The Effects of Psychological Contracts, and the Breach thereof, on Innovative Work Behaviour

Larysa Botha
https://orcid.org/0000-0002-9852-3066
Graduate School of Business Leadership, University of South Arica
larysa@vodamail.co.za

Renier Steyn
https://orcid.org/0000-0002-2446-3662
Graduate School of Business Leadership, University of South Arica

Abstract

The literature is clear that maintaining psychological contracts between employers and employees is important, and that psychological contract breach often leads to negative outcomes, including the withdrawal of discretionary activities such as innovative work behaviour. Although most literature suggests that a psychological contract breach affects the desired outcomes negatively, the same literature is silent about under which type of psychological contract these outcomes occur. This research aims to empirically determine the way in which psychological contract breach affects the relationship between different psychological contracts (relational and transactional) and innovative work behaviour. A cross-sectional survey design was used, with respondents answering questions on psychological contracts, psychological contract breach and innovative work behaviour. Three results were dominant: transactional psychological contract did not correlate with innovative work behaviour, whereas relational psychological contract did so in a significant way; psychological contract breach correlated positively and significantly with transactional psychological contract and negatively and significantly with relational psychological contract, but not with innovative work behaviour; and psychological contract breach did not moderate the relationship between relational psychological contract and innovative work behaviour. The psychological contract type (relational psychological contract) therefore has a direct effect on innovative work behaviour, but psychological contract breach did not relate significantly to innovative work behaviour. Managers are alerted to the importance of relational psychological contracts when innovative work behaviour is the desired outcome, given the omnipresent psychological contract breach. Researchers are encouraged to investigate through which mechanisms psychological contract breach influences innovative work behaviour, as this link seems well supported by the literature.

Keywords: psychological contract, psychological contract breach, innovative work behaviour, moderation

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Introduction

Innovative work behaviour (IWB) is defined as "the intentional creation, introduction and application of new ideas in a work role, group or organization, in order to benefit role performance, the group, or the organization" (Janssen, 2000, p. 288). Facilitating IWB is therefore at the top of managerial agendas (Bos-Nehles et al., 2017). This facilitation is important because an employee's innovative behaviour is central to organisational success and is also an essential determinant of organisational performance (Noruzy et al., 2013; Yen, 2013) and even survival (Agarwal, 2014a; Sanz-Valle & Jiménez-Jiménez, 2018). In pursuit of successful innovative strategies, employees' behaviours must be aligned with strategies fostering individual innovation (Bos-Nehles et al., 2017). Agarwal (2014b, p. 43) affirms that "one option for organisations to become more innovative is to encourage their employees to be innovative". However, this seems not to happen, as globally only a small number (15%) of employees perceive that their organisations welcome innovation (Mercer, 2018) and that "only half of employees say their company listens to their ideas for improving business outcomes" (Mercer, 2019, p. 32). For organisations to benefit from employees' intentional creative contributions, their employees must be willing to engage in IWB (Akhtar et al., 2016; Milliken et al., 2003; Morrison, 2011; Zagenczyk et al., 2015).

As the large part of the desirable innovation resides outside the typical research and development departments, the responsibility for innovation has shifted onto all employees of the organisation (Cohen & Erlich, 2015). The expectation from managers is that employees are able and capable to engage in IWB while delivering on their formal commitments (Miron et al., 2004). Such expectations are rooted in IWB being usually conceptualised as employees' discretionary actions that "go beyond the prescribed" and are often not directly or explicitly supported by the formal reward system (Janssen, 2000, p. 288). However, activating and encouraging these discretionary actions form part of recognised management practices (Bos-Nehles et al., 2017; Sanz-Valle & Jiménez-Jiménez, 2018; Veenendaal, 2015).

Discretionary activities or extra-role behaviours such as IWB have been explored broadly with a large number of papers having studied its various antecedents (Srivastava, 2017), including that of psychological contract (PC) (Kasekende, 2017), PC fulfilment (Ahmad & Zafar, 2018; Kiazad et al., 2019) and PC breach (Akinwale et al., 2021). This therefore implies the relevancy of the PC concept to this research. The relationship between the employer and its agents and employees is determined by the nature of the PC between the parties (Rousseau, 2004, 2011; Rousseau & McLean Parks, 1993). The PC is defined as "individual beliefs, shaped by the organization, regarding terms of an exchange agreement between individuals and their organization" (Rousseau, 1995, p. 9). It assumes that employees expect their employer to meet a large number of obligations as part of the explicit and implicit conditions in the employer-employee relationship (Deery et al., 2006; Morrison & Robinson, 1997; Rousseau, 1989). At the inception of the relationship, both the employer and the employee make a number of

mutual promises, explicit and implicit, which form the core of the PC. When employees perceive that the organisation or its agent has broken their promises, psychological contract breach (PCB) occurs (Morrison & Robinson, 1997). These breaches are common in the workplace and became a norm, rather than exceptions (Robinson & Rousseau, 1994).

Despite the growing interest in studying various antecedents of IWB, the possibility that different types of PC (and breaches thereof) may serve as predictors of IWB has been generally under-researched. Although the links between PCs and IWB (Aggarwal & Bhargava, 2010; Ramamoorthy et al., 2005) and between PCB and IWB (Kim et al., 2017; Newton et al., 2011) have previously been investigated independently, there is little evidence of all three variables having been studied in one theoretical model.

The research aims to redress this paucity through achieving three goals, namely, testing the link between two types of PC and IWB, ascertaining the way in which PCB affects IWB, and determining the way in which PCB affects the relationship between PCs and IWB. The overarching research question can therefore be stated as follows: What type of PC, transactional or relational, will likely affect IWB, under conditions of PCB?

