

## Research Productivity and Values

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### Abstract

According to the predictions of convergence theory, the implementation of best practices derived from the global context has been found to be associated with increased performance for both individuals and organisations. However, the values systems of individuals and within organisations have been found to constrain the adoption of best practices. This research tested Schwartz's basic human values theory and the specific influence of basic human values upon individual work performance in the form of research productivity. The self-enhancement dimension of hedonism was found to be negatively associated with Thompson Reuters (Institute for Scientific Information) and ProQuest International Bibliography of the Social Sciences accredited journal article publication; Department of Education accredited journal article publication; conference proceedings publication; conference presentations and book chapter publication. Worryingly, openness to change values were not found to be associated with higher levels of research productivity. These results are taken to support Kuhn's theory of paradigmatic values constraints to knowledge creation and scepticism as to the extent to which scientific research productivity is indeed inherently objective or innovative in nature. Recommendations for research practitioners and for further research are offered.

**Keywords:** values; research outputs; academic publishing; job performance; Schwartz values theory;

### 1. Introduction

Values systems can exist in the form of culture (House, Hanges, Javidan, Dorfman & Gupta, 2004) or individual values (Schwartz, 2007). In the South African context, values research has taken the form of investigations into the relationships between organisational culture and performance management (Paul & Berry, 2013), the testing of culture theory (Eaton & Louw, 2000); the verification of culture research instruments (Nkosi & Roodt, 2004); exploration of the relationships between culture and corporate entrepreneurship (Nayager & van Vuuren, 2005); and investigations into value internalisation in the South African public service sector (O'Neil & Horne, 2012).

However, despite these, and other studies in this context, no research to date has investigated *the potential constraints of values systems to the research productivity of individual academics*. This study aims to provide insights into how individual values may constrain the research outputs of individual academics in this context.

In a context of increasing globalisation, 'knowledge has replaced the traditional assets of land, capital, labour, and entrepreneurship'; it is the dominant factor of production that provides the basis for competitive advantage (Huang, 2009: 1). It is generally agreed that university knowledge creation, or research productivity, is a function of a complex array of antecedent factors (Dundar & Lewis, 1998; Erdogan & Bauer, 2005; Hara, Solomon, Kim & Sonnenwald, 2003; Laursen & Foss, 2003; Lucas, 2006; Morton & Beard, 2005; Rachal, Shelley & David, 2008; Ramsden, 1994; Rothausen-Vange, Marler & Wright, 2005; Rynes, Bartunek & Daft, 2001).

In such an increasingly globalised context, the dissemination of 'best practice' knowledge, in the form of benchmarking (Camp, 1989) and other forms of knowledge sharing, has typically been found to be associated with higher levels of organisational productivity (Vos, Ahlstrom & Blackmon, 1997). Such best practices in the form of high performance work practices are related to reduced staff turnover and increased financial performance of firms; these reflect the 'best practices viewpoint' (Huselid, 1995: 643).

According to the predictions of convergence theory (Kerr, Dunlop, Harbison & Myers, 1960; Kabasakal & Bodur, 2004), driven by the need for increasing competitiveness, best practices will typically converge or become more similar over time. Convergence will result from a 'world-wide tendency for political, socio-economic, and technological forces to push national systems, including HRM, towards uniformity' (Rowley & Benson, 2002: 92).

Similarly, the convergence thesis postulates that industrialisation has a global effect on all organisations and that,

as a result of this economic development and technological progress, this convergence will also tend to produce homogenous organisational cultural values and practices; that are unrelated to societal culture values and practices (Kabasakal & Bodur, 2004). Developing countries are also increasingly demonstrating societal culture convergence toward that of developed countries (Munusamy, Valdez, Lo, Budde-Sung, Suarez & Doktor, 2009).

However, despite evidence of the importance of such best practices, the influence of values systems has been identified as accounting for much of the significant gap between 'universal' best practices and the actual practices found in organisations (Rowley & Benson, 2002). Further, convergence has been found to be significantly constrained by culturally different 'structures of meaning' that underlie economic behaviour (Kerr, 1983: 87). Differing collective mental frameworks, or cultural values systems, therefore pose a fundamental block to convergence, past a certain point (Kerr, 1983).

For Kerr (1983: 87), the 'most impenetrable barriers to convergence' therefore also include the ingrained normative beliefs of people, which influence the choice of practices and systems in organisations, a choice that is often robust to empirical evidence of best practice in other contexts.

Knowledge creation in the university context is also dependent upon changes in paradigms, or the shared social perspectives of researchers, which are not based on objective criteria, but on shared normative values systems (Kuhn, 1970). As such, rational utility theory (Swalm, 1966) cannot account for these choices if they are based on values systems and not rational choices based on best practice. It is, however, unclear as to the extent to which the values systems of individuals might constrain individual work productivity in different contexts.

Despite extensive literature that relates to constraints to research productivity in the global context generally, and in the South African academic context specifically (Stephen, Welman & Jordaan, 2004), evidence of the potential influence of values upon research productivity is absent from such literature.

