

Human resource practices as predictors of engineering staff's organisational commitment

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Orientation: Human resource practices are an important means of retaining professionally qualified employees and improving and increasing their future level of organisational performance in today's turbulent and perpetually competitive world of business.

Research purpose: This study examined whether human resource practices (as a core aspect of organisational culture) positively predict organisational commitment.

Motivation for the study: In South Africa, high voluntary turnover and skills shortages of professionally qualified people such as engineers are a major obstacle to economic growth and job creation.

Research design, approach and method: A cross-sectional survey and quantitative design were used with a non-probability purposive sample of 284 early career professionally qualified engineers from a South African engineering organisation. Correlational statistical techniques were employed to achieve the research objective.

Main findings: Job satisfaction, training and development and rewards and remuneration positively predicted affective commitment. Leadership, rewards and remuneration and training and development also positively predicted normative commitment. Human resources policies and procedures positively predicted continuance commitment.

Practical/managerial implications: Managers and human resource practitioners need to take a proactive approach in facilitating an organisational culture that reflects the practices embodied by the variables measured in this study in order to increase organisational commitment.

Contribution: The findings add new knowledge that may be used to help managers and human resource practitioners understand how these human resource practices may guide retention strategies in the engineering environment.

Introduction

Human resource (HR) practices have become an increasingly important means for an improved business approach in order for an organisation to survive, remain competitive, sustain its business functions and grow in an ever-changing and competitive environment (Papulova & Papulova, 2006). HR practices have therefore become an essential aspect of organisational culture in retaining professionally qualified employees such as engineers (Aggarwal & D'Souza, 2012; Chang, Wang & Huang, 2013; Deloitte & Touche, 2009). The May 2014 draft of the South African National Scarce Skills List indicated engineering skills as on one of the top five scarce critical skills for economic growth (Department of Higher Education and Training [DHET], 2014). The high voluntary turnover and skills shortages (Wöcke & Heymann, 2012) of professionally qualified people such as engineers seem to be a major obstacle to economic growth and job creation (Construction Education and Training Authority [CETA], 2007; Döckel, 2003; Kraak, 2008; Rasool & Botha, 2011). The skills shortages further seem to limit South African businesses' level of global participation (Rasool & Botha, 2011). To deal with these challenges, organisations are continuously striving to improve their culture and implement HR practices that will enable them to survive, retain talented employees, remain competitive, sustain their business functions and grow in a turbulent business environment (Arachchige & Robertson, 2011; Coetzee & Veldsman, 2013).

Background

In the present study, HR practices are studied as an aspect of organisational culture. Deloitte and Touche's (2009) approach to measuring organisational culture focuses on the HR practices that represent the top world-class companies. Rashid, Sambasivan and Johari (2002) posit that the human resource practices associated with high-performing organisational cultures have attracted academia and practitioner attention over the past two decades because of their effects and

potential impact on organisational success and staff retention in the contemporary and future world of work. Previous studies have indicated that the underlying values, beliefs and principles embedded in an organisation's culture serve as a valuable foundation for an organisation's management system and are exemplified and reinforced by the company's HR practices and behaviours (Abu-Jarad, Yusof & Nikbin, 2010; Eskildsen & Dahlgaard, 2000; Martins & Martins, 2002). Organisational culture, including the HR practices that represent the culture, is regarded as a strong strategic lever in creating an engaged and committed workforce (Martins & Coetzee, 2007).

Amah (2012) draws attention to the fact that the hypothesis that strong cultures enhance organisational performance is based on the intuitively powerful idea that organisations benefit from highly committed, motivated employees dedicated to common goals. For instance, organisational commitment is perceived as a key determinant of employee turnover due to its supposed sensitivity to the elements surrounding the work environment (Chang *et al.*, 2013; Döckel, Basson & Coetzee, 2006; Meyer & Allen, 1991). The work environment is regarded as a combination of the psychological environment, HR practices and corporate culture that enable employees to perform their jobs with appropriate support or workplace flexibility, ongoing training opportunities (including teaching job, social and leadership skills) and clear career path and advancement opportunities (Amah, 2012; Döckel, 2003).