This article makes contributions on three levels. From a conceptual perspective, three variables, namely PC types, PCB and IWB, are studied together in a single model, an approach that has not been taken previously. Such a conceptualisation is more complex than previous attempts to understand this relationship. As the results will indicate, the relationship between the variables is counter-intuitive, which is a valuable empirical contribution. From a practical perspective, this study sheds light on the way in which managers should approach their exchange relationships when IWB is the goal. Finally, from the design methodology perspective, this study offers simplicity in design and can therefore be easily interpreted and replicated.

PC, PCB and IWB, and the Links between Variables

Interest in the PC concept on the part of academics and practitioners is significant and continues to rise owing to increasing pressure on organisations to sustain employees' motivation and commitment (Cullinane & Dundon, 2006). Effective PCs are linked to positive employee behaviours and employment relations, and engaged and committed workers (Kutaula et al., 2020; Schalk & De Ruiter, 2019; Soares & Mosquera, 2019; Tekleab et al., 2020). These highly desirable work outcomes are considered the foremost organisational resources critical to firms' survival and success (Agarwal & Bhargava, 2013). Despite the advances in PC concept development in recent years, describing the PC seems not to have evolved much beyond the seminal work of Rousseau (1989, 1990, 2001, 2004, 2011). Two major types of PC, namely, transactional PC (TPC) and relational PC (RPC), have become a means of defining the way in which employment relationships are organised in a workplace (Rousseau & McLean Parks, 1993; Rousseau & Wade-Benzoni, 1994). Robinson and Rousseau (1994) suggest that when employees

perceive value in rewards that accrue over the short term – such as pay, training and credentials that will help them to obtain better future employment – they are operating under the TPC. In contrast, employees who believe in the long-term relationship with their employer and value the relationship itself beyond any short-term gains from their employment, they are party to the RPC (Robinson & Rousseau, 1994).

This brings the dependent variable in this study, namely IWB, into play. According to the literature, there seems to be consensus that innovation constitutes a key source of competitiveness and that it forms an essential element of organisational success (Bos-Nehles et al., 2017; Sanz-Valle & Jiménez-Jiménez, 2018; Veenendaal, 2015). The task of effecting innovation is often left in the hands of the research and development departments (Scott & Bruce, 1994), but with IWB the situation is somewhat different. The willingness of employees to participate in extra-role activities, such as IWB, is dependent on several contingent factors in the organisation. The first of these could be PCs in general, as these largely determine the organisational climate (Kasekende et al., 2015). The second could be the type of PC, as its specific nature could explain the employee's perception of the relationship with the organisation or its agents, in turn eliciting particular responses from the employee, including extra-role behaviours (Hui et al., 2004). Furthermore, engaging in discretionary actions may be dependent on the extent of PC breaches, which may cause employees "to reassess their basic commitment to the organisation" (Lee & Mitchell, 1994, p. 61) and to adjust levels of their extra-role engagements.

Previous research on the link between PCs and IWB demonstrated strong evidence that these links are positive for relational contracts (Chang et al., 2013; Thompson & Heron, 2006) and negative for transactional contracts (Suh, 2002; Thompson & Heron, 2006). In their empirical study, Chang et al. (2013) tested the link between TPCs, RPCs and individual innovation. Their findings suggest that different types of PC send different and dissimilar messages that trigger IWB. That is, relational contracts lead to individual innovation and transactional contracts hamper the willingness of employees to participate in innovative behaviours. This can be explained by the nature of the relational contracts where employees consider innovation as a long-term process (Meng & Roberts, 1996) and tend to invest their efforts over longer periods.

Complementary to this, Thompson and Heron (2006) explored the relationship between PC and innovative performance by utilising multiple facets of PC (such as performance pay, job design, career, and work–life balance), which comprise both transactional (monetary) and relational (non-monetary) dimensions. These authors found that fulfilment of certain aspects of the PC had a higher correlation with innovative performance than others. By way of example, perceived fulfilment of job design dimension (non-monetary) had a direct positive relationship with innovative performance, whereas performance pay dimension (monetary), when fulfilled, had a direct negative relationship. The latter findings could be explained in that employees who perceive their voluntary innovative outputs as being rewarded extrinsically (pay),

rather than intrinsically, may reduce such activity (Deci & Ryan, 1985). It could therefore be argued that what employees offer in a relational manner also begs a response in a relational manner (rather than in a transactional way).

A further empirical study by Aggarwal and Bhargava (2010) reported that TPC significantly and negatively relates to innovative behaviour, suggesting that employees who perceive their employment relationship as being of a short-term and calculative nature will be unlikely to engage in extra-role activities and to innovate. However, contrary to their expectations, these authors found that RPC did not correlate with IWB. This seems to suggest that when innovation is perceived as a change-orientated activity (Spreitzer, 1995), some workers may want to prevent change. It could therefore be argued that in order to preserve the status quo in their proximal exchanges (for example, with co-workers), innovative employees may choose to refrain from offering innovative ideas.

The empirical link between PCB and IWB has resulted in some counter-intuitive findings. A large number of empirical studies have provided overwhelming evidence that PCB negatively correlates with employees' in-role performance (Hartmann & Rutherford, 2015), work engagement (Agarwal, 2014b), affective commitment (Rigotti, 2009), and organisational citizenship behaviour (Lu et al., 2015). Specific to this study, a number of researchers report that PCB negatively affects IWB (Li et al., 2014; Ng et al., Vander Elst et al., 2016). Some investigations, however, report that negative occurrences (such as PCB) may lead to innovation and to promoting employees' innovative behaviours. By way of example, negative emotions, such as anger and hostility, can foster IWB, specifically in its idea-generation stage (Yang & Hung, 2015). Innovation can also be sparked when personal confrontations take place between employees and managers during times of organisational uncertainty (Van de Ven, 1986). Linked to the aforementioned, PCB may lead to innovation among dissatisfied employees searching for organisational improvements (Zhou & George, 2001).

