

The Effects of Organisational Climate, Psychological Contract Breach and Communication on Individual Research Productivity

Peter P. Khaola and Mookho Raselimo

Abstract

This study examined the effects of organisational climate, psychological contract breach, and effective communication on individual research productivity at the National University of Lesotho. It also investigated the relative importance of personal factors and perceptions of contextual factors on research productivity. Data were collected through self-administered questionnaires distributed to 160 faculty members. Hierarchical regression analysis, partial least squares structural equation modelling, usefulness analysis and relative weight analysis were used to analyse the data. The results show that organisational climate was positively related to effective communication and negatively related to psychological contract breach. Effective communication mediated the relationship between organisational climate and research productivity. Contrary to expectations, organisational climate and psychological contract breach were negatively and positively related to research productivity, respectively. Furthermore, personal factors demonstrated incrementally higher variance than contextual factors in explaining research productivity. These findings imply that university administrators can improve research productivity through effective communication. For instance, university management should communicate the goals of research to all employees.

Key words: communication, organisational climate, psychological contract breach, research productivity

ABOUT THE AUTHORS: PETER P. KHAOLA National University of Lesotho, Email: peterkhaola@gmail.com

MOOKHO RASELIMO National University of Lesotho, Email: raselimomookho@gmail.com

Cette étude a analysé les effets du climat organisationnel, de la violation du contrat psychologique et de la communication sur la productivité individuelle en recherche à l'Université nationale du Lesotho. L'enquête a aussi été menée sur l'importance relative des facteurs personnels et des perceptions des facteurs contextuels sur la productivité en recherche. Les données ont été rassemblées à travers des questionnaires auto-administrés distribués à 160 membres du corps professoral. Des analyses de régression hiérarchique, la modélisation par équations structurelles par moindres carrés partiels, une analyse de l'utilité ainsi qu'une analyse du poids relatif ont été utilisées pour analyser les données. Les résultats montrent que le climat organisationnel était lié positivement à la communication effective et lié négativement à la violation du contrat psychologique. La communication effective a servi d'intermédiaire dans la relation entre le climat organisationnel et la productivité en recherche. Contre toutes attentes, le climat organisationnel et la violation du contrat psychologique étaient négativement et positivement reliés à la productivité en recherche, respectivement. En outre, les facteurs personnels ont démontré une variance plus progressivement élevée que les facteurs contextuels pour expliquer la productivité en recherche. Ces résultats sous-entendent que les administrateurs et administratrices d'université peuvent améliorer la productivité en recherche avec la communication effective. Par exemple, les gestionnaires d'université devraient communiquer les objectifs de recherche à tous les employés.

Mots clés: communication, climat organisationnel, violation du contrat psychologique, productivité en recherche

Introduction

There is general consensus that increasing research productivity is essential for knowledge creation and national development (Hayward and Ncayiyana, 2014; White, James and Allen, 2012). While the impact, importance and quality of research are important factors (Bentley, 2012; Ramsden, 1994) several authors note that the number of publications is a one critical indicator of research productivity (Bergeron, Ostroff, Schroeder and Block, 2014; Jung, 2014; Ramsden, 1994). Overall, sub-Saharan Africa produces few scholarly publications (Hayward and Ncayiyana, 2014; Nafukho, Wekullo and Muyia, 2019) and higher education institutions (HEIs) in Lesotho averaged less than one research report per academic staff member in a year between 2010 and 2012 (Council on Higher Education, 2011-2012). This undermines this resource-constrained country's capacity to address scientific, social and economic challenges (Council on Higher Education, 2011-2012).

The low levels of research productivity in sub-Saharan Africa have been attributed to various factors, including low levels of research funding, teaching loads, few faculty members with PhDs and research training, and policymakers' failure to recognise the importance of research to effective teaching and national development (Hayward and Ncayiyana, 2014).

The antecedents of research productivity have conventionally been grouped around the individual (individual-related variables), the environment (context-related variables), and the interaction between the two (Bergeron et al., 2014; Kwiek, 2018; Ramsden, 1994; White et al., 2012). However, the literature on this phenomenon has focused on developed countries which have more research-intensive universities than developing countries. It is therefore not clear if these findings would be replicated in resource-constrained and teaching-oriented universities such as the National University of Lesotho (NUL). Furthermore, few previous studies have started from a theoretical standpoint (Ramsden, 1994). This is problematic because the factors that may influence individual research productivity are complex, and without a guiding theoretical model, they could be difficult to identify. For instance, it is not clear whether research productivity can be explained based on established theories from the education literature such as reinforcement and cumulative advantage (Fox, 1983; Ramsden, 1994); or whether researchers can also borrow from theories that are used to explain performance in other settings. Performance is a multi-faceted construct that includes in-role performance, extra-role performance, counterproductive work performance, and creativity and innovation (Harari, Reaves, and Viswesvaran, 2016). Further research is thus required to explain individual research productivity from a wider perspective of performance theories.

While Bergeron et al. (2014) posit that lecturers' research productivity is in-role performance (and can plausibly be explained based on theories that explain such performance in other settings), we argue that theories developed and tested in other contexts cannot be generalised to human resource (HR) management practice without research that validates them (Callaghan and Coldwell, 2014). Furthermore, it is important to examine if theories developed and confirmed in developed countries can be used to explain similar criteria in developing countries (Hui, Lee and Rousseau, 2004).

While extant HR management literature suggests that factors such as psychological contract breach and general climate are robust predictors of performance in private sector organisations (Shen, Schaubroeck, Zhao and Wu, 2019; Zhao, Wayne, Glibkowski and Bravo, 2007), little is known about the effects of these factors on research productivity (performance) within institutions of higher learning. This study makes a novel contribution to the literature by examining if communication, organisational climate, and psychological contract breach influence individual research

productivity and evaluates the relative effects of individual differences (gender, age, tenure, highest level of education and rank) and perception of contextual factors (communication, psychological contract and climate) on such productivity. Its findings could be generalised to institutions of higher education that share similar attributes to the NUL (Callaghan, 2017).

The article is organised as follows: Section two reviews the relevant literature and develops hypotheses based on that review; the third section presents the research methodology and the fourth focuses on findings. The findings are discussed in section five, and the final section concludes the article.

Literature Review and Development of Hypotheses

Explaining Research Productivity

The sources identified as underpinning research productivity have traditionally been related to the individual and the environment, and sometimes the interaction between the two (Jung, 2014; Kwiek, 2018; Ramsden, 1994; White et al., 2012). Individual factors include the lecturer's motivation, attitudes, ability, work habits, and demographic factors such as age, experience, rank, gender, and level of education. Environmental factors include the distinctive culture and climate, communication, availability of resources, networking, leadership, and clear research goals (Jung, 2014).