Previous studies have shown that organisational culture and HR practices (for example, leadership behaviour, performance management, training and development, compensation and communication) influence employee satisfaction, turnover intentions and organisational commitment (Chang *et al.*, 2013; Döckel, 2003; Martins & Coetzee, 2007; Swart, 2009). Research further indicates that organisational commitment can lead to favourable organisational outcomes, including organisational effectiveness, improved performance and reduced staff turnover (Meyer & Allen, 1997; Saif, Nawaz, Jan & Khan, 2012).

Research objective

The present study explored whether human resource practices act as predictors of organisational commitment in the engineering profession.

Potential value-add

Although various studies exist internationally that highlight the significance of organisational culture and the concomitant HR practices that support high-performing firms, there seems to be a paucity of research concerning how HR practices relate to employees' organisational commitment in the South African engineering context. In view of the current skills shortages and concerns about attracting and retaining professionally qualified engineers (CETA, 2007; DHET, 2014; Swart, 2009), the present study seems timely and important.

Literature review

Organisational commitment

Organisational commitment refers to the relative strength of an individual's identification with and involvement in a particular organisation (Ezirim, Nwibere & Emecheta, 2012), the extent to which employees are willing to work on its behalf and the likelihood that they will maintain membership of the organisation (Dey, 2012). Reade and Lee (2012) and Kuo (2013) found organisational commitment to be typically associated with characteristics, jobs and behaviours of staff, as well as the socio-cultural environment of an organisation. Meyer, Stanley and Parfyonova (2012) regard organisational commitment as a psychological state or mindset that binds an employee to the organisation. Organisational commitment comprises a strong emotional component and includes general interests, principles, values and goals (Tsai & Cheng, 2011).

In the context of the present study, the notion of organisational commitment is based on Meyer and Allen's (1997) three-component model of organisational commitment: (1) the psychological state that reveals the level of an individual's commitment and emotional attachment towards an organisation (affective commitment), (2) the pre-existing conditions leading to the development of that commitment level (continuance commitment) and (3) the behaviours that are expected to result from this commitment (normative commitment).

Affective commitment refers to the employee's emotional attachment to, identification with and involvement in the organisation (based on positive feelings or attitudes towards the organisation). In this case, employees strongly identify with the goals of the organisation and want to remain a part of the organisation (Ezirim *et al.*, 2012). Continuance commitment refers to commitment based on the cost that the employee associates with leaving the organisation (due to the high cost of leaving). In this case, the employee remains with an organisation because of a perceived loss of sunk costs (Ezirim *et al.*, 2012). In terms of normative commitment, the employee remains with an organisation because of a sense of obligation. For instance, individuals may feel that they ought to remain with an organisation because they think that it is morally right to continue to participate in the same organisation. An organisation may also have invested more resources in training an employee, who then feels obliged to stay with the organisation to repay the debt (Ezirim *et al.*, 2012).

In terms of social exchange theories, the strong link between individuals' commitment to an organisation or occupation implies that employees are more committed after they have weighed the pros and cons following resignation (Kuo, 2013; Rothrauff, Abraham, Bride & Roman, 2011). Kuo (2013) therefore argues that organisational commitment is an effective and highly influential mechanism for connecting employees and the organisation. It also provides cohesion and motivates employees to devote long-term effort to

addressing external influences and meeting customer demands (Kuo, 2013). Bang, Ross and Reio (2013) support the principle of social exchange theory and indicate that when the values of employees meet the values of the organisation, the strength of employees' commitment will become greater, to the extent that they could demonstrate blind commitment, which will lead them to sometimes accept the status quo, resulting in the organisation losing its ability to be innovative and adapt to change.

Ezirim *et al.* (2012) found that organisational commitment is positively related to a variety of desirable work outcomes, including employee job satisfaction, motivation and performance, and negatively correlated to absenteeism and turnover. Van Dyk and Coetzee (2012) found a strong positive relationship between organisational commitment and HR-related retention practices, which appear to bind individuals to their organisation in the medical and information technology services environments.

Human resource practices

HR practices have assumed considerable importance in the 21st century because of their impact on employee performance, job satisfaction, commitment and retention (Momeni, Marjani & Saadat, 2012). In general, it can be assumed that employees who perceive that their organisation invests in sound HR practices that address their needs will be psychologically and emotionally committed to the organisation (Swart, 2009). HR practices refer to the management processes and systems that are widely recognised as improving an organisation's performance and efficiency (Brundage & Koziel, 2010; Döckel, 2003). Scholars have studied this topic by testing numerous types of performance improvement or performance enablers over the years with the aim of identifying and establishing those systems and practices that can help organisations to achieve their envisaged state of excellence (Brundage & Koziel, 2010; Döckel, 2003).