Although many empirical investigations have focused on the direct link between PCB and IWB, only a few studies modelled the effects of the PCB as moderator or mediator and the results of these are non-conclusive. For example, Janssen (2000) provided evidence of high job demands being positively related to IWB under conditions of psychological contract fulfilment (PCF). PCF and PCB can be used as end points of the same scale (Zhao et al., 2007), with the naming convention dependent on the hypothesis being tested. That is, employees became engaged in higher levels of IWB in response to higher job demands only when they perceived that they were being fairly rewarded for their efforts; a proxy for PCF. A study by Niesen et al. (2018) reported contradictory results, where job insecurity was positively and significantly related to both idea generation and idea implementation (elements of IWB), when mediated by PCB. The authors explain these results by stating that employees attempt to restore balance in their employment relations by putting forward discretionary efforts and behaving more

innovatively and that, in return, they expect of their organisations to reciprocate with higher levels of job security.

From the aforementioned, it is evident that no consensus exists on the link between PC, PCB and IWB, and even that some results are contradictory. It is, however, clear that the outcomes of PCB can be contingent on certain organisational contexts, specifically, the perceived nature of social exchanges, as it materialises in the PC types between the employer and the employee, which may promote or hamper IWB.

Research Framework and Hypotheses

The research framework appears in Figure 1. It suggests a relationship between TPC and/or RPC and IWB, with PCB as a possible moderator.

Two theories informed this framework and the empirical investigation. The first theory is the psychological contract theory (Robinson & Rousseau, 1994; Rousseau, 1995, 2011; Rousseau & McLean Parks, 1993), which suggests that effective PC, be it TPC or RPC, is linked to positive work outcomes and committed employment relations. For employees to engage in extra-role behaviours such as IWB, a sense of beneficial long-term investment (RPC) is important, which is unlikely to be present in employees who value the monetary and short-term benefits (TPC) as the basis of their employment relationship. It is intuitively logical to assume that RPC may impact on IWB more than TPC. This suggests the following hypothesis:

- $H1_0$: PCs do not have a direct impact on IWB ($H1_{a1}$: TPC has a direct impact on IWB; $H1_{a2}$: RPC has a direct impact on IWB)

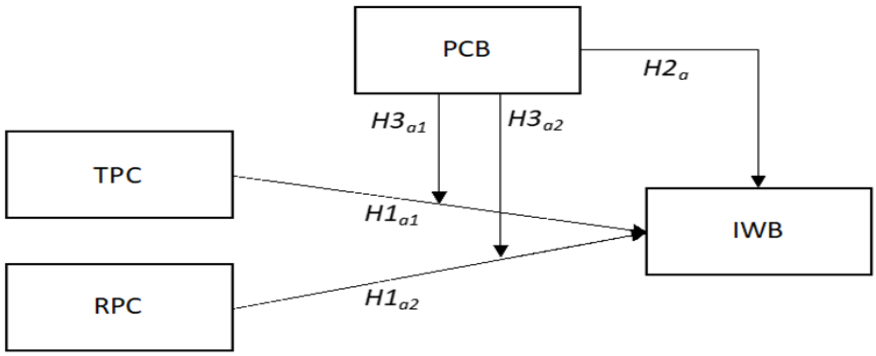

Figure 1: A framework representing the relationship between PCs and IWB, given the moderating role of PCB

Another central assumption of the PC theory is that employees expect their organisations to meet a large number of obligations as part of both the explicit and implicit employment conditions (Deery et al., 2006; Morrison & Robinson, 1997; Rousseau, 1989). However, when employers fail to fulfil those obligations, PCB occurs and an imbalance in the relationship sets in. The employees' responses to PCB include decreased in-role performance (Hartmann & Rutherford, 2015), lower levels of work engagement (Agarwal, 2014b), decreased affective commitment (Rigotti, 2009) and lower levels of organisational citizenship behaviour (Lu et al., 2015). It can therefore be hypothesised that PCB will have a direct effect on IWB:

- $H2_0$: PCB does not have a direct impact on IWB ($H2_a$: PCB has a direct impact on IWB)

The second theory – the social exchange theory (Blau, 1964) – is valuable in explaining employees' reactions to PCB. This theory claims that the participants in a relationship strive to attain reciprocity, by which one party is morally obligated to give something in return for something received (Cropanzano & Mitchell, 2005). Cropanzano and Mitchell (2005) argue, for example, that when employees receive economic and socio-emotional resources from their employer, they feel obligated to respond in kind. Such exchanges typically include the mutual understanding that the employer will provide safe working conditions, fair opportunities for promotion, training and development prospects in return for employee commitment, loyalty and good work performance (Conway & Briner, 2005; Dabos & Rousseau, 2004). When employees feel that their contributions in the exchange relationship are fairly rewarded, they are keen to reciprocate by activities that go beyond the contractual (Organ, 1990), such as innovating.

Similarly, when employees perceive that their efforts are under-rewarded by the employer, they may hold back their in-role performance, organisational commitment and extra-role behaviours (Hartmann & Rutherford, 2015; Paillé et al., 2016; Raja et al., 2004; Rigotti, 2009; Suazo, 2009; Vander Elst et al., 2016). Given the aforementioned, the social exchange theory provides a solid theoretical foundation to predict that these imbalances, explained as PCBs (Morrison & Robinson, 1997), may lead to employees responding negatively to their PCs while, at the same time, withholding their IWB. The following is therefore hypothesised:

- $H3_{0a}$: PCB does not affect the relationship between PCs and IWB ($H3_{a1}$: PCB moderates the relationship between TPC and IWB; $H3_{a2}$: PCB moderates the relationship between RPC and IWB)

Method

A cross-sectional survey design was used to collect the data and to test the hypotheses.