Since the classical work of Fox (1983), two complementary theories, the reinforcement and cumulative advantage theories, have dominated the discourse on how the individual and the environment explain individual research productivity (Ramsden, 1994). According to reinforcement theory, merit pay, awards and promotions motivate lecturers to become research productive (Jung, 2014). The cumulative advantage theory holds that senior members of faculty have an advantage over their junior counterparts because they have a proven track record of research productivity, which is the source of financial and other resources, higher productivity and a research advantage (White et al., 2012). While these theories have shed some useful light on what influences research productivity, it is not clear if other theories in general management, HR management and organisational behaviour can be used to explain how individual and environmental factors influence individual research productivity. For instance, the social exchange and psychological contracts theories have widely been used to explain the relationships between a variety of predictors and individual general work performance. We deploy these theories to build an exploratory model that explains how individual differences, communication, psychological contract breach, and organisational climate influence individual research productivity in a university dominated by undergradu-

ate programmes and teaching, but which in absolute terms produces the largest research output in its context (Council on Higher Education, 2011-2012).

Organisational Climate, Psychological Contract Breach and Research Productivity

The psychological contract is a popular social exchange-based construct used by management scholars to explain attitudes and behaviours in organisations (Dulac, Coyle-Shapiro, Henderson and Wayne, 2008). A psychological contract has been defined as a set of beliefs concerning reciprocal obligations between employees and their employers (Rousseau, 1989; 1995). These beliefs, which often transcend written and implicit promises and agreements, are sometimes perceptual, and may not be understood in the same manner by parties to the contract (Restubog, Hornsey, Bordia and Esposito, 2008). The contract is fulfilled if the employer fulfils the explicit or implicit promises made; otherwise, the employee is likely to perceive psychological contract breach (Morrison and Robinson, 2000).

Zhao et al.'s (2007) meta-analytic study used affective events theory (Weiss and Cropanzano, 1996) to explain how psychological contract breach or fulfilment explains work-related outcomes. Affective events theory posits that events at work shape emotions, which in turn influence job attitudes and behaviours (Bal, De Lange, Jansen, and Van Der Velde, 2008). Zhao et al. (2007) suggested that psychological contract breach is a negative work event, while psychological contract fulfilment is a positive one. Thus, a lecturer who perceives psychological contract breach could develop negative emotions, negatively affecting their research productivity.

Similar arguments can be premised on the social exchange theory that posits that people engage in interdependent and contingent actions that generate reciprocal exchange expectations and obligations between two or more parties, often driven by reciprocity and trust (Cropanzano and Mitchell, 2005; Tekleab, Laulié, De Vos, De Jong, and Coyle-Shapiro, 2019). The norm of reciprocity predicts that people react positively and negatively to positive or negative actions, respectively (Gouldner, 1960). Thus, if a lecturer perceives fulfilment of the psychological contract (a positive work event), he or she is likely to develop positive emotions about the employer, and reciprocate by engaging in research productive behaviours. Conversely, a perceived discrepancy between what was promised and given (a negative work event) is likely to lead to negative emotions and reduced research productivity.

Both Zhao et al. (2007) and Bal et al. (2008) found that psychological contract breach was negatively related to various employee attitudes and behaviours. Similar results were reported by Restubog et al. (2008) and

Coyle-Shapiro and Kessler (2000). It could therefore, be expected that lecturers who perceive psychological contract breach would reduce their research productivity.

Hypothesis 1: Psychological Contract Breach is Negatively Related to Research Productivity.

Behaviour is a function of the person and the context, and the organisational climate is a social context that influences personal attributes (attitudes, perceptions, motivations and emotions) and behaviour (Denison, 1996). The organisational climate has been defined as “the shared perceptions of and the meaning attached to policies, practices and procedures employees experience and the behaviours they observe getting rewarded and that are supported and expected” (Schneider, Ehrhart, and Macey, 2013, p. 362). While an individual forms their own perceptions of HR practices, it is not unusual for employees to have a collective perception that is reflected in a common climate (Tekleab et al., 2019). As one of the key social contexts in organisations, Schneider et al. (2013) suggest that perception of organisational climate is a plausible lens through which researchers can understand employee perceptions and behaviours. According to Shen, Schaubroeck, Zhao and Wu (2019), context shapes how employees respond to events they interpret as breach of their psychological contracts. It is therefore plausible to expect that in a positive organisational climate, employers may fulfil employees’ psychological contracts, and in a negative one, they may fail to fulfil promises, leading to employee perception of psychological contract breach (Morrison and Robinson, 2000). This is because the experience of HR practices and policies has a signalling influence on employees’ perception of psychological contracts with organisations (Mossholder, Richardson, and Settoon, 2011). Epitropaki (2013) found that psychological contract breach mediated the effects of a justice climate on employee performance.

In summary, the work climate is expected to influence psychological contract breach, which is expected to influence desired outcomes such as research productivity in HEIs. These views can be consolidated into two inter-related hypotheses as follows:

Hypothesis 2: Organisational Climate is Negatively Related to Psychological Contract Breach.

Hypothesis 3: Psychological Contract Breach Mediates the Relationship between Organisational Climate and Research Productivity.

Organisational Climate, Communication and Research Productivity
Communication can be defined as an exchange of information between two

or more people (Marlow, Lacerenza, Paoletti, Burke, and Salas, 2018). Effective communication influences performance because it enhances employee coordination; serves to clarify goals to employees; resolves misunderstanding among and between employees and employers; and functions as a conduit through which employees share strategic information with others (Marlow et al., 2018). It is therefore conceivable that effective communication between university management and lecturers, and communication among lecturers themselves can improve research productivity. Several authors suggest that productive scholars collaborate and build effective relationships (Martínez, Floyd and Erichsen, 2011; Tschannen-Moran and Nestor-Baker, 2004), implying that effective communication is critical for research productivity. More specifically, it facilitates mobilisation of resources within one’s university; helps one to extend networks with colleagues within and beyond the university; and fosters good relationships with postgraduate students and other mentees (Martínez et al., 2011).

Marlow et al.’s (2018) meta-analytic study found significant relationships between team communication and team performance. In the context of HEIs, a research-oriented culture, communication, networking and a positive climate are considered important environmental factors that may influence research productivity (Jung, 2014). It is therefore plausible to hypothesise that:

Hypothesis 4: Effective Communication is Positively Related to Research Productivity.

Organisational climate is closely related to communication. Research has shown that, despite different scales and dimensions of organisational climate, communication is one of the dimensions of the overall organisational climate (Castro and Martins, 2010; Furnham and Goodstein, 1997; Tonidandel and LeBreton, 2015). Given that organisational climate and effective communication were considered as two separate constructs in this study, and given the recursive nature of the envisaged model, it was expected that organisational climate would influence effective communication. We argue that lecturers are likely to perceive effective communication where the organisational climate is positive. This is because the organisational climate (employees’ shared perception of policies, practices and procedures) creates a context in which effective communication takes place.