This research therefore sought to address this deficiency in the literature. In this article it is argued that the individual values of academic staff have the potential to constrain individual work productivity, measured as research productivity. The research offers evidence in support of this argument. It is also argued that this argument provides a new perspective to human resources management (HRM) and management practitioners in their quest to understand and to manage the values constraints to productivity of university academics.

Research productivity in this research was measured as: (i) Department of Education (DOE) accredited journal articles; (ii) Thompson Reuters (ISI) or International Bibliography of the Social Sciences (IBSS) accredited journal articles; (iii) conference presentations; (iv) conference proceedings publication; (v) book publication; and (vi) book chapter publication.

At the individual level of analysis, the influence of individual biological, social and psychological differences is expected to manifest in different individual motivational values orientations that differ between individuals (Schwartz, 2007). According to Schwartz (1994: 22/23), "*it is possible to classify virtually all the items found in lists of specific values from different cultures into ten motivational types of goals, which form a structure of individual values that has been found to replicate across societies*". According to Schwartz's individual motivational values theory, values are 'desirable, trans-situational goals that vary in importance as guiding principles in people's lives', which can be differentiated according to the motivational goals that they express (Ross, Schwarz & Surkiss, 1999: 51). Differences in human behaviour can be driven by the extent to which individuals prioritise different values over other values.

At the nexus of the literatures that relate to individual motivational values is the issue of specifically which values are prioritised over other values. Schwartz's (2007) motivational values theory argues that there are two oppositional dimensions that form a structure of 'higher order' values across societies: (i) a tension between self-enhancement values, associated with the prioritisation of the self over others and self-transcendence values, associated with the prioritisation of others over the self; and (ii) between openness to change values, associated with an acceptance of change, and conservatism values, associated with a preference for the status quo.

In terms of the tension between self-enhancement values and self-transcendence values, the associations of selfishness values versus altruistic values with organisational and individual performance are taken to be an important dimension of values systems. It is argued that this dimension of values systems is particularly important because of the need for individuals to work together in order to achieve personal and organisational outcomes (Schwartz, 2007).

The attainment of research productivity, as an individual and an organisational outcome, is expected to be no different from the attainment of other work outcomes. Similarly, the tension between openness to change values and conservatism values is also taken to be particularly important because openness to change values are expected to facilitate the development of new knowledge (Schwartz, 2007), and is therefore also expected to be associated with the application of best practices and convergence.

In the following sections, the problem statement is outlined, the objective of the research is introduced, further literature is introduced that relates to the relationships between values and research productivity, and hypotheses are derived. After this, the methodology of the research is discussed and the results are reported and discussed in relation to the literature. The article concludes with a discussion of implications and recommendations that derive from the research. Theory and empirical findings that relate values differences to potential differences in work productivity are now reviewed.

## 2. The Research Problem, Aim, Objectives and Research Question

The problem addressed by this research is the deficiency in knowledge that exists with regard to the potential constraints to knowledge creation posed by values systems. This research attempted to resolve some aspects of this problem by providing evidence of the potential constraints to research productivity posed by values endowments.

### 2.1 The aim and objectives of the research

The aim of the research was to investigate the relationships between individual values and research productivity in order to provide insight into the way research productivity might be better managed in institutions of higher education. In this way, individual academics, academic institutions and society might benefit from higher levels of research productivity if constraints to research productivity are identified and this can result in these constraints being better understood and managed.

The objective of this research was to test seminal theory that relates individual values to work productivity. In this way the knowledge generated from this process was expected to contribute to the achievement of the aim of the research. The research questions derived from this objective are now briefly introduced.

### 2.2 The research question

On the basis of the theory introduced in the above sections, the theoretical rationale that underlies the derivation of the research question was offered. On the basis of this theoretical rationale, the following research question was posed: 'What is the potential influence of values upon research productivity as a form of work productivity?'

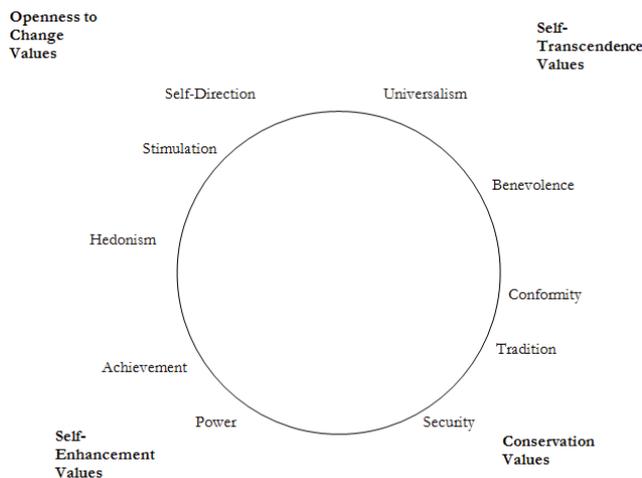
Literature that relates to the relationships between values and research productivity is reviewed in the following section. Seminal theory is introduced and hypotheses are derived from theory for testing.