Population and Sampling

The target population consisted of employees at different levels of responsibility and exposed to organisational dynamics. Organisations with more than 60 employees were targeted, as it was presumed that the employment relationships (PCs) would be formalised in these organisations and that a broad range of contracts would be in place. For assistance with data collection and to gain access to various organisations, the researchers hired a group of 11 students enrolled in the Master of Business Leadership programme at a major South African business leadership school. Once these students had been granted access by the authorities at the 11 organisations concerned, they were assisted by these organisations' respective human resources departments with the random selection of employees for participation in the study. This resulted in each student obtaining an average of 60 completed questionnaires from the related organisation.

Measures

Three instruments were administered, namely the psychological contract scale (PCS) (Millward & Hopkins, 1998), the measuring scale for PCB (Robinson & Morrison, 2000), and the IWB scale (Kleysen & Street, 2001). A short description of each instrument is presented below.

Millward and Hopkins' PCS (1998) is recommended by Freese and Schalk (2008) for measuring specific contract orientations, relational and transactional. The original 33-item instrument (20-item for transactional contract and 13-item for relational contract scales) was shortened, with five items retained for measuring transactional contracts and five items for measuring relational contracts. The shortened versions of scales are based on the highest average factor loadings of each item[1] and followed examples of Bateman and Crant (1993) and Strydom (2012). Each PC type was measured on a seven-point Likert scale ranging from 1 ("Strongly disagree") to 7 ("Strongly agree"). Sample items: "I only carry out what is necessary to get the job done" for transactional contract and "To me, working for this organisation is like being a member of a family" for relational contract. When using the full scale, Millward and Hopkins (1998) reported a Cronbach's alpha of .86 for all relational items and .88 for all transactional items.

PCB was measured with Robinson and Morrison's (2000) nine-item scale, of which four items measure violation and five items breach. Reporting of breach is done by the

1 Seibert et al. (2001) reported evidence for the validity and reliability of the shortened scales. In their study, the 10 items for proactive behaviours were averaged to form a single-scale score, with a Cronbach's alpha of .85, which is acceptable.

reverse scoring of a fulfilment measure on a Likert scale from 1 to 5 (disagree–agree). The sample item – "Almost all the promises made by my employer during recruitment have been kept so far" (reversed). Although Robinson and Morrison (2000) report a significant correlation between perceived violation and perceived contract breach ($r = .68$ and $p < .01$), this study reports a total, global score[2] , for both sub-constructs. The decision was made to report a total score for PCB because, theoretically, perceptions of employees of either violation or breach or both, result in the (negative) work outcomes (Bal et al., 2008; Raja et al., 2004; Tekleab & Taylor, 2003) and both would affect IWB in the same direction. Kim et al. (2017) reported a total Cronbach's alpha for PCB of .88.

IWB was measured with Kleysen and Street's (2001) 14-item IWB scale. Fourteen items present elements descriptive of individual innovation, namely, opportunity exploration (items 1 to 3), generativity (items 4 and 5), information investigation (items 6 to 8), championing (items 9 to 11), and application (items 12 to 14). Each item was measured on a six-point Likert scale varying from 1 ("Never") to 6 ("Always"). All the questions start with the same prefix, namely "In your current job, how often do you . . .". Sample item: ". . . look for opportunities to improve existing process, technology, product, service or work relationship?". Kleysen and Street (2001) report Cronbach's alpha coefficients higher than .70 for all subscales, which is acceptable (Hair et al., 2010). Scott and Bruce (1994) argue that innovation comprises discontinued activities often performed by employees simultaneously, suggesting that IWB should be measured as a single construct as a standard (also, in Janssen, 2000). Furthermore, IWB does not seem to empirically consist of discreet stages (Steyn & De Bruin, 2019), therefore a total score and not stage scores was used to measure IWB. Hebenstreit (2003) reported on the single score with an alpha of .95.

Statistical Analyses

Firstly, descriptive statistics of the respondents were calculated and subjectively interpreted to come to some conclusion on how well these statistics mirror the populations they are supposed to represent. Information from Statistics South Africa (2020) was used in this analysis.

The test for normality of the collected data was analysed with regard to skewness and kurtosis. The skewness and kurtosis scores were interpreted following the guidelines of Field (2009). If the observed SPSS value divided by the standard error of that value is

2 According to Zhao et al. (2007), a composite measure refers to various content items of the psychological contract, for example, training, job security and pay. The researcher will typically ask the respondents to what extent the organisation has fulfilled its obligation on each item. Unlike in the composite measure, where each content item is considered individually, the global measure evaluates the respondent's overall perception of how much the organisation has fulfilled or failed to fulfil its promises (Zhao et al., 2007).

larger than 1.96, or smaller than −1.96, the data are interpreted as showing a serious deviation from normality.

The reliability was calculated using Cronbach's alpha coefficient. In line with the recommendations of Tavakol and Dennick (2011) regarding Cronbach's alpha (> .90 (excellent), .89–.80 (good), .79–.70 (acceptable), .69–.60 (questionable), .59–.50 (poor), and < .50 (unacceptable)), all instruments were assessed for internal consistency level. In this study, and aligned with Pallant (2013), the alpha coefficients were accepted as being satisfactory where the alpha scores exceeded .70, with scores above .80 being accepted as desirable.

For factorial validity, the data were first analysed for adequacy. Kaiser-Meyer-Olkin's (KMO) measure of sampling adequacy and Bartlett's test of sphericity were performed, and the results were considered acceptable when the KMO were excellent (> .90) (Field, 2009) and the Bartlett's test value was significant ($p < .001$) (Pallant, 2013). When analysing factor loadings, the absence of significant cross-loadings was interpreted as indicative of factorial validity.