The global consulting company Deloitte and Touche (2009) identified the following 13 core HR practices that are essential to a high-performing culture. These practices are seen to affect a company's performance and therefore deemed to be important for a creating a strong performance-oriented organisational culture:

- *Leadership* relates to the extent to which employees perceive their senior leaders' level of communication, openness and honesty, as well as the way in which leaders are seen to model the organisational values and inspire employees. Research suggests that leaders who treat people in the right ways have a high level of moral development and act with integrity positively influence employees' affective commitment (Detert & Treviño, 2010).
- *Management style* relates to the extent to which employees perceive the accessibility of their manager or supervisor, as well as whether or not the manager provides them with the necessary resources to accomplish their jobs, consults with employees regarding important decisions, sets realistic performance goals and acknowledges them as individuals. According to Zeffane (1994), management style can significantly influence the degree of worker commitment to organisational values and goals.
- *Communication* refers to the effectiveness of the internal organisational communication channels, the frequency and quality of communication, communication between management and employees and between departments and the extent to which employees are consulted when decisions are being taken that will impact upon them. Ghina (2012) posits that affective commitment might be enhanced under conditions of high organisational communication and involvement of workers in the decision-making process. As individuals are consulted and involved in matters that concern them, strong feelings of loyalty to the organisation may develop.
- *Values and culture* refer to employees' perceptions regarding their company's vision, mission and values, as well as their experience of the organisational culture insofar as it is employee-centred and promotes good working relationships, trust and transparency. It appears to be that congruence between personal and organisation values and culture is highly motivating and may increase organisational commitment (Coetzee & Veldsman, 2013; Khandelwal & Mohendra, 2010). Employees' personal values and culture have been found to be related to affective commitment (Rostami, Veismoradi & Akbari, 2012).
- *Innovation* refers to whether or not the organisation continuously comes up with new ideas and innovations in every area, thereby growing its revenue through innovation. Pandey and De (2013) indicate that innovation is the only way for companies to obtain a competition position. It is also the principal factor to trigger business growth. Innovation results in companies creating new products, systems and service items to meet the demands of customers. Innovation practices were found to be related to affective commitment (Pandey & De, 2013; Swart, 2009).
- *Job satisfaction* refers to the extent to which employees have clear work objectives, whether or not they have access to the necessary tools and resources to do their jobs effectively and are afforded the opportunity to fully utilise their talents and skills in their jobs. According to Shah, Jatoo and Memon (2012), employees with clear objectives and who are provided with the necessary tools and resources to carry out their jobs can develop a positive attitude towards the job and organisation. Employees' job satisfaction has been found to be related to affective and continuance commitment (Shah *et al.*, 2012).
- *HR policies and procedures* refer the extent to which appropriate HR policies and procedures are in place and are easily accessible to and understood by employees. Research by Juhdi, Pa'Wan, Milah, Hansaram and Othman (2012) shows that properly implemented and managed HR policies and procedures increase

organisational commitment and decrease intention to resign amongst employees.