## 3. Theory and Hypotheses

As already indicated, Schwartz's (2007) theory of basic values is a comprehensive theory of individual human values that incorporates all human cultural values into a theoretical framework of four higher order values and ten subordinate values orientations. These values form a circumplex structure, where the prioritisation of different values typically reflects the choice of one dimension of value at the expense of a corresponding 'opposite' value (Schwartz & Boehnke, 2004).

For example, an individual cannot prioritise self-enhancement values which are associated with the self and self-oriented goals while at the same time prioritising self-transcendence values which are associated with goals that subordinate self-oriented motivations to the goals of others. The circumplex structure of basic human values (Schwartz & Boehnke, 2004) is shown in Figure 1. Although Schwartz values have been studied in different contexts across the globe (see for example Schwartz, Melech, Lehmann, Burgess, Harris & Owens, 2001; Caprara, Schwartz, Capanna, Vecchione & Bararaneli, 2006; Schwartz & Bardi, 2001: 2), the influence of Schwartz values dimensions upon university research productivity has not, to our knowledge, been investigated.

**Figure 1.** The Schwartz values theoretical circumplex structure (Schwartz & Boehnke, 2004: 239)



### 3.1 Self-enhancement values versus self-transcendence values

As discussed, according to Schwartz (2007), a tension exists between the higher order values types of self-enhancement and self-transcendence. More specifically, the tension between the individual and the group, in terms of organisational needs, has been at the heart of much seminal theoretical HRM literature that relates this tension to potential performance (Guest, 1997; Huselid, 1995; Huselid, Jackson & Schuler, 1997; Rousseau & Parks, 1993; Ulrich, Brockbank, Yeung & Lake, 1995).

The misalignment of individual incentives and organisational objectives can also be a constraint to organisational performance, and the management of this misalignment is an important feature of HRM reward systems theory (Dutta & Manzoni, 1999).

Agency theory, in particular, predicts that misalignment between individual goals and organisational goals can significantly constrain performance due to misaligned incentives (Jensen & Meckling, 1976; Rousseau & Parks, 1993).

Similarly, if an individual prioritises individual goals at the expense of the organisation's goals over and above the influence of HRM systems, then such a misalignment might constrain individual and organisational productivity.

The prioritisation of the organisation's goals over an individual's goals when they differ can also be related to an evaluation of equity in the social exchange between the individual and the organisation, according to equity theory (Adams, 1963; Adams, 1965).

To some extent, organisational citizenship behaviours, or uncompensated extra-role and voluntary behaviours that are supplied by an individual to an organisation (Organ, 1988; Organ, 1997), might also reflect some aspect of self-transcendence, or the subordination of the self to other goals.

According to Schwartz (2007), values are also underpinned by a significant biological component of human physiology. Dawkins (1989) offers a biological perspective of how values might act within populations.

According to Dawkins (1989), the tension between selfishness and altruism, and how this is managed within an individual, has a fundamental influence upon the achievement of objectives in social contexts. Dawkins (1989: 3) explains that altruistic behaviour is present when an individual entity 'behaves in such a way as to increase another such entity's welfare at the expense of its own', and defines selfish behaviour as the converse of this.

Values can evolve through a process of 'vicarious trial and error', according to Dawkins (1989: 15). However, Dawkins (1989: 18) acknowledges that in practice 'it may be difficult to distinguish cases of genuine two-way mutual benefit from cases of one-sided exploitation'.

In reciprocal relationships between individuals there is typically a delay between the granting of favours and the repayment of such favours, and the tension between selfishness and altruism is reflected in the incentives that individuals have to cheat and not to repay the favour (Dawkins, 1989).

Dawkins (1989) modelled these relationships using game theoretic analysis and on the basis of this analysis argues that altruistic communities can face extinction in certain instances where cheating (selfishness) exists and becomes more prevalent due to the incentives that exist for selfishness.

However, when a critical proportion of individuals exists within such a population that will only continue to grant favours to those that have given to them (termed 'grudgers'), the population can be spared extinction (Dawkins, 1989).

Selfish behaviour will therefore decrease in such populations, yet 'may survive as a minority for a long time', because 'for any one rare cheat there is only a small chance of his encountering the same grudger twice; therefore the proportion of individuals in the population who bear a grudge against any given cheat will be small' (Dawkins, 1989: 20).

For Dawkins (1989: 21), this strategy, although based on a computer simulation, predicts that the grudger strategy 'does indeed turn out to be an evolutionary stable strategy against sucker [an unconditional altruist] and cheat [a selfish individual], in a sense that, in a population consisting largely of grudgers, neither cheat nor sucker will invade'.

However, Dawkins (1989: 21) acknowledges that this simulation was performed with arbitrary pay-offs, and argues that, according to the different possible pay-offs in the scenario, 'one or other of the two stable states will have a larger 'zone of attraction' and will be more likely to be attained'.