Pearson product-moment correlations (r) were calculated. Correlations with a significance value less than .01 were regarded as significant (given the relatively large sample), with $r < .10$ (or $< -.10$) regarded as insignificantly small, .10 to .29 (or .10 to −.29) as small, .30 to .49 (or −.30 to −.49) as medium, and .50 to 1.0 (or −.50 to −1.0) as large (Cohen, 1988).

Regression analyses were also performed. In this study, the total size of the regression coefficient was of less concern, with the focus primarily on the significance of the beta values of the different predictors. Significant predictors ($p < .01$) were regarded as unique and substantial contributors to the variance in the dependent variable.

Moderation was tested based on the procedures suggested by Fairchild and MacKinnon (2009). This method involves doing a regression without including the moderator as a variable in that regression (Model 1), then adding the moderator (PCB; Model 2) and finally, adding the moderator and the interaction effect (predictor variable × moderator; Model 3). In general, the interest is in $\Delta R2$, using Model 1 as a baseline model. If $\Delta R2$ is positive and significant across models, this suggests improved models and the specific importance of adding the additional variable. Should PCB directly predict IWB (Model 2, with a PCB having a significant beta value), it is representative of a direct effect, making it an antecedent to IWB. Should the interaction between PCB and any subcomponent be significant (Model 3, with a TPC × PCB or RPC × PCB having a significant beta value), this is representative of PCB moderating the relationship between that PC type and IWB.

Results

Demographics

Of 620 respondents, 313 were men (50.5%) and 301 were women (48.5%). The gender data from seven respondents were missing. Compared with the data from the report of Statistics South Africa (2020), which indicate that 51.1 per cent of the South African population are women, the prevalence of men in this study is clear. However, as women are typically tasked with domestic errands (Cascio, 2010) and family matters (Robbins & Judge, 2011), this discrepancy was regarded as insignificant.

Of this sample, most respondents, 440, were black (71%), followed by 103 white respondents (16.6%), 42 coloured respondents (6.8%) and 28 Asian respondents (4.5%). These data are representative and are consistent with those provided by Statistics South Africa (2020), bar the difference in white people consisting of 7.8 per cent of the population. This seeming over-representation of white people in the workforce could well be a part of the legacy of apartheid, where certain jobs were reserved for white people (Das-Munshi et al., 2016).

With regard to schooling, the majority in the sample, 254 respondents (41%), had a higher degree or diploma, 203 respondents (32.7%) had obtained their first degree or diploma, 138 respondents (22.3%) had matric (senior certificate), and 19 participants (3.1%) had less than 12 years of education. It could therefore be reasonably expected that most of the respondents would be able to adequately comprehend and answer the questionnaires.

The sample was also well represented with regard to age. The youngest respondent was of 21 years of age and the oldest 64, providing a sample mean of 37.8 years, and a standard deviation of 8.8. The respondents' tenure in their organisations ranged between 1 and 42 years, with a mean of 6.6 years of service (standard deviation of 5.9). This implies that most respondents were well capable of reporting on organisational practices.

Descriptive Statistics for Variables

The descriptive statistics for all measures and variables used in this study will be presented and discussed (Table 1).

Table 1: Descriptive statistics for TPC, RPC, PCB and IWB (N = 620)

	Min.	**Max.**	**Mean**	**Std Dev.**	**Skewness* Value**	**Z**	**Kurtosis# Value**	**Z**
TPC	1	7	4.406	1.628	−0.145	−1.481	−1.005	−5.131
RPC	1	7	2.994	1.495	0.817	8.326	0.026	0.135
PCB	1	5	3.938	0.931	−0.854	−8.708	0.249	1.275

	Min.	Max.	Mean	Std Dev.	Skewness* Value	Z	Kurtosis# Value	Z
IWB: OE	1	6	2.416	0.958	0.402	4.106	−0.251	−1.283
IWB: G	1	6	2.354	1.065	0.610	6.224	−0.166	−0.852
IWB: II	1	6	2.725	1.126	0.257	2.623	−0.556	−2.840
IWB: C	1	6	2.702	1.161	0.421	4.294	−0.412	−2.105
IWB: A	1	6	2.757	1.170	0.420	4.281	−0.419	−2.138
IWB	1	6	2.608	0.942	0.288	2.943	−0.405	−2.071

IWB: OE = opportunity exploration; IWB: G = generativity; IWB: II = information investigation; IWB: C = championing; IWB: A = application
*Standard error for skewness = 0.098
#Standard error for kurtosis = 0.196

Aligned with Field's (2009) description of normality range (both scores being smaller than 1.96 irrespective of the sign), skewness and kurtosis of subscales met the normality requirement. The skewness scores were, in general, beyond the normality range, with serious deviation at RPC (where most respondents opted for the bottom of the scale) and PCB (where most respondents opted for the top of the scale). Opting for the top of the scale also occurred for all elements of the IWB and the total score on IWB. With kurtosis, the statistics reflect that there was a provision for outliers as far as TPC was concerned, as well as with IWB: II, IWB: C, and IWB: A. For the rest of the scales, the kurtoses were within a normal range.

Reliability and Validity

Reliability was determined through the calculation of Cronbach's alpha coefficients (Table 2). Validity was determined through the factor analysis.

Given the guidelines of Pallant (2013), suggesting that the reliability score is reported as satisfactory when the alpha exceeds .70 and desirable when the alpha is above .80, the reliability ranged from satisfactory to desirable.

Table 2: Reliability of measures for TPC, RPC, PCB and IWB (N = 620)

Instrument	Number of items	Cronbach's alpha coefficient
TPC	5	.764
RPC	5	.794
PCB	9	.945
IWB	14	.940

Before engaging in the analyses, the factorial validity of the data was tested. This was satisfactory when the TPC and RPC items were entered into the same model, with KMO's measure of sampling adequacy of .774 and Bartlett's test of sphericity providing satisfactory results (chi-square value of 1885.94; df = 45, p < .001), as a guideline for acceptability. The theorised two factors declared 54.7 per cent of the variance in the data. When a varimax rotation with Kaiser normalisation was performed on the principal component analysis (refer to Table 3), it revealed two clear factors, with all the TPC items (without any cross-loadings) loaded on the first factor, while the same occurred with regard to all the items of RPC.