- *Performance management* refers to the perceived fairness and consistency of implementation as experienced by employees. According to Lin, Lin and Lin (2012), performance management enhances employees' organisational commitment. Psychological commitment is higher amongst highly skilled engineering workers who believe that their company is fair and consistent in the implementation of performance management (Decremer, Smolders, Vanderstraeten & Christiaens, 2012).
- *Recognition* refers to the extent to which employees perceive recognition (e.g. promotions, verbal recognition, awards) to be effective and fairly implemented within the organisation. According to Zaitouni, Sawalha and Sharif (2011), monetary compensation is important, but not sufficient to retain employees. Recognition in the form of non-monetary elements (e.g. verbal recognition and positive feedback) is also important. Paré and Tremblay (2007) indicate that recognition from managers and peers has been found to be related to affective and continuance commitment.
- *Rewards and remuneration* refers to the extent to which employees perceive their remuneration to be market-related and appropriate to their job roles and responsibilities. This practice also explores the nature of benefits and bonus and incentive schemes offered by the organisation. It appears that fair rewards affect organisational commitment. Previous research has shown that rewards for quality efforts appear to positively influence employee morale and satisfaction (Martins & Coetzee, 2007). Research by Zaitouni *et al.* (2011) suggests that employees who are provided with benefits, such as increased salary, bonuses and promotion, develop strong feelings of loyalty to the organisation. Perceptions of fair rewards and justice lead to higher levels of satisfaction and long-term commitment to the organisation.
- *Training and development* refers to the nature of training and development within the organisation in terms of its availability, applicability to employees' current and future job roles and the range of training opportunities available (Deloitte & Touche, 2009). Training is used to enhance specific skills and correct performance issues to empower employees with needed skills for current and future job requirements. Döckel *et al.* (2006) indicate that employees seem to develop a sense of obligation (normative commitment) and stay longer in an organisation that promotes career opportunity through learning and the ability to apply newly learned competencies.
- *Diversity and transformation* refers to the extent to which diversity management is applied within the organisation, with a particular focus on the equitable treatment of employees from different ethnic, gender and age groups. According to Jonsen, Tatli, Ozbilgin and Bell (2013), affective and normative commitment may be enhanced under conditions of good equitable treatment and non-discrimination. Jonsen *et al.* (2013) indicate that an

engineering work environment that provides equitable fair treatment has the reputation of retaining talented workers.

- *Change management* refers to how the change management process is dealt with in the organisation and how employees are managed throughout the change process in terms of adequate communication, involvement and support. Visagie and Steyn (2011) indicate that employees' commitment to the organisation is critical when an organisation engages in change initiatives. Committed employees can therefore provide many benefits, for example by putting in extra effort to ensure that change succeeds, serving as public relations representatives during the change and going above and beyond the norm to assist the organisation to function effectively (Visagie & Steyn, 2011).

Juhdi *et al.* (2012) describe HR practices as the methods that organisations use to mould employee behaviour, perception and attitudes. Organisational culture surveys of employees' perceptions of the 13 HR practices identified by Deloitte and Touche (2009) enable organisations to observe which practices foster employee commitment, satisfaction and productivity and which hinder employee satisfaction and productivity. This valuable information can then be used to improve current organisational HR practices, thereby increasing staff satisfaction, commitment and productivity and reducing staff turnover.

Drawing on the research literature and previous empirical findings, we hypothesised that HR practices positively and significantly predict individuals' affective, continuance and normative commitment.

Research design

Research approach

A cross-sectional, quantitative survey design approach was used to achieve the objectives of the study.

Method

Participants

A non-probability purposive sample of a total population of 284 professionally qualified engineers from a South African company participated in the study. The sample consisted of 70% white employees, 60% men and 50% employees under the age of 36 years. The participants had been employed by the company for a minimum of three years and were in the early stages of their careers.

Measures

The Organisational Commitment Questionnaire (OCQ) (Meyer & Allen, 1991) was used to measure employees' level of commitment to their organisation. The OCQ consists of 24 items measured on a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Examples

of items in each of the three OCQ dimensions include the following: affective ('I would be very happy to spend the rest of my career in this organisation'), continuance ('One of the major reasons I continue to work for this organisation is that leaving would require considerable personal sacrifice; another organisation may not match the overall benefits I have here'), normative ('I do not feel any obligation to remain with my current employer'). Meyer and Allen (1997) reported the following internal consistency Cronbach's alpha coefficients: 0.85 for affective, 0.79 for continuance and 0.73 for normative commitment. The present study yielded acceptable internal consistency reliability (Cronbach's alpha) coefficients: 0.89 for affective, 0.68 for continuance and 0.88 for normative commitment.