The literature also suggests that organisational climate and individual job satisfaction are distinct but highly related constructs (Castro and Martins, 2010; Denison, 1996). Since job satisfaction and research productivity are also positively related (Callaghan and Coldwell, 2014), it is plausible to expect that organisational climate would positively influence research productivity.

Overall, while organisational climate was expected to influence the perception of effective communication, it was also expected to explain some direct variance in research productivity. The reason is that a research-oriented culture and a positive climate are important influences on research productivity (Jung, 2014). Based on the above conjectures, the following hypotheses can be examined:

Hypothesis 5: There Is A Positive Relationship between Organisational Climate and Effective Communication.

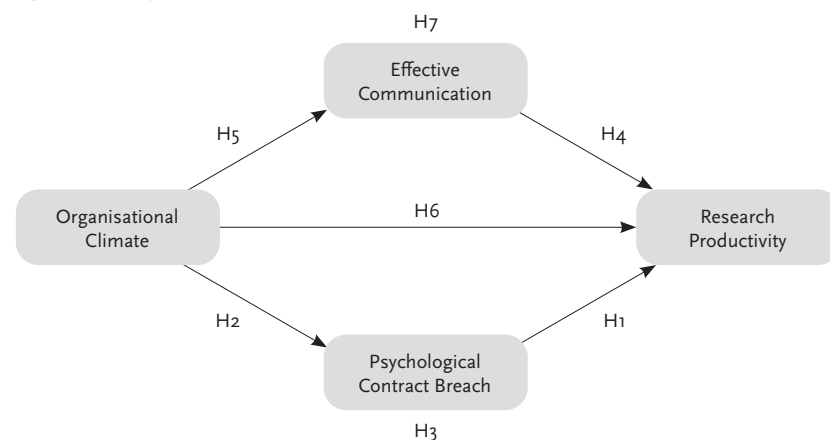
Hypothesis 6: There Is A Positive Relationship between Organisational Climate and Research Productivity.

Hypothesis 7: Effective Communication Mediates The Relationship between Organisational Climate and Research Productivity.

In summary, based on the literature reviewed above, it was expected that organisational climate would positively influence both effective communication and research productivity, and negatively influence psychological contract breach. In turn, effective communication and psychological contract breach were expected to influence research productivity positively and negatively, respectively. Finally, both effective communication and psychological contract breach were expected to partially mediate the relationship between organisational climate and research productivity.

The expected relationships are summarised in the conceptual model in Figure 1.

Figure 1. Conceptual Model



Individual Differences and Research Productivity

Personal characteristics and differences remain a central focus of inquiries into individual research productivity. While the results of past studies are mixed, knowledge of research productivity based on personal differences is important because it has implications for hiring lecturers (Ramsden, 1994; White et al., 2012). Nevertheless, previous studies have relegated individual differences to the group of control variables (e.g. Bergeron et al., 2014), and few have focused on the relative influence of the individual versus the situation in determining individual research productivity (White et al., 2012).

Gender is one of the most researched personal differences with regard to research productivity. Gender is a broader term than 'sex' (i.e. biological differences between men and women), and typically relates to socially expected behaviours and roles (Callaghan, 2017). Gender is used in this article to refer to differences between men and women.

Findings on the impact of gender on general performance are equivocal (Bell, Villado, Lukasik, Belau and Briggs, 2011). While some studies suggest a convergence of the gender gap in research productivity over time (Bentley, 2012), it has generally been found that men have higher publication output than women (Bergeron et al., 2014; Jung, 2014; Sax, Hagedorn, Arredondo and DiCrisi, 2002). The impact of gender on performance may thus differ depending on whether it relates to general performance or research productivity. This has been attributed to a number of factors, including the fact that women focus more on teaching than research (Callaghan, 2017); have less research orientation (Sax et al., 2002); have more family commitments which may reduce the time devoted to research (Kwiek, 2018; Sax et al., 2002); or simply because women are less represented in senior ranks which produce the bulk of research output in universities (Ramsden, 1994). Intrinsic motivation and cumulative advantage could explain these gender differences. Because men have higher self-efficacy than women (Callaghan, 2017), and enjoy a cumulative advantage based on their rank in HEIs, they should produce a higher research output than women. Male dominance in research productivity is supported by several studies (Bentley, 2012; Bergeron et al., 2014; Callaghan, 2017; Ramsden, 1994). Given that the convergence of the gender gap in research productivity has yet to be fully realised (Callaghan, 2017), we expected significant gender differences in research productivity in the institution under study.

Turning to age, while some studies have found that it has no discernible influence on research productivity (Ramsden, 1994; Kwiek, 2018), others concluded that younger lecturers are more research productive than their older counterparts (Jung, 2014; Sax et al., 2002). The reason is that early career academics become productive in pursuit of promotion and tenure;

once they reach full professoriate level, their intrinsic motivation to publish declines (Jung, 2014).

Tenure, which is related to age, is positively related to general performance (Bell et al., 2011) and research productivity (Bergeron et al., 2014; Jung, 2014). A lecturer with long tenure is likely to understand the university's social networks, values, expected behaviours, and culture (Bell et al., 2011); and can therefore have a cumulative advantage over the lecturer with relatively short tenure. Bergeron et al. (2014) found a positive relationship between years of experience and productivity. While Jung (2014) concluded that postdoctoral experience had a negative influence on publication in national journals for late career stage academics in Korea, it had a positive influence on articles in international journals for both early and late career stage academics. It was thus expected that tenure would have a positive influence on research productivity.

Educational level is often associated with mental ability, knowledge and information relevant to the task (Bell et al., 2011). For example, Bentley (2012) found that doctoral qualifications were associated with higher levels of research productivity. Similar findings emerged for two universities in Kenya (Nafukho et al., 2019). It was hence expected that lecturers with high levels of education (e.g. a PhD) would be more productive than their counterparts with relatively low levels of education (e.g. Master's or Bachelor's degrees).

The last personal characteristic included in the study was academic rank. Whereas it may plausibly be associated with age, tenure and level of education, it is most likely to be related to scholarly achievements, reflected in research productivity. Faculty in higher academic ranks have broad experience, networks, and connections that have accumulated over time; and they should be more productive than academics in lower academic ranks (White et al., 2012). Several studies support a strong relationship between academic rank and individual research productivity (Bentley, 2012; Bergeron et al., 2014; Nafukho et al., 2019; Ramsden, 1994; Sax et al., 2012). Based on existing literature, it was expected that high academic rank would be associated with high research productivity, and vice versa.