Table 3: Rotated component matrix for TPC and RPC, given varimax rotation

Item name	**Component**	
	1	2
TPC item 1	0.077	0.724
TPC item 2	−0.211	0.517
TPC item 3	0.097	0.816
TPC item 4	−0.011	0.763
TPC item 5	0.048	0.753
RPC item 1	0.667	0.191
RPC item 2	0.769	−0.020
RPC item 3	0.765	−0.036
RPC item 4	0.712	−0.158
RPC item 5	0.784	0.044

Note: All values higher than 0.5 are underlined in the table to facilitate easier interpretation.

In the data analysis for PCB, two possible avenues to factorial validity were followed, focusing on PCB as a single construct and as a two-dimensional construct defined as violation (PCV) and breach (PCB). When entering all nine items into the same model, KMO's measure of sampling adequacy of .932 and Bartlett's test of sphericity provided satisfactory results (chi-square value of 4924.404; df = 36, p < .001), as a guideline for acceptability. With the tested one-factor solution, 69.7 per cent of the variance in the data was declared, with all nine items having loadings higher than 0.754. When testing for a two-factor solution, 79.9 per cent of the variance in the data was declared. The results of these two analyses are presented in Table 4.

It is interesting to note that in the two-factor solution, no significant cross-loadings occurred. The results in Table 4 reveal that PCV and PCB could be theorised as distinct concepts, aligned with Robinson and Morrison (2000). However, these could also be conceptualised as a single construct and will be used accordingly in this article.

Table 4: Rotated component matrix for PCB, given varimax rotation

Item name	**Component**	
	1	2
PCV item 1	0.754	0.270
PCV item 2	0.821	0.335
PCV item 3	0.809	0.415
PCV item 4	0.847	0.474
PCB item 1	0.849	0.779
PCB item 2	0.857	0.838
PCB item 3	0.850	0.826
PCB item 4	0.856	0.824
PCB item 5	0.865	0.851

Note: All values higher than 0.5 are underlined in the table to facilitate easier interpretation.

Determining the factorial validity for IWB was done in two phases, focusing first on IWB as a single construct and then as a multi-dimensional construct. When entering all 14 items into the same model, the KMO's measure of sampling adequacy of .937 and Bartlett's test of sphericity provided satisfactory results (chi-square value of 5611.343; $df = 91$, $p < .001$), as a guideline for acceptability. With the tested one-factor solution, 56.30 per cent of the variance in the data was declared, with all 14 items having loadings higher than 0.566. The best alternative (multi-dimensional fit) included two factors and declared 64.44 per cent of the variance in the data, where the varimax rotation with Kaiser normalisation was performed on the principal component analysis.

In the two-factor solution, the three items of IWB opportunity exploration loaded on the second factor (with no significant cross-loadings); the items of IWB generativity and IWB information investigation loaded on factor one and two in a non-predictable manner, while the items from IWB championing and IWB application loaded (with no significant cross-loadings) on the first factor. Given the disparate results following from the two-factor solution, IWB was rather conceptualised as a single construct, in line with the observations of Scott and Bruce (1994), while cognisant of the fact that many others (De Jong & Den Hartog, 2010; Janssen, 2000) recommended that it be conceptualised as discrete and discontinued activities.

Relationships between the Variables

In this section, the relationships between all the variables (TCP, RCP, PCB and IWB) are presented through the correlation coefficient and hierarchical linear regression analyses. These results will assess the plausibility of all the set hypotheses.

Correlation Analyses

The Pearson correlation coefficient was used to measure the relationship between the variables. Table 5 presents the coefficients and the significance levels to determine relationships between the variables.

Table 5: Correlation between constructs (N = 620)

	TPC	RPC	PCB	IWB
TPC	1	.016	.246 (< .001)	−.064 (.111)
RPC	.016 (.687)	1	−.398 (<.001)	.198 (< .001)
PCB	.246 (<.001)	−.398 (< .001)	1	−.032 (.421)
IWB	−.064 (.111)	.198 (< .001)	−.032 (.421)	1

From Table 5, it is evident that only RPC (to the exclusion of TPC) statistically and significantly relates to IWB. The practical significance of this correlation was small. This addresses Hypothesis 1, rejecting the $H1_0$ hypothesis and granting a conclusion that RPC relates to IWB.

It is also clear from Table 5 that PCB is not a direct predictor of IWB. This addresses Hypothesis 2 and does not allow us to reject $H2_0$, therefore implying that PCB does not affect IWB.

Beyond the scope of the hypotheses, it is also visible from Table 5 that TPC correlates positively with PCB, whereas RPC correlates negatively with PCB – in both cases, significantly. This suggests that under conditions of TPC, PCB is experienced more often. The relationship between RPC and PCB is the opposite, which may suggest that in situations where RPCs are observed, PCBs are experienced less often.

Given that RPC relates to IWB and given that PCB is not a direct predictor of IWB, we proceeded to test a more complex model, where the hypothesis of PCB moderating the relationship between RPC and IWB is tested ($H3_{a2}$). The alternative hypothesis involving TPC ($H3_{a1}$) is not tested, as no relationship was found between TPC and IWB.

Regression Analyses: The Moderation Effect of PCB on the Relationship between RPC and IWB

To test for moderation effects, recommendations for using regression analyses were considered (Fairchild & MacKinnon, 2009). Three models were tested: Model 1: RPC predicts IWB; Model 2: RPC and PCB predict IWB; Model 3: RPC, PCB, and the interaction between RPC and PCB predict IWB.