The evolutionary stable state that a population arrives at can therefore drive it to extinction. Alternatively, it can also drive it to thrive. The implication that derives from Dawkins's (1989) conception of memes is that *in the same way that the relationships between selfish and altruistic intentions are modelled, selfish and altruistic values also compete in populations, or organisations, and are also expected to arrive at stable states which can drive such populations, or organisations, to extinction (or to constrained performance), or can cause such populations, or organisations, to thrive.*

It is argued that Dawkins's (1989) game-theoretic analysis of altruism versus selfishness has important implications for the values constraints posed to individual and organisational performance. If a specific organisation represents a relatively stable state, or values environment, the contestation between values is expected to result in certain values dominating in such a population over time.

Mechanisms of values dominance may therefore result in preferred norms that drive choices of organisational and individual behaviour and practices. The gap, therefore, between these norm-driven practices and other practices which are 'alien' yet are potentially more efficient or effective, or are 'best' practices, will be expected to reflect the strength of such values systems in constraining individual and organisational performance.

If an organisation were to reflect a stable state of a specific balance between selfishness and altruism, or self-enhancement and self-transcendence, such a state might be a relatively better or poorer fit to a specific context.

Individuals can be relatively more, or less, selfishly oriented (or more or less altruistic); the endowment of values of such an individual would be expected to reflect in the extent to which the goals of the organisation (the other) are prioritised over more selfish goals (the self).

Therefore, to the extent that work performance, and research productivity as a dimension of work performance, might be a function of an individual's ability to work as a team and to prioritise organisational goals above personal goals, hypothesis 1 is offered: *that self-enhancement values are negatively associated with research productivity.* Conversely, hypothesis 2 is also proposed: *that self-transcendence values are positively associated with research productivity.*

### 3.2 Openness to change values versus conservation values

The fundamental nature of knowledge creation is inherently innovative (Kobayashi, Nakamori & Wierzbicki, 2007), and dependent upon individual personal creativity and involvement (Polanyi, 1973).

By definition, therefore, knowledge creation is the development of *new* knowledge. The research process, however, is dependent upon precedent and institutional academic systems which might be bureaucratic in nature (Becher, 1989). Within the potential constraints of bureaucratic systems, conservation is expected to be a fundamental constraint to the adoption of new processes and practices.

Conservation, at the individual level, is also taken to act as a constraint to the implementation of best practices or new practices that require an innovative mindset, and therefore also to constrain convergence with more effective or efficient practices at the individual level (Kerr, 1983; Rowley & Benson, 2000:15; Salamon, 1997).

As one of the two fundamental higher order values tensions (Schwartz, 2007), the tension between openness to change values and conservation values is expected to reflect significant differences in research productivity between individuals. Hence hypothesis 3, *that openness to change values are positively and significantly associated with higher levels of research productivity*, and, conversely, hypothesis 4, *that conservation values are negatively associated with higher levels of research productivity.* The results of the process of hypothesis testing are reported in relation to the null hypothesis form of each of these hypotheses.

Values are an important aspect of the fit between an individual and an organisation, as an individual's values alignment with those of an organisation has also been found to be associated with higher levels of satisfaction and lower

levels of employee turnover (Chatman, 1991).

Human action in the workplace is typically driven by motivational effects, whereby action is directed by values, which are underpinned by motivations (Ross, Schwarz & Surkiss, 1999). Schwartz and Boehnke (2004) found, across 27 countries (n=10857), that confirmatory factor analysis supported the differentiation of the higher order values types into ten basic values types as part of a motivational continuum. These values orientations are discussed further as follows.

The higher order value type 'openness to change' comprises the values orientations of self-direction and stimulation (Schwartz, 2012). Self-direction values are associated with 'independent thought and action- choosing, creating, exploring', and with motivational goals associated with 'creativity, freedom, [being] independent, choosing [one's] own goals' and curiosity (Schwartz & Boehnke, 2004: 239). Stimulation values represent excitement, 'novelty, and challenge in life' (Schwartz & Boehnke, 2004: 239). These values represent innovativeness and creativity (Schwartz, 2007), and knowledge creation is expected to be driven by these values.

The higher order value type self-enhancement is comprised of the values orientations hedonism, achievement and power values (Schwartz, 2007). Hedonism values are defined as being associated with pleasure 'and sensuous gratification for oneself', and associated with motivational goals aligned to pleasure and the enjoyment of life (Schwartz, 1996: 122). Both achievement and power values, according to Schwartz (1992), are associated with social esteem, yet achievement values are associated with striving to demonstrate competence, and power values are associated more with abstract outcomes that are more related to status and social relations. Achievement values are therefore relatively more associated with individual action, or individual striving, while power values are relatively more associated with the hierarchical differentiation of societal relations (Schwartz, 1992).