The Organisational Culture Survey (OCS) (Deloitte & Touche, 2009) was used to measure employees' perceptions regarding 13 organisational HR practices. These practices are seen to affect a company's performance and are therefore deemed to be important for creating a strong performance-oriented organisational culture. The OCS consists of 80 items measured on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Examples of items in each Human Resource Management (HRM) practice dimension include the following: change management ('In this organisation, employees are encouraged to become involved in and committed to change'), communication ('Communication messages are effective and understood by all employees'), diversity and transformation ('Understanding and respecting diversity is important in this organisation'), HR policies and procedures ('A concerted effort is made to educate employees on the HR policies and procedures in place'), innovation ('Innovation has been communicated to employees as being a strategic business objective in the organisation'), job satisfaction ('In general, employees find their work interesting and challenging'), leadership ('Most employees are inspired and motivated by leadership in this organisation'), management style ('The person I report to involves employees in decisions that affect their job and work performance'), performance management ('Employee performance is managed against clear and measurable objectives'), recognition ('This organisation recognises employees who behave according to the organisation's values'), rewards and remuneration ('Employees' total remuneration packages – salary plus bonus and incentives – are market-related'), training and development ('Training and development for future career advancement is available to all employees') and values and culture ('There is a culture of honesty, openness and trust in the organisation'). The OCS is a well-established instrument that is widely used by Deloitte and Touche (2009), with proven validity and reliability in the South African business environment. The present study yielded high internal consistency reliability (Cronbach's alpha coefficients) for the various dimensions of the BCPS: 0.88 for change management, 0.84 for communication, 0.80 for diversity and transformation, 0.84 for HR policies and procedures, 0.79 for innovation, 0.88 for job satisfaction, 0.91 for leadership, 0.91 for management

style, 0.98 for performance management, 0.88 for recognition, 0.86 for rewards, 0.88 for training and development and 0.83 for values and culture.

Research procedure

In terms of ethical considerations, permission to conduct the research was obtained from the management of the engineering organisation. The research institution granted ethical clearance. Participants completed an informed consent form and it was indicated to them that the completion and return of the questionnaires and consent forms signified that they had granted permission for their responses to the questionnaires to be used for research purposes. Participation was voluntary and the confidentiality of the participants was maintained.

Data analysis

The first stage involved determining the means, standard deviations and Cronbach's alpha coefficients. In the second stage, Pearson product moment correlations were calculated in order to specify the relationship between the HR practices measured by the OCS and the OCQ variables. In terms of statistical significance, it was decided to set a cut-off alpha value at the 95% confidence interval level ($p \leq 0.05$). In the last stage, stepwise regression analysis was performed to determine whether or not the HR practices measured by the OCS act as significant predictors of the OCQ variables. For the purpose of this study, R^2 values larger than 0.50 (large effect) at $p \leq 0.05$ (Cohen, 1992) were regarded as practically significant:

Prior to conducting the various regression analyses, collinearity diagnostics were examined to ensure that zero-order correlations were below the level of concern ($r \geq 0.80$), that the variance inflation factors did not exceed 10, that the condition index was well below 15 and that the tolerance values were close to 1.0 (Field, 2009). (Harry & Coetzee 2013, n.p.)

Results

Descriptive statistics and correlations

The descriptive statistics and internal consistency reliability coefficients of the measuring instruments are reported in Table 1.

The significant correlation coefficients between the HR practices and the three organisational commitment variables ($p \leq 0.05$) are reported in Table 1. As can be observed from Table 1, the correlations between affective and normative commitment and the HR practices mostly ranged between 0.40 (medium practical effect size) and 0.70 (large practical effect size). The correlations between continuance commitment and the HR practices ranged between 0.10 and 0.21 (small practical effect size). No significant correlation was observed between continuance commitment and training and development. These results showed that the zero-order correlations were well below the threshold level of concern ($r \geq 0.80$) about multicollinearity and warranted further analysis in the form of regression analysis.

TABLE 1: Descriptive statistics and correlations.