From Table 6, it can be observed that RPC predicts 3.8 per cent of the variance in IWB and that the addition of the PCB changes the variance in IWB to 3.9 per cent, whereas the addition of an interaction term (RPC × PCB) reduces the variance declared (3.7% explained). The "improvements" in the models are visible in ΔR square values, which are not significant.

Table 6: Summary of models

Model	R	R square	Adjusted R square	ΔR square	Std. error of the estimate
1	.198	.039	.038	–	.924
2	.204	.042	.039	.001	.923
3	.204	.042	.037	−.002	.924

The test for the analysis of variance (ANOVA) on the model fit is presented in Table 7. From the values in the last column in Table 7, it can be concluded that there is a good fit of the models, with all p-values falling below .05. The regression coefficients for the three models are presented next, and the significance of the interaction term in Model 3 would be indicative of moderation.

Table 7: The ANOVA test for RPC, PCB and IWB

Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	21.519	1	21.519	25.196	< .001
	Residual	527.802	618	0.854		
	Total	549.321	619			
2	Regression	22.921	2	11.461	13.433	< .001
	Residual	526.400	617	0.853		
	Total	549.321	619			
3	Regression	22.950	3	7.650	8.953	< .001
	Residual	526.370	616	0.854		
	Total	549.321	619			

Should the beta value of RPC be significant, it would suggest that it is a direct predictor of IWB (Model 1). Should the beta value of PCB be significant, it would indicate that it is a further direct predictor of IWB (irrespective of whether the value of RPC is significant) (Model 2). When considering Model 3, a significant beta value of the interaction RPC × PCB would indicate moderation, which is full, if the significance of

PCB disappears in this model, and is partial, if both PCB and RPC × PCB are significant.

The results in Table 8 indicate that in Model 1 the correlation between RPC and IWB is positive and statistically significant, with the higher levels of RPC leading to the higher levels of innovative behaviour. In Model 2, however, it is observed that the beta value of PCB is statistically non-significant, indicating that PCB is not a predictor of IWB. Lastly, when analysing the results for Model 3, it can be concluded that PCB does not moderate the relationship between RPC and IWB as the beta value for the interaction between RPC and PCB is found to be statistically non-significant.

Table 8: Regression coefficients across the three models

Model	Predictor	Beta	Std error	Std beta	t	Sig.
1	Constant	2.235	0.083	–	26.891	< .001
	RPC	0.125	0.025	0.198	5.020	< .001
2	Constant	1.974	0.220	–	8.991	< .001
	RPC	0.138	0.027	0.220	5.118	< .001
	PCB	0.056	0.043	0.055	1.282	.200
3	Constant	2.030	0.370	–	5.478	< .001
	RPC	0.122	0.091	0.194	1.343	.180
	PCB	0.041	0.090	0.041	0.459	.646
	RPC × PCB	0.004	0.024	0.025	0.185	.853

Outcomes of the Hypotheses

- $H1_0$: PCs do not have a direct impact on IWB. This hypothesis could not be rejected for TPC, where the correlation between TPC and IWB was −.064 ($p = .111$) (see Table 5). For RPC, the statistics was as follows: $r = .198$, with $p < .001$ (see Table 5). It was also determined that RPC predicts 3.7 per cent of the variance in IWB.
- $H2_0$: PCB does not have a direct impact on IWB. This hypothesis could not be rejected, as the correlation between PCB and IWB was −.032 ($p = .421$) (see Table 5).
- $H3_0$: PCB does not affect the relationship between PCs and IWB. As TPC did not correlate with IWB, the test for moderation was obsolete (see Table 5). The hypothesis that PCB moderates the relationship between TPC and IWB is therefore nonsensical. With regard to RPC, a small positive-but-significant relationship with IWB was found. From Table 8, it can be observed that PCB does not moderate the relationship between RPC and IWB.

Figure 2 summarises the results graphically.

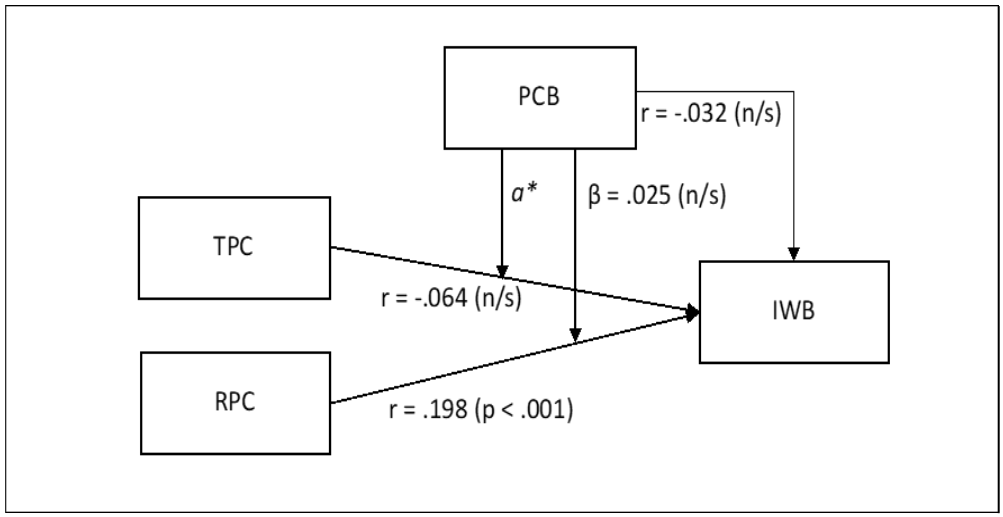

Figure 2: The results of the interplay between TPC and RPC and the moderating role of the PCB in promoting IWB

a*: the moderating effect of PCB on the TPC–IWB relationship was not calculated, as this relationship was found non-significant

Discussion

This study integrated the literature on the effects of PCs and PCB on IWB. From the literature review, and particularly previous empirical research on these relationships, it was concluded that the link between the PC and IWB is negative for TPC (Aggarwal & Bhargava, 2010; Suh, 2002; Thompson & Heron, 2006) and positive for RPC (Chang et al., 2013; Thompson & Heron, 2006). Although results in most studies support a positive RPC–IWB link, in some cases there is also evidence that TPC has no effect on IWB (Aggarwal & Bhargava, 2010). Furthermore, it was found that monetary rewards (typically embedded in TPC) for IWB reduced the voluntary innovative activity of employees (Deci & Ryan, 1985; Thompson & Heron, 2006). These apparent contradictions in previous research on PCs and IWB necessitated this study.