The higher order value type 'conservatism' comprises security, conformity and tradition values orientations (Schwartz, 2007). Security values are defined as being associated with safety, 'harmony and stability of society, of relationships, and of self', and these values are associated with motivational goals such as the attainment of family security, national security, social order, cleanliness and the reciprocation of favours (Schwartz, 1996: 221). The conformity type of values derives from the 'prerequisite of smooth interaction and of group survival' (Schwartz, 1996: 122). Conformity values are defined as being associated with restraint 'of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms', and with motivational values related to politeness, obedience, self-discipline, and honouring parents and elders (Schwartz, 1996: 122). Tradition values relate to respect, 'commitment, and acceptance of the customs and ideas that traditional culture or religion provide' which are related to motivational goals of humility, devotion, and acceptance of one's 'portion in life' (Schwartz, 1994: 22).

The higher order values type self-transcendence comprises two values orientations: universalism and benevolence values. Universalism values are associated with understanding, 'appreciation, tolerance and protection for the welfare of all people and for nature' and with motivational goals relating to being broadminded, having wisdom, social justice, equality, a world at peace, a world of beauty, unity with nature and protection of the environment (Schwartz, 1996: 221). Benevolence values are associated with the preservation 'and enhancement of the welfare of people with whom one is in frequent personal contact', and with the motivational goals of humility, the acceptance of one's position in life, devotion, respect for tradition, and moderation (Schwartz, 1996: 122).

#### **4. Research Methodology**

In this study a quantitative exploratory cross-sectional correlational research design was used. This research design followed the precedent of similar work that tested Schwartz values theory (Schwartz, 2007). The ontological and epistemological assumptions associated with positivism (Burrell & Morgan, 1979) were deemed to be appropriate for such a quantitative study.

##### **4.1 Participants**

The entire lecturing staff of a large Southern African higher education institution, the University of the Witwatersrand, formed the population of this study. The research respondents were sampled using a purposive comprehensive sampling strategy. The sampling frame of this research was therefore made up of about 883 full-time permanent academic staff of the University of the Witwatersrand. Self addressed envelopes containing questionnaires were distributed to respondents in the form of hard copies and respondents were then requested to return these, anonymously, via the internal mail system. Two hundred and twenty-five responses were obtained, resulting in a response rate of about 25%. A sampling protocol was followed in order not to introduce extraneous variance into the process. The average age of the

respondents was about 41 years of age, with the majority of respondents being female (53%). Just over half of the respondents were of South African origin (56%) and spoke English as a home language (52%).

#### 4.2 Instrument

The measures of research productivity were items that requested respondents to indicate their number of published articles, conference proceedings publications, conference presentations, books published and book chapters published or accepted for publication. These items were designed to produce ratio data (Stevens, 1946).

Schwartz's modified Portrait Values Questionnaire (PVQ) was used in the study. This instrument, which was piloted prior to its use, provided interval data (Stevens, 1946). The PVQ had been used as a component of the European Social Survey, and it had also been used in over 70 countries in the world, with validity reflected in consistent results across these countries (Data Database, 2011). The scale items of the PVQ cover 'different conceptual components' of each value and do not 'measure a single concept redundantly' (Schwartz, 2007: 277). As a result of the design of the instrument, low measures of reliability are not problematic because the structure of the values can be checked instead for validity (Schwartz, 2007). The use of Cronbach Alpha measures of reliability are therefore not appropriate for this instrument, and in this research the Circumplex structure of associations was used as a test of reliability, following Schwartz's (2007) prescriptions. A factor analysis was therefore performed in order to validate the circumplex theoretical structure of the values indicated by Schwartz (2007). This was also the test on which the acceptance or rejection of null hypothesis 5 was premised.

#### 4.3 Data analysis

SPSS 19 statistical software was used to analyse the data. Pearson correlation tests, Pearson point-biserial correlation tests, tests of partial correlation analysis and factor analysis were applied. The specific issues relating to the application of these tests are discussed in the sections that report the results of these tests.

Response bias was controlled (Schwartz, 2007); the mean response of each respondent was controlled for each tested association through the use of partial correlation analysis. The Harmon test for common method variance was found to return acceptable results, and positive and negative affect were controlled for in all the associations (Podsakoff, MacKenzie, Lee & Podsakoff, 2003), using partial correlation analysis.

Table 1 reports the descriptive statistics of the Schwartz values orientations. Table 2 reports the descriptive statistics for the research productivity items and certain characteristics of the sample. Table 3 reports the descriptive statistics of the sample. Table 3 reports the factor loadings of the Schwartz values items. Table 4 reports the results of the Pearson correlation tests between the ten values orientations and the research productivity measures. This table also reports the associations between the values orientations and the measures of research productivity with negative affectivity, positive affectivity and response bias controlled for through the use of partial correlation analysis.

