast job-specific factors with other contexts as a function of an individual's status as a more productive researcher. In order to test this notion further, the total journal articles variable was included as a control variable in the bootstrapped partial correlation analysis. As expected, once this variable was included, the relationship between institution-specific experience and job satisfaction was found to no longer be significant at within the ten percent level of significance (p<.14). The implication of this finding is that individuals at higher levels of research productivity might be less job satisfied than others at lower levels of research productivity. However, relationships found to be significant at levels outside of the five percent level of significance are not taken to be supported.

Hypothesis 2.d. There is a significant association between job satisfaction and age. No significant association was found between age and job satisfaction. This finding does not support other findings that predict that satisfaction, along different loci, typically manifests as a u-curve over age in different contexts, or is predicted to correlate positively with age (Kallenberg and Loscocco 1983; Ardelt 1997; Blanchflower and Oswald 2008; McAdams et al. 2012). This association is also not significant when the influence of total work experience is controlled for using partial correlation analysis (p<.473). It is tentatively suggested that this academic cohort might be atypical of other contexts in the nature of its job satisfaction associations.

Hypothesis 3: There is a significant association between job satisfaction and individual biographical and contextual factors. According to the bivariate analysis, a range of individual biographical and contextual factors were found to be associated with job satisfaction. The bivariate analysis was taken to represent a test of the net associations between these variables. Satisfaction with the financial incentives for research productivity was found to be positively associated with job satisfaction (r=.241; p<.0001). This finding might support the notion that extrinsic rewards are associated with commitment to research (Hales et al. 2005; Young 2005) to the extent that job satisfaction might reflect such a commitment in a manner that is reflected in the job itself. Dissatisfaction with the extrinsic rewards of research is, therefore, found to be associated with job dissatisfaction. The implication of this is that further research may need to be conducted into how and why such research incentives may be associated with such dissat-

Table 5: Hypothesis 3. Significant biographical or contextual associations of job satisfaction

Variable	*Boostrap 95% confidence intervals Lower/upper*	*Coefficient/ Significance*
Satisfaction with financial incentives for research	.124/.381	.260/p<.0001
Teaching locus of satisfaction	-.247/.052	-.099/p<.147
Administration locus of satisfaction	-.212/.069	-.074/p<.281
Research locus of satisfaction	.020/.315	.174/p<.011
DOE publication self-efficacy	-.014/.258	.122/p<.075
International journal publication Self-efficacy	-.020/.264	.124/p<.069
Conference proceedings publication self-efficacy	-.001/.260	.131/p<.055
Conference presentation self-efficacy	.017/.314	.162/p<.018
Statistical analysis self-efficacy	-.020/.253	.116/p<.089
Qualitative analysis self-efficacy	-.061/.200	.069/p<.316
Negative affectivity	-.488/-.252	-.376/p<.0001
Positive affectivity	.292/.506	.401/p<.0001
Teaching postgraduate self-efficacy	-.005/.219	.110/p<.107
Locus of control	.267/.531	.267/p<.0001
Years of experience working for the institution	-.265/.009	-.124/p<.124
Age	-.199/.037	-.089/p<.196
Years as a researcher	-.182/.056	-.065/p<.342
Total work experience	-.193/.049	-.073/p<.287
Mr./Ms. Designation	.045/.293	.177/p<.009
Dr. Designation	-.250/.016	-.115/p<.092

Notes: ^p<.10; *p<.05; **p<.01; **p<.001. Key to initials and abbreviations: DOE: Department of Education; Mr. : Mister
Dr.:Doctor

isfaction. Human Resources Management processes might benchmark other, similar, institutions and ensure that such dissatisfaction be managed.