Overall, because previous research results have been equivocal, the effects of individual differences on research productivity cannot be specified *a priori* (Valle and Schultz, 2011).

Relative Effects of Personal Factors and Environmental Factors on Research Productivity

There is consensus that personal, institutional support and environmental factors influence research productivity (Nafukho et al., 2019; Ramsden, 1994; White et al., 2012). However, it is not clear which factors give HEIs

a clear advantage because past results have been mixed. For instance, Jung found that the effect of cultural environment on research productivity was not significant, but some personal characteristics and institutional support had significant effects on productivity. Kwiek's (2018) research found that individual variables were more important than institutional variables (in terms of accuracy and size in regression coefficients) in predicting research productivity. In contrast, an earlier study by Ramsden (1994) concluded that a positive environment had more impact on research productivity than individual differences. While these studies did not systematically assess the relative importance of these factors, it is clear that there is no consensus. We apply usefulness analysis (Darlington, 1968) and relative weight analysis (RWA) (Johnson, 2000; Tonidandel and LeBreton, 2015) to evaluate the relative importance of the predictors included in this study in influencing individual productivity.

Method

Research Design

A cross-sectional, quantitative research design was adopted, and data were collected by means of a survey using structured, self-administered questionnaires. This design was deemed appropriate because the purpose was to relate one variable to another.

Sample and Procedures

Self-administered questionnaires were directly distributed to the participants' offices. Of about 315 faculty members (instructors) in the university, only 160 who were available in their offices during the data collection period (about one month) agreed to participate. Thus convenience sampling was used to gather data. Of those who agreed to participate, 135 returned completed questionnaires, constituting a response rate of 84%.

A total of 57.5% of the sample were males and 42.5% were females. The majority (31.9%) were between the ages of 31 and 40, and most (73.3%) were lecturers (senior and junior lecturers). The majority (49.6%) of respondents had a Master's Degree as their highest level of qualification. Finally, on average, the respondents had been with the university for about ten years ($M = 10.10$, $SD = 7.99$) at the time of study.

Measures

Unless stated otherwise, variables were measured on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Effective communication: Effective communication was measured using five items adapted from the scale used by Otoo (2015) and one item from the scale developed by Furnham and Goodstein (1997). After refinement

of the scale only four items loaded reasonably well on a latent construct. These were: “I am kept informed about how well the institution’s goals and objectives will be met”; “the top management provided me with the kind of information I need to perform duties”; “employees in this institution can easily exchange information and opinions”; and “in general, communication is effective in this university”. The internal reliability of the scale (Cronbach’s alpha) was 0.77.

Organisational climate: Eight items adapted from the scale developed by Furnham and Goodstein (1997) were used to assess this construct. The items tapped into role clarity, reward systems and career development. After refinement of the scale only six items loaded reasonably well on a latent construct. These were: “the climate at work allows me to make innovative suggestions to my superiors”; “the management has made sure I know what my duties and responsibilities are at work”; “I receive appropriate salary and benefits”; “My work is regularly reviewed with my development in mind”; “career development is taken seriously in this institution”; and “academic employees are promoted fairly in this institution”. The Cronbach’s alpha was 0.72.

Psychological contract breach: Psychological contract was measured using five items from the scale developed by Robinson and Morrison (2000). These were: “almost all the promises made to me by my employer during recruitment have been kept so far”; “so far, my employer has done an excellent job fulfilling his/her promises to me”; “my employer has broken so many of his/her promises even though I have upheld my side of the deal”; “I have not received everything promised to me in exchange for my contributions”; and “even if I did the best possible job, my employer would fail to notice me”. Since the aim of the study was to determine the psychological contract breach, the positively-worded items were reverse-coded to reflect such breach. The Cronbach’s alpha was 0.82.

Research productivity (performance): Research productivity was measured as an index of two objective measures, namely, published conference proceedings and refereed journal publications. Faculty members were requested to state the number of these that they had achieved since joining the university. The internal reliability of the scale was 0.74. While these are popular measures of research productivity (Bentley, 2012), they have some limitations. First, they focus on quantity and neglect impact and quality (Ramsden, 1994). Second, they omit other equally valid measures of research productivity such as books and non-refereed publications. Third, because the university under study has low research productivity, we did not specify a period within which published papers should be reported. While this may give those with longer tenure some advantage, it was necessary to allow some variation in the number of items published

for purposes of analysis. We control for among other things, tenure and age in our regression models to ensure valid results.

Data Analysis

The Statistical Package for the Social Sciences (SPSS) and Partial Least Squares Structural Equation Modeling (PLS-SEM) were used to analyse the data. According to Hair, Ringle, and Sarstedt (2011) and Hair, Sarstedt, Pieper, and Ringle (2012), PLS-SEM is appropriate where the objective is prediction and explanation of the variables by key constructs; the sample size is relatively small; and available data is not normal. As indicated above, the sample size was relatively small (but still met the ten times rule of thumb for PLS-SEM according to Hair et al., 2012); and most importantly, as shown below, research productivity measures were skewed (Bentley, 2012; Bergeron et al., 2014; Kwiek, 2018). We also took the square-root of the productivity measures (normalised measures) in regression analysis to examine if the results would be different from those based on raw data (untransformed measures).

Assessment of Convergent and Discriminant Validity

Convergent validity assesses the degree to which the indicators of one latent construct are related (Hair, Black, Babin and Anderson, 2010). To assess the convergent validity, the average variance extracted (AVE) and composite reliability (CR) were computed. AVE refers to the average amount of variation that a latent variable explains in the observed variable (Hair et al., 2010). To confirm convergent validity, the AVE of each variable should be greater than 0.50 or higher, and CR should be 0.70 or higher (Hair et al., 2011).

Discriminant validity assesses the extent to which the indicators of different constructs are not related (Hair et al., 2010). We used the Fornell-Larcker criterion to assess the discriminant validity. According to this criterion, the square-root of the AVE of each variable should be greater than correlations of that variable with other variables in the model (alternatively, AVE should be greater than the squared inter-construct correlation, (Hair et al., 2012)).

Results

The results of construct reliability and validity are shown in Table 1.

Table 1. Results of Construct Reliability and Validity

Construct	1	2	3	4	AVE	CR
Climate	0.65				0.42	0.81
Communication	0.61	0.71			0.50	0.80
Psych Breach	0.63	0.45	0.76		0.58	0.87
Research Productivity	0.06	0.41	-0.07	0.92	0.84	0.91

As shown in Table 1, with the exception of organisational climate, each variable had an AVE equal to or higher than 0.50. Even though the AVE of organisational climate was less than 0.50 (perhaps due to its close relationship with the construct of communication), the CR of all constructs was above 0.70. These suggest reasonable evidence of convergent reliability. The square-root of the AVE of each variable was greater than corresponding correlations with other variables, providing evidence of discriminant validity of constructs.