**Table 2.** Descriptive statistics: research productivity items and sample characteristics

Variable	Mean/Proportion	Median	Std. deviation	Variance
Age	40.8	40	10.56	111.4
Gender#	47%	-	-	-
Mr./Ms.	48%	-	-	-
Dr.	32%	-	-	-
Associate Professor	14%	-	-	-
Professor	8%	-	-	-
ISI/IBSS journals	7.19	2	14.7	215.8
DOE Journals	10.14	1	10.14	102.8
Conference proceedings	8.82	3.42	6.05	36.6
Conference presentations	8.82	3	16.7	278.7
Books	1.05	0	6.8	46.3
Book Chapters	1.7	1	3.27	10.7
Gross research output	21.97	10	35.7	1272.48

\*Multiple modes exist. The smallest value is shown. #These are binary variables. The proportion is therefore reported, shown as a percentage. Abbreviations: Std. deviation=Standard Deviation.

According to Schwartz's (2007) theory of individual values, four categories of values are predicted to dominate the circumplex structure of individual values. According to the results of the factor analysis testing (Table 3), Schwartz's (2007) predicted structure was found to be supported, with (i) the three conservation values loading in Factor 1, (ii) two of the three self-enhancement values loading on Factor 2, and (iii) both of the self-transcendence values loading on factor 3. Factor 4 included the openness to change dimension of stimulation, but also included the hedonism dimension, which is adjacent to it in Schwartz's (2007) circumplex. The other openness to change dimension of self-direction was found to load together with both the self-enhancement values of Factor 2 as well as the self-transcendence values of Factor 3. Stimulation values also loaded, albeit weakly, on Factor three together with the self-transcendence items. Notwithstanding these minor differences, Schwartz's (2007) theoretical structure was considered to be reasonably replicated in this context. The results of the hypothesis testing are discussed as follows.

**Table 3.** Rotated component matrix for the Schwartz values items

	Component			
	1	2	3	4
Self-direction	-.261	<b>.507</b>	<b>.534</b>	.117
Power	.235	<b>.746</b>	-.198	.272
Universalism	.046	-.150	<b>.788</b>	.210
Achievement	.167	<b>.822</b>	.086	.038
Security	<b>.614</b>	.253	.136	.044
Stimulation	-.067	.206	<b>.410</b>	<b>.704</b>
Conformity	<b>.828</b>	.200	-.104	-.012
Tradition	<b>.738</b>	-.143	.225	.249
Hedonism	.225	.112	-.076	<b>.864</b>
Benevolence	.317	.073	<b>.669</b>	-.103

Extraction method: Principal component analysis  
Rotation Method: Varimax with Kaiser normalisation  
Rotation converged in 7 iterations

## 5. Findings and Discussion

### 5.1 Null hypothesis 1. There is no significant association between Self-Enhancement values and research productivity.

According to the zero-order tests of association, hedonism values were found to be negatively associated with ISI/IBSS journal publication, conference presentations, the publication of book chapters and gross research productivity (an overall measure of research output quantity independent of quality, which consists of all of the tested measures of research productivity except book publication and conference proceedings publication).

When the influence of negative affect, positive affect and response bias were controlled for, all the measures of research productivity except book publication were found to be significant for this association.

This result supports the predictions of Schwartz's (2007) values theory (Schwartz & Boehnke, 2004), which posits that differences in individual endowments of motivational values can influence behaviour, and, hence, work productivity.

Of the three types of needs, Hedonism values are derived from biological needs of individuals as biological organisms, rather than from the need for coordinated social interaction or from the need for the functioning and survival of groups (Schwartz, 1994; 1996; 2007).

As such, these needs are associated with a desire for affective arousal (Schwartz, 1994). It is argued that higher levels of Hedonism values will typically conflict with work that requires a tolerance for more monotonous tasks or work that does not provide reasonably high levels of stimulation, as predicted by Activation theory (Scott, 1996).

These results are therefore taken to support the predictions of Activation theory which predict that individuals have a threshold of stimulation that they require from work tasks, which also requires congruence between the stimulation level of the task and the stimulation level of the individual (Scott, 1966).

**Table 4.** Associations between Schwartz values dimensions and research productivity

Schwartz dimension	DOEJ	IJ	CPP	CP	B	BC	GRP
Self-direction	-	-	-	-	-	-	-
Power	-	-.137 <sup>^</sup> / [-]	-.112 <sup>^</sup> / [-.114 <sup>^</sup> ]	-	-	-	-
Universalism	-	-	-	-	-	-	-
Achievement	-	-	-	-	-	-	-
Security	-	-	-	-	-	-	-
Stimulation	-	-	-	-	-	-	-
Conformity	-	-	-	-	-	-.137 <sup>^</sup> / [-.124 <sup>^</sup> ]	-
Tradition	-	-	-	-	-	-	-
Hedonism	-.126 <sup>^</sup> / [-.125 <sup>^</sup> ] [-.155 <sup>*</sup> ]	-.235 <sup>**</sup> / [-.193 <sup>**</sup> ]	-.131 <sup>^</sup> / [-.130 <sup>^</sup> ] [-.152 <sup>*</sup> ]	-.232 <sup>**</sup> / [-.238 <sup>**</sup> ] [-.181 <sup>**</sup> ]	-.115 <sup>^</sup> / [-.115 <sup>^</sup> ] [-.122 <sup>^</sup> ]	-.181 <sup>^</sup> / [-.174 <sup>*</sup> ] [-.157 <sup>*</sup> ]	-.257 <sup>**</sup> / [-.258 <sup>**</sup> ] [-.222 <sup>**</sup> ]
Benevolence	-.126 <sup>^</sup> / [-.123 <sup>^</sup> ] [-.131 <sup>^</sup> ]	-.141 <sup>^</sup> / [-.129 <sup>^</sup> ] [-]	-	-	-.118 <sup>^</sup> / [-]	-	-