Job satisfaction was found to be associated with a range of measures of self-efficacy. DOE publication self-efficacy, international journal publication self-efficacy, conference proceedings publication self-efficacy and statistical analysis self-efficacy were all found to be related to job satisfaction, yet at just outside of the five percent level of significance. If these associations would have been within the five percent level of significance, then these findings would have supported the predictions of theorists such as Stajkovic and Luthans (1998) and Bandura (1982) that beliefs about competencies will be associated with higher levels of satisfaction, or lower levels of individual dissatisfaction. The association between statistical analysis self-efficacy and job satisfaction would have been interesting and unexpected. Whereas qualitative analysis self-efficacy is not significantly associated with job satisfaction, the weakly significant association for quantitative analysis might suggest that a lack of confidence, or self-belief associated with quantitative skills might spill over into job satisfaction. However, these associations were not significant at within the five percent level of significance, and are not taken to be supported in this context. Of all the tested self-efficacy factors, conference presentation self-efficacy was found to be significantly associated with job satisfaction at within the five percent level of significance. Self-efficacy with conference presentations is the 'first level' of academic output, or the first opportunity many academics have to begin their research process. As such, this might represent the first, and most salient, barrier to progression in research productivity. Dissatisfaction is therefore found to be most strongly associated with individuals with a low self-confidence or self-belief related to conference presentations. The relationship between dissatisfaction and low levels of self-belief or self-efficacy may be less intense for individuals that are 'past' this initial form of research productivity. A possible implication that derives from this is that individuals should receive support in the form of mentoring or encouragement that can assist in this process. Higher levels of job satisfaction might result from such interventions, as predicted by Stajkovic and Luthans (1998) and Bandura (1982). Job satisfaction was found to be significantly associated with positive affectivity and to be negatively associated with negative affectivity. The salience of the effects of affectivity posited by theorists such as Watson and Pennebaker (1989) was therefore found to be supported, and these variables were included as control variables following the prescriptions of Podsakoff et al. (2003). Job satisfaction was also found to be positively associated with locus of control. This finding is consistent with the meta-analysis findings of Judge and Bono (2001) that have found a positive and significant association between job satisfaction and locus of control (estimated true score correlation of .32) and other findings that predict the same relationship (Miller et al. 1982). The item used to capture staff without doctoral qualifications or professor titles was found be positively associated with job satisfaction in a point bi-serial correlation analysis. This might support the notion that as individuals progress in status in the institution, the more dissatisfied they become. In order to gain a deeper understanding of this effect, negative affectivity, positive affectivity and total journal publications were controlled for in a further partial correlations process with bootstrapping applied. However, the association between job satisfaction and not having a doctoral or professorial designation was found to remain significant ($p<.008$). The Dr. designation is found to be weakly and negatively associated ($p<.092$) with Job Satisfaction. When journal articles are controlled for, however, this relationship reduces in significance ($p<.126$), and is no longer significant at within the ten percent level of significance. These findings suggest that the associative structure of job satisfaction changes at different levels of research productivity. Further research is suggested into the relationships between senior academics and job satisfaction in this context.

According to the exploratory multiple linear regression analysis process, an exploratory model was derived. The model was then tested again, using a bootstrapping process in order to achieve a higher level of confidence in its prediction value. The exploratory multiple linear regression analysis was applied using backward elimination in order to avoid suppressor variables. The highest of the Variance Inflation Factor values was 1.936, for years as a researcher, with a corresponding Tolerance value of .516. In

Table 6: Hypothesis 3. Multiple linear regression results dependent variable job satisfaction with bootstrapped coefficients

Multiple linear regression model	*B*	*Bootstrap*[a]				
		Bias	*Std. error*	*Sig. 2-tailed)*	*95% Confidence interval*	
					Lower	*Upper*
(Constant)	4.984	-.108	2.391	.047	.139	9.851
Satisfaction with financial rewards for research	.509	-.010	.136	.001	.240	.755
Teaching locus of satisfaction	-.274	.002	.188	.145	-.683	.088
Negative affectivity	-.131	.001	.036	.002	-.209	-.063
Positive affectivity	.121	.003	.031	.001	.069	.199
Locus of control	.099	.000	.024	.001	.053	.146
Mr/Ms designation	1.280	-.012	.397	.002	.524	2.166

a. Bootstrap results are based on 1000 bootstrap samples Key to initials and abbreviations: Mr. : Mister; Dr. : Doctor

order to reduce the potential for multicollinearity to influence the model this variable was removed from the analysis and the model was run again. Of the subordinate satisfaction loci variables self-efficacy for research was also found to have a relatively high Variance Inflation Factor of 1.578. This factor was also removed when the model was re-run. In the final model, which included only variables significantly associated with job satisfaction at within the ten percent level of significance, the highest Variance Inflation factor was 1.196, and the lowest tolerance value was .813. The resultant model was significant ($p<.0001$; $F=21.47$) with six degrees of freedom. Satisfaction with financial incentives for publication, positive affectivity, locus of control and the Mr/Ms designation were found to be significantly and positively associated with job satisfaction. Negative affectivity and satisfaction with teaching were both found to be negatively associated with job satisfaction, the latter, however, at just outside the five percent level of significance. The Probability-Probability plot for the dependent variable, job satisfaction, reflected very little deviation from the plotted line, and the histogram of the standard residuals reflected what appeared to reflect a reasonably normal distribution. The Durbin-Watson statistic for the model was 2.03, which was deemed to be close enough to the value of two to indicate a reasonably low level of serial correlation. The R squared value for this model was found to be .383 and the adjusted R squared value was found to be .373. This indicated that almost 40% of the variance in job satisfaction was explained by the factors included in the model. The model was run again, and bootstrapping was applied. After the bootstrapping process the R squared value remained the same yet the adjusted R squared value was found to be .365. The bootstrap results for the coefficients are reported below in Table 6. When bootstrapping was applied, the satisfaction with teaching variable was no longer found to be significant ($p<.062$ before; $p<.145$ after) at within the ten percent level of significance.