Measuring instruments	Variable	M	SD	α	Correlation																																	
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16																		
HR practices	1 Change management	5.60	0.90	0.88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	2 Communication	5.20	1.07	0.84	0.77***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3 Diversity and transformation	5.30	1.03	0.80	0.79***	0.73***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4 HR policies and procedures	5.20	1.09	0.84	0.71***	0.68***	0.73***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5 Innovation	5.50	0.94	0.79	0.81***	0.74***	0.73***	0.65***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6 Job satisfaction	5.60	0.96	0.88	0.81***	0.78***	0.78***	0.60***	0.79***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7 Leadership	5.60	1.01	0.92	0.81***	0.78***	0.78***	0.63***	0.78***	0.87***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8 Management style	5.80	1.08	0.91	0.66***	0.60***	0.58***	0.44***	0.64***	0.71***	0.77**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	9 Performance management	5.10	1.12	0.99	0.77***	0.75***	0.72***	0.61***	0.75***	0.79***	0.81***	0.67***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	10 Recognition	5.00	1.21	0.88	0.78***	0.74***	0.76***	0.64***	0.77***	0.83***	0.84***	0.67***	0.85***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11 Rewards and remuneration	5.00	1.21	0.88	0.73***	0.68***	0.75***	0.62***	0.71***	0.76***	0.78***	0.58***	0.76***	0.80***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12 Training and development	5.30	1.15	0.88	0.77***	0.70***	0.71***	0.61***	0.77***	0.78***	0.76***	0.68***	0.80***	0.78***	0.65***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13 Values and culture	5.70	0.87	0.83	0.81***	0.77***	0.75***	0.63***	0.71***	0.83***	0.83***	0.66***	0.74***	0.72***	0.69***	0.64***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Organisational commitment	14 Affective commitment	5.24	1.25	0.89	0.64***	0.57***	0.63***	0.47***	0.65***	0.70***	0.69***	0.58***	0.66***	0.64***	0.68***	0.64***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15 Continuance commitment	4.18	1.11	0.68	0.16**	0.15*	0.15**	0.21***	0.15**	0.16**	0.16**	0.12*	0.19**	0.17**	0.17**	0.10	0.18**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	16 Normative commitment	4.99	1.29	0.88	0.53***	0.51***	0.55***	0.40***	0.52***	0.59***	0.62***	0.52***	0.60***	0.61***	0.59***	0.58***	0.54***	0.66***	0.17**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

N = 284.
 HR, Human Resource; M, mean; SD, standard deviation, α , alpha.
 ***, $p \leq 0.001$; **, $p \leq 0.01$; *, $p \leq 0.05$

Stepwise multiple regressions

Three separate stepwise regression models were calculated, one model for each of the three OCQ dependent variables: affective commitment, continuance commitment and normative commitment. Each of the three stepwise regression models shows the HR practices that significantly explained the variance in each of the three commitment variables respectively.

In model 1, Table 2 indicates that the regression of the HR practices upon the affective commitment variable produced a statistically significant model ($F = 85.21$; $p \leq 0.001$), accounting for approximately 55% ($R^2 = 0.55$; large practical effect) of the variance in affective commitment. More specifically, job satisfaction ($\beta = 0.33$; $t = 4.36$; $p \leq 0.000$), training and development ($\beta = 0.28$; $t = 4.22$; $p \leq 0.000$) and rewards ($\beta = 0.20$; $t = 3.24$; $p \leq 0.001$) contributed significantly towards explaining the proportion of variance in the affective commitment variable.

In model 2, Table 2 indicates that the regression of the HR practices upon the continuance commitment variable produced a statistically significant model ($F = 13.29$; $p \leq 0.001$), accounting for approximately 5% ($R^2 = 0.05$; small practical effect) of the variance in continuance commitment. Only HR policies and procedures ($\beta = 0.21$; $t = 2.95$; $p \leq 0.001$) contributed significantly and positively in explaining the variance in continuance commitment.

In model 3, Table 2 indicates that the regression of the HR practices upon the normative commitment variable produced a statistically significant model ($F = 71.09$; $p \leq 0.001$), accounting for 43% ($R^2 = 0.44$; large practical effect) of variance in normative commitment. More specifically, leadership ($\beta = 0.28$; $t = 3.32$; $p \leq 0.001$), rewards and remuneration ($\beta = 0.24$; $t = 3.27$; $p \leq 0.001$) and training and development ($\beta = 0.21$; $t = 2.95$; $p \leq 0.001$) contributed significantly towards explaining the proportion of variance in the normative commitment variable.

A test of the difference of dependent multiple R 's, after conversion to z -scores, revealed a significant difference between the affective commitment multiple R and the normative commitment multiple R ($z = 1.96$; $p \leq 0.05$). Similarly to the correlation results reported in Table 1, these results imply that the identified set of significant HR practices (training and development and rewards and remuneration) are, in general, more strongly related to affective commitment than to normative commitment. However, an analysis of the profiles of beta values of these three HR practices showed that they differed significantly in the two regression analyses reported in Table 2 for affective commitment and normative commitment. Rewards and remuneration explained significantly more variance in normative commitment than in affective commitment, whilst training and development explained significantly more variance in affective commitment than in normative commitment.