With regard to the PCB–IWB link, the research findings consulted and reported on in the literature review indicate strong evidence of the negative effects of PCB on IWB (Li et al., 2014; Ng et al., 2010; Vander Elst et al., 2016). However, some investigations reported that perceptions of breach may promote IWB (Van de Ven, 1986; Yang & Hung, 2015; Zhou & George, 2001). These paradoxical findings on the effects of PCB further made this research necessary.

The present study followed a cross-sectional design, which suited the objectives of the research well. Despite some problems with normality, a simple and straightforward method was selected and applied to this research and it yielded reliable and impartial results. The simplicity of the design allows academics and practitioners easy access to the material.

The respondents who participated represented the sample population adequately with regard to their gender and race, resembling the numbers reported by Statistics South Africa (2020).

The descriptive statistics, when related to the constructs measured, revealed many deviations from normality in the distribution of the data. This is in violation of some assumptions usually made for performing certain analyses and is of concern. This could also tamper with broad generalisations based on this work and should be considered a limitation of the study.

As this investigation focused on two central objectives, namely, to report on the way in which PCs relate to IWB and to report on the way in which PCB affects IWB, it led to answering research questions such as "Do TPC and RPC predict IWB?", "What is the effect of PCB on IWB?" and "How does PCB affect the relationship between PCs and IWB?". These research questions taken together culminate in the overarching question being, "What types of PC, transactional or relational, will likely affect IWB, under conditions of PCB?"

From the correlation analyses, it was concluded that although TPC had no correlation with IWB, RPC statistically and significantly correlated with IWB. The correlation with IWB was .198 ($p < .001$), which equates to RPC, explaining 3.9 per cent of the variance in IWB. This positive link between RPC and IWB is supported by previous findings (see Chang et al., 2013; Thompson & Heron, 2006). It provided the evidence that, theoretically and practically, RPCs promote individual innovation. The absence of the TPC–IWB link is also in line with previous research (see Aggarwal & Bhargava, 2010).

Interestingly, it was found that PCB had no effect on and cannot be considered a direct predictor for IWB, which contradicts previous findings (Lu et al., 2015; Ng et al., 2010; Vander Elst et al., 2016). Such a conclusion may be partially explained by the skewness of the data for PCB, which was beyond the range of normality (with a majority of respondents opting for the top of the scale). This extreme skewness may be attributed to the omnipresence of PCB, which Robinson and Rousseau (1994) refer to. It could therefore be assumed that the variance in the PCB variable is too small to reflect nuances caused by higher levels of PCB. This may necessitate the development of more sensitive measures of PCB.

In addition, it also transpired (although this was not included in the original scope of the hypotheses) that TPC correlated positively with PCB ($r = .246$, $p < .001$), whereas RPC

correlated negatively with PCB ($r = -.398$, $p < .001$). This suggests that under conditions of TPC, PCBs are experienced more often. The proposed conclusion agrees with Zhao et al. (2007) who stated that when employers fail to deliver on their explicit obligations, the PCB will result in immediate and extreme reactions from employees. The negative relationship between RPC and PCB suggests that in situations where RPCs are observed, PCBs are experienced less often. This conclusion is in line with the assumption that employees often attribute the breach of the relational content of the PC to a miscommunication or bad luck rather than to a deliberate breach on the part of the employer (Robinson & Morrison, 1995).

The test for moderation of PCB on the TPC–IWB link was unnecessary, as it was found that TPC does not correlate with IWB. Only the moderating effect of PCB on the relationship between RPC and IWB was tested. The results indicated that PCB does not moderate the relationship between RPC and IWB. PCB therefore does not influence the way RPC affects IWB.

Conclusion

In this research, a significant contribution was made by investigating the relationships between PCs, PCB, and IWB, studied together in one conceptual model, which has not been done in previous studies. The primary deduction that can be made about the relationship between the variables and IWB is that RPC relates to IWB ($r = .198$; $p < .001$) and that 3.9 per cent of the variance in IWB can be explained by this variable. Research identifying the other 96.1 per cent of the variance is therefore needed. Fair effort is invested by managers in maintaining their PCs with subordinates, assuming that PCBs may lead to negative consequences, including the withdrawal of IWB. This study found no such direct link. With regard to effects of breach, given PC, PCB was found not to moderate relationships between PCs and IWB.

Although the research shows that RPC has an effect on IWB, this effect is small. With regard to PCB, in this study, it seems to be a non-event as far as IWB is concerned. Managers should now be aware of the relative importance of establishing relational contracts with employees and maintaining these contracts when IWB is the desired outcome. As stated in the literature review, practical applications of relational contracts could include managers making connections with their employees and getting to know them better, paying attention to their concerns, assisting them with necessary resources and support, and investing in their employees' company-specific training.

This research may have affirmed certain aspects of the PC–IWB relationship, but many questions remain unanswered. Researchers are encouraged to investigate through which mechanisms PC and PCB influence IWB. Researchers are also encouraged to develop instruments that are more sensitive to the nuances of the PCB. These seeming flaws in the instruments may be responsible for some of the counter-intuitive results found in this study.

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