The means, standard deviations and zero-order correlations are shown in Table 2.

On a scale ranging from 1 to 5, Table 2 shows that on average, employee perception of effective communication was moderate (M = 3.00, SD = 0.87). Employee perception of organisational climate was low (M = 2.87, SD = 0.80), and perception of psychological contract breach was below midpoint (M = 2.91, SD = 0.82).

On average, at the time of the study, each of the sampled lecturers had produced about three conference proceedings (M = 3.02, SD = 6.61), and five journal articles (M = 5.22, SD = 9.23) during their tenure. However, as could be expected, a few researchers produced the majority of articles, and the majority only produced a handful. For instance, 80% of the respondents published 3% of conference proceedings (skewness = 4.25, kurtosis = 22.36), and 80% published 11% of the journal articles (skewness = 3.66, kurtosis = 19.21).

Organisational climate correlated negatively with psychological contract breach (r = -0.59, p < 0.01), and positively with effective communication (r = 0.61, p < 0.01). As could be expected, psychological contract breach also correlated negatively with effective communication (r = -0.57, p < 0.01). Organisational climate, psychological contract breach and communication did not correlate significantly with indicators of research productivity (conference proceedings or journal publications), and overall research productivity indices. However, as indicated below, once the effects of other factors were controlled for, some of these contextual factors related significantly with research productivity.

Table 2. Means, Standard Deviations, and Inter-correlation of Variables

	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Gender	1.43	0.50	-										
2. Age	2.85	0.94	-0.07	-									
3. Rank	2.03	0.61	-0.04	0.33**	-								
4. Education	4.03	0.98	-0.01	0.49**	0.22*	-							
5. Tenure	10.10	7.99	0.05	0.52**	0.23**	0.33**	-						
6. Communication	3.00	0.87	0.04	0.04	0.08	-0.12	-0.09	(0.80)					
7. Climate	2.78	0.80	0.01	-0.04	0.00	-0.08	-0.17*	0.61**	(0.73)				
8. Contract Breach	2.91	0.82	-0.05	0.03	-0.04	0.09	0.24**	-0.57**	-0.59**	(0.82)			
9. Conference	3.02	6.61	-0.14	0.30**	0.36**	0.34**	0.25**	0.04	-0.16	0.15	-		
10. Journal	5.22	9.23	-0.25**	0.33**	0.31**	0.42**	0.20*	0.06	-0.03	0.06	0.66**	-	
11. Research Productivity	3.94	6.91	-0.20*	0.33**	0.33**	0.41**	0.31**	0.09	-0.06	0.11	0.80**	0.90**	(0.74)
12. Sqrt Research Productivity	1.42	1.38	-0.16	0.38**	0.31**	0.55**	0.38**	0.05	-0.12	-0.10	0.71**	0.84**	0.91**

Notes: *Significant at 0.05 (two-tailed); **Significant at 0.01 (two-tailed). Cronbach's alphas, where applicable, are shown in parenthesis

Conspicuously, Table 2 shows that most of the personal differences correlated significantly with research productivity. Specifically, there were significant differences between a) conference proceedings published by men ($M = 7.21$) versus those published by women ($M = 2.59$), $t = 2.92$, $p < 0.01$; and b) journal articles published by men ($M = 5.12$) versus those published by women ($M = 2.32$), $t = 2.34$, $p < 0.05$; with men reporting higher publications than women in both cases. Age was positively correlated with the number of conference proceedings ($r = 0.30$, $p < 0.01$), journal articles ($r = 0.33$, $p < 0.01$) and overall research productivity ($r = 0.33$, $p < 0.01$). The lecturer's rank was positively correlated with the number of conference proceedings ($r = 0.36$, $p < 0.01$), journal articles ($r = 0.31$, $p < 0.01$) and overall research productivity ($r = 0.33$, $p < 0.01$). Level of education was also positively correlated with the number of conference proceedings ($r = 0.34$, $p < 0.01$), journal articles ($r = 0.42$, $p < 0.01$) and overall research productivity ($r = 0.41$, $p < 0.01$). In similar vein, tenure was positively correlated with the number of conference proceedings ($r = 0.25$, $p < 0.01$), journal articles ($r = 0.20$, $p < 0.05$) and overall research productivity ($r = 0.31$, $p < 0.01$). With the exception of gender which was no longer significant, all other variables correlated more or less the same with normalised research productivity (the square-root of research productivity) and untransformed research productivity, albeit in varying effect sizes.

Hierarchical regression analysis, usefulness analysis and RWA were conducted to test the hypotheses. In the hierarchical regression models, personal characteristics were entered in step 1, and contextual variables were entered in step 2. To enable nuanced analysis of the results, separate models were run for conference publications, journal publications, overall research productivity, and the square-root of research productivity. The mediators were also included as dependent variables in models 1 and 2 to examine the impact of organisational climate (independent variable) on psychological contract breach and effective communication (mediators). The results are shown in Table 3.

Table 3. Hierarchical Regression Analysis Results

Variable	Psychological Contract Breach Model 1		Effective Communication Model 1		Refereed Conferences Model 3		Refereed Journals Model 3		Research Productivity Model 5		Sqrt research Productivity Model 6	
	β		β		β		β		β		β	
Step 1												
Gender	-0.07	-0.05	0.08	0.06	-0.11	-0.13	-0.24**	-0.25**	-0.18*	-0.20**	-0.14*	-0.17*
Age	0.05	-0.02	-0.19*	-0.18*	-0.05	-0.01	-0.07	-0.04	-0.07	-0.02	-0.02	-0.05
Rank	-0.06	-0.03	0.10	0.09	0.27**	0.25**	0.20**	0.18*	0.22**	0.19*	-0.14	0.12
Education	0.13	0.04	-0.16	-0.09	0.28**	0.29**	0.44**	0.44**	0.40**	0.41**	0.48**	0.52**
Tenure	-0.01	-0.10	0.14	0.07	0.01	0.01	-0.02	-0.02	0.00	-0.01	0.22*	0.21*
ΔR^2	0.02	-	0.09*	-	0.20**	-	0.32**	-	0.27**	-	0.41**	-
R ²	0.02	-	0.09	-	0.20	-	0.32	-	0.27	-	0.41	-
Step 2												
Communication												
Climate												
Psychological Contract Breach												
ΔR^2												
R ²												

Notes: β = Standardized beta (strength of the effect of each independent variable on the dependent variable), ΔR^2 = Change in variance explained by independent variables in the dependent variable, R² = Total variance explained by independent variables in the dependent variable

As shown in Table 3, whereas personal factors explained about 27% of the variance in research productivity ($R^2 = 0.27$), contextual factors added only 8% of unique variance ($\Delta R^2 = 0.08$, $p < 0.01$) over the one explained by personal factors. Overall, personal and contextual factors explained about 35% of variance in research productivity ($R^2 = 0.35$).