TABLE 2: Stepwise regression results – significant human resource practices as predictors of affective, continuance and normative commitment.

Variable	Model 1: Affective commitment	Model 2: Continuance commitment	Model 3: Normative commitment
Job satisfaction	0.33***	-	-
Training and development	0.28***	-	0.21**
Rewards and remuneration	0.20**	-	0.24***
Human Resource policies and procedures	-	0.21***	-
Leadership	-	-	0.28***
F-statistic	85.21***	13.29***	71.09***
R ²	0.55	0.05	0.44
adjusted R ²	0.55	0.04	0.43

Standardised beta weights are reported for the final step in each model.

N = 284

***, $p \leq 0.001$; **, $p \leq 0.01$

Discussion

The purpose of this study was to examine whether HR practices (as a core aspect of organisational culture) significantly predicted employees' organisational commitment. Overall, the correlations showed positive associations between the variables. More specifically, the results showed that the participants' perceptions of HR practices acted as positive predictors of their level of commitment towards the organisation. More specifically, job satisfaction, training and development and rewards and remuneration significantly and positively predicted the participants' affective commitment. Leadership, rewards and remuneration and training and development further positively predicted the participants' normative commitment, whilst HR policies and procedures significantly and positively predicted the participants' continuance commitment. The positive relationship observed between these HR practices and affective, continuance and normative commitment appears to corroborate previous research about these HR practices as being retention factors that increase employees' commitment to the organisation (Döckel, 2003; Döckel *et al.*, 2006; Van Dyk & Coetzee, 2012).

Affective commitment reflects a mindset of desire that develops when employees see their individual employment relationship as being in harmony with the goals and values of the organisation for which they are currently working (Ferreira, Basson & Coetzee, 2010). When employees become involved in and recognise the value and relevance of their association with the organisation in the pursuit of their jobs and careers, they develop a mindset of desire to stay (Meyer & Herscovitch, 2001). In the present study, training and development and job satisfaction were indicated as the two strongest predictors of the participants' affective commitment. It appears from the results that providing training and development opportunities and enhancing employees' job satisfaction by setting clear work objectives, providing them with necessary tools and resources to perform their jobs effectively and affording them the opportunity to fully utilise their talents and skills (Deloitte & Touche, 2009) will significantly increase their emotional attachment to the organisation. Döckel *et al.* (2006) found that employees are more likely to be emotionally bound to an organisation that provides proper training and career opportunities. Ghazanfar, Chuanmin, Bashir and Yang (2012) also found that

the training and development of employees are important in enhancing their commitment to the organisation. Employees' job satisfaction has also been positively related to affective and normative commitment (Lumley, Coetzee, Tladinyane & Ferreira, 2011; Shah *et al.*, 2012).

The results of the present study further showed that rewards and remuneration (market-related remuneration, benefits and non-monetary recognition incentives) are important in enhancing the participating employees' affective commitment. Lumley *et al.* (2011) also found pay satisfaction as an important antecedent of affective commitment. Meyer and Allen (1997) posit that an organisation that offers attractive compensation packages to employees shows their employees that they do matter to the organisation, which consequently enhances their emotional bond with the organisation.

Continuance commitment refers to commitment based on the cost that the employee associates with leaving the organisation (Meyer & Allen, 1997). The observed relationships between HR policies and procedures and continuance commitment are in line with research conducted by Meyer and Allen (1997). These authors found HR policies and procedures to be effective strategies for managing organisational commitment.

Normative commitment reflects a mindset of obligation, which develops as a result of the internalisation of norms through socialisation and the receipt of benefits (which encourages a feeling that one should reciprocate), or acceptance of the terms of a psychological contract (Ferreira *et al.*, 2010). The results of the present study showed that this mindset is cultivated by positive perceptions of leadership, rewards and remuneration and training and development opportunities. Leadership has been related to positive organisational behaviour, which fosters engaged employees, higher performance and commitment, which, in turn, lowers the risk of losing talent (Kiyani *et al.*, 2011; Mendes & Stander, 2011). Döckel *et al.* (2006) and Lumley *et al.* (2011) found pay to have a direct effect on normative commitment. According to Meyer and Allen (1997), high performance-based pay creates an economic obligation for an individual to remain with an organisation. Brundage and Koziel (2010) also confirm the importance of establishing a compensation system that focuses not only on salary and benefits but also on career development and growth opportunities in order to retain talented staff.