Note: Zero order correlations are before slash/Partial correlations with Positive Affectivity and Negative Affectivity controlled are after slash. Zero-order correlations after Affect and response bias are controlled are shown in square brackets. Abbreviations: Department of Education accredited journal publication (DOEJ), Department of Education ISI or IBSS journal publication (IJ), conference proceedings publication (CPP), conference presentation (CP), book publication (B), the publication of book chapters (BC) and gross research productivity (GRP).

It is argued that research work is associated with high investments in time and in activities, which, when compared with teaching for example, are relatively monotonous (with relatively lower levels of stimulation) that may require painstakingly detailed applications.

Another dimension, however, along which hedonism values might constrain research productivity, may be along the dimension of delayed gratification. The immediate gratification required by individuals with high levels of hedonism values (Schwartz, 1994) might prioritise individual and immediate satisfactions above those that are associated with delayed gratification.

These results are taken to support the notion that values constraints to productivity exist (Kerr, 1983; Rowley & Benson, 2000:15; Salamon, 1997). To the extent that individual research productivity can be enabled through the benchmarking of best practice (Camp, 1989) and learning derived from this process, hedonism, as a human values constraint may disinter-mediate this process.

These results also support theory offered by Dawkins (1989) that predicts the potentially negative influence of selfishness, or excessive self-orientation in social contexts.

Power values were found to be negatively and significantly associated with ISI/IBSS journal article publication, according to the zero-order tests of association, yet no longer so when the control items were included. Individuals with self-oriented motivational values that are associated with a need for status and to dominate in social relations (Schwartz, 1992; 1994; 1996; 2007) might plausibly be expected to be constrained in research productivity at the highest levels of productivity if such an activity kept an individual away from a more social context of work. However, the association was taken to not be supported on the basis of the method bias test results.

Achievement values were not found to be significantly associated with any of the measures of research productivity. If achievement values are associated with a striving to demonstrate competence (Schwartz, 2007) then the lack of an association with any of the measures of research productivity is surprising and unexpected.

It is acknowledged that it is possible that achievement motivational goals are not a prime driver of research productivity. This result tentatively supports Dawkins's (1989) notion that selfishness might not necessarily be a driver of productive behaviour, but does not support the conception that achievement-oriented selfish drives are negatively associated with job performance (research productivity in this context). On balance, the null-hypothesis was rejected and the alternative hypothesis was accepted.

## 5.2 Null hypothesis 2. There is no significant association between self-transcendence values and research productivity.

No significant association was found between universalism values and any of the measures or research productivity. Benevolence values were found to be negatively associated with ISI/IBSS journal article publication according to zero-order tests but not when affect and response bias were controlled.

To the extent that benevolence values are associated with the 'welfare of people with whom one is in frequent

personal contact' (Schwartz, 1996: 122), the social basis of this values dimension is dominant. Similarly, Universalism values are associated with motivational goals associated with 'the welfare of all people and for nature' (Schwartz, 1996: 221). Both of these motivational goals might be served in a more social context than the more isolated context of research work. As such, the absence of statistical associations for these relationships might be expected.

### *5.3 Null hypothesis 3. There is no significant association between openness to change values and research productivity.*

No significant association was found between stimulation values or self-direction values and any of the dimensions of research productivity. If stimulation values represent excitement, 'novelty, and challenge in life' (Schwartz & Boehnke, 2004: 239), then these values might be considered to share some dimension with hedonism values, although the excitement associated with stimulation values is more distal to the job, or work task itself.

If self-direction values are associated with 'independent thought and action- choosing, creating, exploring', and with motivational goals associated with 'creativity, freedom, [being] independent, choosing [one's] own goals' and curiosity (Schwartz & Boehnke, 2004: 239), then these values might be expected to be associated with higher levels of research productivity.

These results support the predictions of Kuhn's (1970) paradigms theory, which predicts that scientific advancements, or knowledge creation, is constrained by normative values systems, and is not truly and objectively 'innovative' of itself.

Worryingly, openness to change values, or innovative values, (Schwartz, 2007) might not be a primary driver of research output.

It is acknowledged, however, that these tests might have produced conservative results due to some degree of range restriction; the standard deviation value for self-direction (1.4), was found to be the lowest of all the Schwartz values items. Nevertheless, it is argued that a values systems constraint to knowledge creation (Kuhn, 1970) may be present in this context because innovative values are not found to be associated with higher research outputs.