Hypothesis 1 predicted that psychological contract breach would be negatively related to research productivity. Although the relationship between psychological contract breach and research productivity was slightly significant ($\beta = 0.18$, $p < 0.05$), the direction of the relationship was in an unexpected direction. Hypothesis 2 predicted that organisational climate would be negatively related to psychological contract breach. As expected, organisational climate was negatively and significantly related to psychological contract breach ($\beta = -0.41$, $p < 0.01$). This suggests that higher perception of organisational climate resulted in lower psychological contract breach, and vice versa. Hypothesis 2 was hence supported. Hypothesis 3 predicted that psychological contract breach would mediate the relationship between organisational climate and research productivity. Contrary to expectations, the indirect effect of organisational climate on research productivity through psychological contract breach was not significant ($\beta = -0.16$, CIs = -1.2865 , 0.0097 ; Sobel test $z = -1.4507$, $p \geq 0.05$). Hypothesis 3 was hence not supported. Hypothesis 4 predicted that effective communication would be positively related to research productivity. As hypothesised, there were positive and significant relationships between effective communication and research productivity ($\beta = 0.33$, $p < 0.01$). This intimates that employee perception of effective communication resulted in higher research productivity, and vice versa. Thus Hypothesis 4 was also supported. Hypothesis 5 predicted that organisational climate would be positively related to effective communication. This hypothesis was supported ($\beta = 0.42$, $p < 0.01$), implying that perception of a good organisational climate was associated with perception of effective communication and vice versa. Hypothesis 6 predicted that organisational climate would be positively related to research productivity. Contrary to expectations, organisational climate was negatively and significantly related to research productivity ($\beta = -0.21$, $p < 0.01$), implying that perception of a positive organisational climate was associated with low research productivity and vice versa. Hypothesis 7 predicted that effective communication would mediate the relationship between organisational climate and research productivity. In line with this hypothesis, the indirect effect of organisational climate on research productivity through effective communication was significant ($\beta = 0.38$, CI = 0.4409 , 2.2954 ; Sobel test $z = 2.6675$, $p < 0.01$).

With the exception of academic rank and psychological contract breach (which were no longer significant) and the overall increase in variance

explained by predictors ($R^2 = 0.45$), all other relationships remained significant when regressed on the normalised research productivity, albeit in varying effect sizes.

To examine which factors were more impactful on research productivity, usefulness analysis (Darlington, 1968) was used to determine incremental change in explained variance in research productivity attributable to personal variables that goes beyond the contribution to explained variance of contextual factors and vice versa. Usefulness analysis basically compares changes in r-squared (ΔR^2) associated with each set of independent variables. Sets of independent variables are entered into the hierarchical regression in separate stages, and in different ordering to determine which set incrementally explains more meaningful variance in the dependent variable (Khaola and Ndovorwi, 2015). The results are shown in Table 4.

Table 4. Usefulness Analysis Results

Step/independent Variable	Incremental Change Explained (ΔR^2)	F	ΔF
Step 1: Personal Variables	0.28**	9.27**	9.27**
Step 2: Contextual Variables	0.08**	8.15**	4.82**
Reverse Ordering			
Step 2: Contextual Variables	0.08*	3.77*	3.77*
Step 1: Personal Variables	0.27**	8.15**	9.96**

* Significant at 0.05; **Significant at 0.01. The values in column 2 represent additional R^2 achieved by entering the variables specified at each step.

As shown in Table 4, contextual factors added about 8% of variance over the variance explained by personal variables in the explanation of research productivity. Conversely, personal variables added about 27% of variance over the variance explained by contextual variables in the explanation of research productivity. Even though both factors were found useful (significant ΔR^2), overall, the results suggest that personal characteristics were more useful (higher ΔR^2) than contextual variables in the explanation of research productivity in this study; irrespective of which factors were entered first in the regression model.

Even though the results of regression analysis are useful for evaluating the relative importance of factors, they do not partition variance among correlated predictors (Johnson and LeBreton, 2004). The RWA (Johnson, 2000) procedure was used because it permits more accurate partitioning

of variance among the correlated predictors such as the ones included in this study. According to Tonidandel and LeBreton (2015, p. 208), RWA “addresses the problem caused by correlated predictors by using a variable transformation approach to create a set of new predictors that are maximally related to the original predictors but are orthogonal to one another”. Note however, that the two approaches complement rather than compete with each other (Tonidandel and LeBreton, 2015). RWA was conducted using the RWA-Web (<http://relativeimportance.davidson.edu/>) described in Tonidandel and LeBreton (2015), and the results are shown in Table 5.

Table 5. Summary of RWA Results

Predictor	RW	Confidence Intervals (95%)		RS-RW (%)
		Lower	Upper	
Gender	0.0496	0.0112	0.1052	9.80
Age	0.0021	-0.0811	0.0338	0.42
Rank	0.1708	0.0463	0.5190	33.70
Education	0.2240	0.1391	0.6093	44.19
Tenure	0.0005	-0.0576	0.0538	0.09
Communication	0.0330	0.0043	0.0766	6.51
Climate	0.0148	-0.0085	0.0815	2.92
Breach	0.0120	-0.0094	0.0663	2.37
Total	0.5068			100

Notes: Criterion = research productivity ($R^2 = 0.51$). Note that the R^2 in Table 5 is different from the ones in Table 4 because of the different approaches used to compute it. RW = Relative weight, RS-RW = Rescaled relative weight or estimates of relative importance as percentage of predicted variance (R^2) in research productivity attributable to each predictor.

As shown in Table 5, in terms of relative weights accounted for in the explanation of research productivity, the predictors could be ranked as education (44.19%), rank (33.70%), gender (9.80%), communication (6.51%), organisational climate (2.92%), and psychological contract breach (2.37%); with two predictors (age = 0.42% and tenure = 0.09%) accounting for a proportion of less than 1%. The total proportion in R^2 accounted for by personal factors (88.2%) was much higher than the proportion accounted for by environmental factors (11.8%). Thus both usefulness analysis and RWA confirm the dominance of personal factors in this study in the explanation of research productivity.

Discussion

The study examined the effects of organisational climate, psychological contract breach, and effective communication on individual research productivity. The relative importance of personal factors (gender, age, tenure, highest level of education and rank) and perception of contextual factors (communication, psychological contract and climate) on research productivity was also analysed.