Managerial implications

Overall, the findings of the study add to the retention literature by shedding new light on how employees' perceptions of HR practices in the South African engineering environment relate to their levels of organisational commitment. The results seem to corroborate research conducted by Martin and Roodt (2008), which indicates that employees value certain conditions of work and if these conditions are evident and congruent with the individual's own needs, employees will be more satisfied and committed and less likely to leave the organisation (Lumley *et al.*, 2011). In practical terms, the new knowledge gained from the observed relationship between the HR practices of leadership, training and development, rewards and remuneration and job satisfaction and the participants' affective and normative commitment, and HR policies and procedures and continuance commitment, may be useful in the attraction and retention of talented employees in the engineering environment.

Organisations can train their managers to practise leadership behaviours that model the values of the organisation and inspire and motivate employees to deliver better performance and higher levels of commitment (Chang *et al.*, 2013; Detert & Treviño, 2010). Training and development remain key practices for enhancing affective and normative commitment and, by implication, for retaining valuable staff. Formal and informal training and development opportunities should equip employees with the skills and knowledge they need for future career advancement. Although managers should be held accountable for the development of their employees, employees should be encouraged and empowered to take control of their own growth and development within the organisation by means of regular performance and development discussions (Chang *et al.*, 2013; Döckel *et al.*, 2006).

Fair reward and remuneration practices must be established in order to enhance employees' affective and normative commitment. Remuneration packages should match job roles and responsibilities, be linked to performance and be perceived to be market-related (Brundage & Koziel, 2010; Chang *et al.*, 2013; Döckel, 2003; Zaitouni *et al.*, 2011). Employees' job satisfaction can be enhanced by ensuring that they are well trained in terms of the knowledge and skills they need to perform their jobs well. Interesting and challenging work that taps into the talents and abilities of employees also assists in enhancing job satisfaction and affective commitment (Döckel, 2003; Van Dyk & Coetzee, 2012).

In order to enhance employees' continuance commitment, a concerted effort should be made to educate employees on the company's HR policies and procedures. Information about HR policies and procedures should be readily available to everyone. HR policies and procedures should be applied consistently throughout the organisation in order to ensure perceptions of fairness (Döckel, 2003; Paré & Tremblay, 2007).

Limitations and suggestions for future research

A number of limitations should be observed with regard to the present study. Given the cross-sectional nature of the

research design, this study can yield no statements about causation. The observed associations between the variables have therefore been interpreted rather than established (Lumley *et al.*, 2011). This study was further limited to early career participants with a minimum of three years tenure in a single engineering organisation in South Africa, which means that the results cannot be generalised to other occupational contexts and regions. Future research efforts should be focused on obtaining larger and more representative samples from a more diverse group with longer years of tenure in various occupational sectors. This study may potentially serve as a foundation for researchers to examine, both theoretically and empirically, HR practices and other retention and commitment variables in order to gain further insight into the effect of HR practices as a core aspect of organisational culture on organisational commitment. The results of such studies could be of benefit to organisations when addressing the issue of the retention of engineers and scarce critical skills in other occupations.

Conclusion

The study contributes to knowledge of HR practices that may potentially influence the attraction and retention of early career engineering staff. The findings underscore the importance of assessing employees' perceptions of HR practices relating to job satisfaction, leadership, training and development, rewards and remuneration and HR policies and procedures as these have been shown to significantly predict higher levels of organisational commitment. The practical implications for managers and HR practitioners are to take a proactive approach in facilitating an organisational culture that reflects the practices embodied by the variables measured in this study.

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Competing interests

The authors declare that they have no financial or personal relationship(s) that may have inappropriately influenced them in writing this article.

Authors' contributions

M.C. (University of South Africa) was the project leader and assisted with writing up the article. J.M.-M. (University of South Africa) was responsible for the literature review and assisted with writing up the article. B.S. (University of South Africa) was responsible for the data collection.

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