### *5.4 Null hypothesis 4. There is no significant association between conservation values and research productivity.*

No significant association was found between tradition or security values and any of the dimensions of research productivity. Conformity values were found to be negatively associated with book chapter publication until affect and response bias were controlled. The null hypothesis was therefore accepted and the alternative hypothesis was accepted.

Conformity values are typically associated with the restraint 'of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms' (Schwartz, 1996: 122). As in the case of tradition values, a negative association here was expected.

It is surprising that the tension between conservatism and openness to change values was not found to dominate in this context (the supposedly innovative context of a research university).

However, the conservation items were found to have the highest (conformity), the third highest (security) and the fourth highest (tradition) standard deviations. This might suggest that range restriction is relatively less likely to be an explanation for the lack of associations between conservation values and research productivity.

An alternative explanation might be that the context of research productivity is not essentially dominated by openness to change values or by conservation values.

The implication of this is also perhaps worrying; that this context might not be as inherently innovative as one might expect of a research oriented university. Further research might offer insight into whether these results (a lack of influence of innovativeness and openness to change values on research productivity) are perhaps only South African-context specific.

## **6. Concluding Remarks**

The purpose of this study was to investigate the extent to which theory predicted that work productivity in the form of research productivity is potentially constrained by values.

Self-enhancement values such as hedonism values were found to dominate the tested relationships between values dimensions and research productivity.

These results support Dawkins's (1989) theory premised upon computer game-theoretic simulations, which predicts a link between selfishness values and negative outcomes in human behaviour.

If the predictions of convergence theory are valid: that the convergence of practices (Kerr et al., 1960) extends to best practices that require working together with others, knowledge sharing (Vos et al., 1997), and subordinating selfish interest to the interests of others and to organisational goals; and if these practices are all increasingly associated with knowledge work (Huselid, 1995; Kabasakal & Bodur, 2004), then it is predicted that selfishness, or self-enhancement values will constrain not only organisational productivity but also individual productivity. It is argued that this study provides evidence to support these predictions.

In identifying the dominant influence of hedonism-related self-enhancement as a values constraint to almost all the dimensions of research productivity, these results support the importance ascribed to the consequences of the prioritisation of individual goals over organisational goals that is reflected in seminal management and human resources management literature (Adams, 1963; Adams, 1965; Guest, 1997; Huselid, 1995; Huselid, Jackson & Schuler, 1997; Jensen & Meckling, 1976; Organ, 1988; Organ, 1997; Rousseau & Parks, 1993; Ulrich, Brockbank, Yeung & Lake, 1995).

These results therefore also build upon the work of others that have researched research productivity in this context (Stephen et al., 2004) by offering insight into how research productivity might be constrained in this context; in this case through the influence of values.

Evidence of the dominance of the influence of hedonism as a self-enhancement value in constraining research productivity suggests certain recommendations. Because hedonism motivational values are primarily underpinned by the biological needs of individuals as biological organisms (Schwartz, 1994), recommendations based on the seminal biological neuro-psychological theory prescriptions of activation theory (Scott, 1966) might be relevant.

According to activation theory, individuals are to some extent able to develop their ability to match their innate level of required stimulus to work that offers less stimulus (such as certain research work) over time, as long as they find the work meaningful (Scott, 1966).

If such work were to be made more meaningful in the university context, this might increase research productivity in this context, even if this effect were to better match the stimulus levels of individuals across the board.

To the extent that hedonism values are found to be negatively associated with age, it is recommended that institutional capital of such institutions is not lost through arbitrary retirement ages in the South African context (such as the age of sixty or sixty-five).

All else being equal, the development of research productivity of academics can increase over time with age if the values constraints to research productivity are primarily dominated by hedonism values. It is argued that such a loss of institutional capital cannot represent 'best practice'.

Interestingly, despite the predictions of theory that openness to change values, being more innovative, would be associated with knowledge creation (Kobayashi et al., 2007; Polanyi, 1973), and theory that predicted that conservation values would constrain innovativeness (Schwartz, 2007), evidence was not found to support these predictions in this context. A tentative and perhaps plausible, yet troubling, explanation might be found in Becher's (1989) argument that university systems are inherently more bureaucratic and reflect the nature of academic differences between fields more than they are truly innovative and knowledge-creating by nature.

It is concluded that Kuhn's (1970) paradigmatic theory of knowledge creation, or research productivity, might be supported in this context in its prediction that research productivity is not inherently innovative but is primarily constrained by the normative values systems of researchers.

If knowledge, and therefore knowledge creation, is the dominant factor of production in a globalised world (Huang, 2009), then based on these results human values might also be an important determination of human progress because of their potential to constrain research productivity.

The results of such research, in such a case, should also become the inputs into best practice, and should also become the inputs into further research into the potential for convergence (Kerr et al., 1960) of best practices to overcome the values constraints to human knowledge creation (Kuhn, 1970) and, therefore, human progress.

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