As expected, organisational climate was positively related to effective communication (Castro and Martins, 2010; Furnham and Goodstein, 1997), and negatively related to psychological contract breach (Epitropaki, 2013). This intimates that a positive organisational climate can enhance effective communication and reduce perceptions of psychological contract breach. In line with previous studies, it was found that effective communication positively influences research productivity (Jung, 2014). Even though it was expected that organisational climate's effects on individual research productivity are mediated by effective communication and psychological contract breach, only effective communication was supported as playing a partial mediating role between the two constructs. While most of the predictors of individual research are known, the study was novel in examining new factors as possible predictors of research productivity.

Perhaps the most intriguing and unexpected result of the study pertained to the role of organisational climate (and to some extent psychological contract breach) in the explanation of research productivity. Contrary to predictions, organisational climate was found to be negatively related to individual research productivity. This is surprising because a positive organisational climate should plausibly increase research productivity (Jung, 2014, Ramsden, 1994). Similarly, even though the results were not consistently significant, the positive relationship between psychological contract breach and individual research productivity was not expected because the perception of psychological contract breach should sensibly lead to withdrawal of effort (Tekleab et al., 2019). Two reasons can be posited to explain these unexpected results.

First, the organisational climate is highly related to individual job satisfaction (Castro and Martins, 2010; Denison, 1996). It could be that research productivity involves some creativity and innovation (Martínez et al., 2011), and as indicated by Zhou and George (2001), dissatisfied employees (e.g. those who perceive a negative organisational climate) are more creative than satisfied ones. In this regard, lecturers who perceived a negative organisational climate might have become dissatisfied, and hence immersed themselves in creative solutions and improvements to improve their situation through active research and publications (George and Zhou, 2007; George and Zhou, 2002). After finding a negative relationship

between job satisfaction and individual research productivity, Callaghan (2015) concluded that research productivity (as a form of performance) may differ from other forms of job performance. We tend to concur, and specifically submit that the creativity inherent in research productivity may be triggered by employee dissatisfaction associated with a negative work climate (Zhou and George, 2001).

Second, according to lifespan theory, as people grow older, their biological and health abilities decrease, and their knowledge, experience and emotional regulation increase (Bal et al., 2008). In the context of psychological contract breach (a negative work event), older people are likely to control their emotions (due to breach) more effectively than their younger counterparts (Bal et al., 2008). Morrison and Robinson (2000) also indicated that the perception of contract breach is dependent on individual vigilance. It is therefore possible that psychological contract breach was actively perceived by younger lecturers while older lecturers either became indifferent or less vigilant. Since younger lecturers produce a low number of publications, their negative reaction to psychological contract breach was in line with their relatively low (negative) number of publications. This is probably why the expected relationship between psychological contract breach and research productivity in this study was reversed.

Further research is required to explain why and under what conditions organisational climate and psychological contract breach may influence desired outcomes in an unexpected manner.

Several implications for practice can be derived from the study. First, it confirms that a positive organisational climate facilitates communication and reduces perceptions of contract breach, and, in turn, communication improves research productivity. These findings imply that university administrators can improve research productivity through effective communication. For instance, university management should communicate the goals of research to all employees. The findings suggest that research productivity may be the product of a negative work climate (and possible job dissatisfaction). This is not to suggest that university management should reduce employee satisfaction through creating a negative work climate to increase research productivity; but rather that even when the work climate is perceived as negative, effective managerial communication can compensate for this. This is important because many organisational issues may create a negative work climate, including, but not limited to the nature of tasks, employees' personalities and emotions, and several social and natural contexts. For instance, in the era of declining subvention in African HEIs (Hayward and Ncayiyana, 2014), researchers' morale may be low. It is pleasing to note, however, that with effective communication, research productivity is still possible.

References

- Bal, P. M., De Lange, A. H., Jansen, P. G., and Van Der Velde, M. E. (2008). Psychological contract breach and job attitudes: A meta-analysis of age as a moderator. *Journal of Vocational Behavior* 72(1), 143-158.
- Bell, S. T., Villado, A. J., Lukasik, M. A., Belau, L., and Briggs, A. L. (2011). Getting specific about demographic diversity variable and team performance relationships: A meta-analysis. *Journal of Management* 37(3), 709-743.
- Bentley, P. (2012). Gender differences and factors affecting publication productivity among Australian university academics. *Journal of Sociology* 48(1), 85-103.
- Bergeron, D., Ostroff, C., Schroeder, T., and Block, C. (2014). The dual effects of organizational citizenship behavior: Relationships to research productivity and career outcomes in academe. *Human Performance* 27(2), 99-128.
- Callaghan, C. (2017). Gender moderation of intrinsic research productivity antecedents in South African academia. *Personnel Review* 46(3), 572-592.
- Callaghan, C. (2015). Intrinsic antecedents of academic research productivity of a large South African university. *Southern African Business Review* 19(1), 170-193.
- Callaghan, C. W., and Coldwell, D. (2014). Job satisfaction and job performance: The case of research productivity. *Journal of Economics*, 5(1) 97-113.
- Castro, M. L., and Martins, N. (2010). The relationship between organisational climate and employee satisfaction in a South African information and technology organization. *SA Journal of Industrial Psychology* 36(1), 1-9.
- Council on Higher Education. (2011-2012). Report on the state of higher education in Lesotho 2010/11-2011/12. Downloaded from <http://www.che.ac.ls/wp-content/uploads/2019/02/State-of-Higher-Education-Report-2011-12.pdf> on 9 July 2019.
- Coyle-Shapiro, J., and Kessler, I. (2000). Consequences of the psychological contract for the employment relationship: A large scale survey. *Journal of Management Studies* 37(7), 903-930.
- Cropanzano, R., and Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of Management* 31(6), 874-900.
- Darlington, R. B. (1968). Multiple regression in psychological research and practice. *Psychological Bulletin* 69(3), 161.
- Denison, D. R. (1996). What is the difference between organizational culture and organizational climate? A native's point of view on a decade of paradigm wars. *Academy of Management Review* 21(3), 619-654.