The discussion of these results provides certain overarching insights. These are now summarised. In contrast to the predictions of this large body of theory, no net significant association was found between job satisfaction and any of the dimensions of research productivity. This contests the positive and significant association between these factors mooted by this body of seminal theory. It is argued that there are two fundamental aspects to this analysis that might account for these findings. Firstly, it is argued that, following Self-determination theory (Gagne and Deci 2005), a different structure of satisfaction relationships might be at work in research productive work due to its highly autonomous nature. Secondly, it is argued that range restriction (Sackett and Yang 2000) might be present in a population of academics that have been selected into a relatively homogenous group through requirements such as higher degree attainment and other requirements. However, an exception to the other categories of research productivity was that of international journal publications, which was weakly and

negatively associated with job satisfaction. The results suggested that individuals with higher levels of international journal publications were relatively more job dissatisfied. The predictions of referent cognitions theory (Folger 1978) were taken to provide a possible explanation for this relationship; more internationally research productive individuals might be less job satisfied if they experienced more opportunities as a result of such higher levels of international journal publications. This tentative conclusion was considered to be further supported by the finding that individuals that progressed beyond the doctoral level, when measured against those with the Mr. or Ms. designation, were found to be significantly more job dissatisfied than those more 'junior' staff.

Work experience over and above years of research experience were found to be weakly and negatively associated with job satisfaction. Years of institution-specific experience were found to be weakly and negatively associated with job satisfaction until the influence of total journal articles was included as a control variable, and the relationship was then found to not be significant. Interestingly, age was not found to be significantly associated with job satisfaction, in contrast with the predictions of a range of theorists that predict a positive association between age and Job Satisfaction (Kallenberg and Loscocco 1983; Ardelt 1997; Blanchflower and Oswald 2008; McAdams et al. 2012).

Job satisfaction was found to be significantly yet weakly associated with self-efficacy relating to conference presentations. This was found to support the notion that self-efficacy of competence in work related tasks will typically make for more satisfied individuals (Bandura 1982; Stajkovic and Luthans 1998). It was concluded that such a finding is possibly important because this is the 'first level' of research productivity development. In other words, beginning researchers will typically begin with conference proceedings in order to learn the process of research.

Job satisfaction was also found to be related to an internal Locus of Control. This was found to support historical evidence from other contexts (Miller et al. 1982). Individuals that hold themselves accountable for the work relationships around themselves may therefore be more job satisfied in this context. Having provided a discussion and an overview of the discussion of the results of the research, conclusions and recommendations are now provided.

IV. CONCLUSION

In contrast to the predictions of this large body of theory, no net significant association was found between Job Satisfaction and any of the dimensions of research productivity. It was argued that two effects might account for these findings. Firstly, a different structure of satisfaction relationships might be at work in research productive work due to its highly autonomous nature. Secondly, range restriction might be present in a relatively homogenous professional cohort of academics. However, individuals with higher levels of international journal publications seem more job-dissatisfied. Age-related predictions of seminal theory were not found to be supported; age-satisfaction relationships were not found. Job satisfaction was also found to be related to an internal locus of control. This was found to support historical evidence from other contexts; individuals that hold themselves accountable for the work relationships around themselves may therefore be more job satisfied in this context.

V. RECOMMENDATIONS

On the basis of the analysis, the following implications are derived. Recommendations for theory, or further research, and also for practice, are offered. In the absence of a clear and unambiguous tested relationship between job satisfaction and five of the measures of research productivity, further research is suggested. The academic researcher is taken to perhaps be a certain type of professional employee, and further research into the specific nature of this kind of work may be important in order to be better able to understand the intrinsic relationships around job performance in this context. With regard to the negative relationships between international journal article publication and seniority, it is recommended that further research into comparative contexts is undertaken. Human resources practices and remuneration systems might possibly require adjustment in order to address the relative dissatisfaction of more senior academics. In other words, the differences in the holistic employment experience that are the result of globalised or localised influences

might need to be taken into account by human resources systems. This might take the form of extrinsic factors, such as remuneration, or of intrinsic factors. It is argued that further research might offer more insight into the specific reasons that relate to the relative dissatisfaction of more senior academics in this context.

It is recommended that more training be provided in statistical methods and in research skills, as such an investment in learning might possibly have an intrinsic return in this context. Furthermore, it is argued that training that is specific to each form of research productivity may also possibly yield a more significant intrinsic return to academic staff members.

Training that can enable such individuals to develop a more internally-oriented locus of control might also, on the basis of these findings, be expected to possibly contribute to individual job satisfaction.

On the basis of these findings, it is also argued that HRM systems and practices be aligned with the needs of such individuals as they develop up the 'levels' of research productivity. At the first level, where a researcher begins to develop the skills associated with the presentation of research, the institution should focus its resources and attention upon this stage in particular, because of the uniquely significant relationship found between conference presentation Self-efficacy and Job satisfaction. It is argued that such a focus will perhaps yield a reasonable intrinsic return in this context.

Another recommendation which arises from these findings is that the remuneration of senior, more internationally active, research staff be based upon further research into comparative contexts; between the experience of the South African context and the experience of the globalised context. In other words, the opportunities available for such academics closer perhaps to the 'global centres' of research should be taken into account in such remuneration structures. If senior research active professionals are remunerated in a manner that takes such 'pull factors' into account, the relative dissatisfaction of staff with more internationally accredited journal publications might be reduced. In conclusion, it is argued that such relative job dissatisfaction might be an important indicator of, or a precursor to, a potential, or imminent, loss of institutional capital, and that such a loss might have a significant impact upon the contribution of such universities to societal stakeholders.

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