- Dulac, T., Coyle-Shapiro, J. A., Henderson, D. J., and Wayne, S. J. (2008). Not all responses to breach are the same: The interconnection of social exchange and psychological contract processes in organizations. *Academy of Management Journal* 51(6), 1079-1098.
- Epitropaki, O. (2013). A multi-level investigation of psychological contract breach and organizational identification through the lens of perceived organizational membership: Testing a moderated-mediated model. *Journal of Organizational Behavior* 34(1), 65-86.
- Fox, M. F. (1983). Publication productivity among scientists: A critical review. *Social Studies of Science* 13(2), 285-305.
- Furnham, A., and Goodstein, L. D. (1997). The organizational climate questionnaire (OCQ). *Annual-San Diego-Pfeiffer and Company* 2, 163-182.
- George, J. M., and Zhou, J. (2007). Dual tuning in a supportive context: Joint contributions of positive mood, negative mood, and supervisory behaviors to employee creativity. *Academy of Management Journal* 50(3), 605-622.
- George, J. M., and Zhou, J. (2002). Understanding when bad moods foster creativity and good ones don't: the role of context and clarity of feelings. *Journal of Applied Psychology* 87(4), 687-697.
- Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review* 161-178.
- Hair, J. F., Black, W. C., Babin, B. J., and Anderson, R. E. (2010). *Multivariate data analysis*. Global edition.
- Hair, J. F., Ringle, C. M., and Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice* 19(2), 139-152.
- Hair, J. F., Sarstedt, M., Pieper, T. M., and Ringle, C. M. (2012). The use of partial least squares structural equation modeling in strategic management research: a review of past practices and recommendations for future applications. *Long Range Planning* 45(5-6), 320-340.
- Harari, M. B., Reaves, A. C., and Viswesvaran, C. (2016). Creative and innovative performance: A meta-analysis of relationships with task, citizenship, and counterproductive job performance dimensions. *European Journal of Work and Organizational Psychology* 25(4), 495-511.
- Hayward, F. M., and Ncayiyana, D. J. (2014). Confronting the challenges of graduate education in Sub-Saharan Africa and prospects for the future. *International Journal of African Higher Education* 1(1), 173-216.
- Hui, C., Lee, C., and Rousseau, D. M. (2004). Psychological contract and organizational citizenship behavior in China: Investigating generalizability and instrumentality. *Journal of Applied Psychology* 89(2), 311-321.
- Johnson, J. W. (2000). A heuristic method for estimating the relative weight of predictor variables in multiple regression. *Multivariate Behavioral Research* 35(1), 1-19.
- Johnson, J. W., and LeBreton, J. M. (2004). History and use of relative importance indices in organizational research. *Organizational Research Methods* 7(3), 238-257.
- Jung, J. (2014). Research productivity by career stage among Korean academics. *Tertiary Education and Management* 20(2), 85-105.
- Khaola, P., and Ndovorwi, T. (2015). Beyond the Theory of Planned Behaviour – Viewing Entrepreneurial Intent Through the Lens of Economic Powerlessness. *Journal of Enterprising Culture* 23(04), 501-518.
- Kwiek, M. (2018). High research productivity in vertically undifferentiated higher education systems: Who are the top performers? *Scientometrics* 115(1), 415-462.
- Nafukho, F. M., Wekullo, C. S., and Muyia, M. H. (2019). Examining research productivity of faculty in selected leading public universities in Kenya. *International Journal of Educational Development* 66, 44-51.
- Marlow, S. L., Lacerenza, C. N., Paoletti, J., Burke, C. S., and Salas, E. (2018). Does team communication represent a one-size-fits-all approach? A meta-analysis of team communication and performance. *Organizational Behavior and Human Decision Processes* 144, 145-170.
- Martínez, R. S., Floyd, R. G., and Erichsen, L. W. (2011). Strategies and attributes of highly productive scholars and contributors to the school psychology literature: Recommendations for increasing scholarly productivity. *Journal of School Psychology* 49(6), 691-720.
- Mossholder, K. W., Richardson, H. A., and Settoon, R. P. (2011). Human resource systems and helping in organizations: A relational perspective. *Academy of Management Review* 36(1), 33-52.
- Otoo, F. (2016). *Effect of communication on employee performance at Ghana Revenue Authority, Kumasi* (Thesis). Downloaded on 9 July 2019 from ir.knust.edu.gh/bitstream/123456789/9197/1/OTOO%20FLOR-ENCE.pdf
- Ramsden, P. (1994). Describing and explaining research productivity. *Higher Education* 28(2), 207-226.
- Restubog, S. L. D., Hornsey, M. J., Bordia, P., and Esposito, S. R. (2008). Effects of psychological contract breach on organizational citizenship behaviour: Insights from the group value model. *Journal of Management Studies* 45(8), 1377-1400.
- Robinson, S. L., and Wolfe Morrison, E. (2000). The development of psychological contract breach and violation: A longitudinal study. *Journal of Organizational Behavior* 21(5), 525-546.
- Rousseau, D. M. (1989). Psychological and implied contracts in organizations. *Employee Responsibilities and Rights Journal* 8, 121-139.
- Rousseau, D. M. (1995). *Psychological Contracts in Organizations. Understanding Written and Unwritten Agreements* Thousand Oaks: Sage.

- Sax, L. J., Hagedorn, L. S., Arredondo, M., and DiCrisi, F. A. (2002). Faculty research productivity: Exploring the role of gender and family-related factors. *Research in Higher Education* 43(4), 423-446.
- Schneider, B., Ehrhart, M. G., and Macey, W. H. (2013). Organizational climate and culture. *Annual Review of Psychology* 64, 361-388.
- Shen Y., Schaubroeck J. M., Zhao, L. and Wu, L. (2019). Work group climate and behavioral responses to psychological contract breach. *Frontiers in Psychology* 10, 67-81.
- Tekleab, A. G., Laulié, L., De Vos, A., De Jong, J. P., and Coyle-Shapiro, J. A. (2019). Contextualizing psychological contracts research: a multi-sample study of shared individual psychological contract fulfilment. *European Journal of Work and Organizational Psychology* 1-15.
- Tonidandel, S., and LeBreton, J. M. (2015). RWA web: A free, comprehensive, web-based, and user-friendly tool for relative weight analyses. *Journal of Business and Psychology* 30(2), 207-216.
- Tschannen-Moran, M., and Nestor-Baker, N. (2004). The tacit knowledge of productive scholars in education. *Teachers College Record* 106(7), 1484-1511.
- Valle, M., and Schultz, K. (2011). The etiology of top-tier publications in management: a status attainment perspective on academic career success. *Career Development International* 16(3), 220-237.
- Weiss, H. M., and Cropanzano, R. (1996). Affective Events Theory: A Theoretical Discussion of the Structure, Causes and Consequences of Affective Experiences at Work. In: B. M. Staw, and L. L. Cummings (eds) *Research in Organizational Behavior: An Annual Series of Analytical Essays and Critical Reviews*, pp. 1-74. Greenwich, CT: JAI Press.
- White, C. S., James, K., Burke, L. A., and Allen, R. S. (2012). What makes a “research star”? Factors influencing the research productivity of business faculty. *International Journal of Productivity and Performance Management* 61(6), 584-602.
- Zhao, H. A. O., Wayne, S. J., Glibkowski, B. C., and Bravo, J. (2007). The impact of psychological contract breach on work-related outcomes: a meta-analysis. *Personnel Psychology* 60(3), 647-680.
- Zhou, J., and George, J. M. (2001). When job dissatisfaction leads to creativity: Encouraging the expression of voice. *Academy of Management Journal* 44(4), 682-696.