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PLEASE SCROLL DOWN FOR ARTICLE
Affective commitment among knowledge workers: the role of pay satisfaction and organization career management

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Knowledge workers are highly sought after to help organizations establish their competitive advantage. However, getting them to want to stay with an organization is a challenge indeed. Furthermore, with claims that they are different from traditional workers, it remains unclear as to what will influence them to want to stay. Hence, the purpose of this paper is to determine whether pay satisfaction and career management (opportunity for skill enhancement and mentoring relationship) can influence the level of affective commitment among knowledge workers. Data measuring the abovementioned variables was gathered from 350 respondents representing varied occupation to ensure representation of all levels of knowledge work. Findings indicate that the proposed factors significantly influence the level of affective commitment among knowledge workers engaged in low knowledge work category. For their counterparts involved in high knowledge work, these factors had minimal influence. This paper implies that organizations should refrain from employing generic strategies to improve affective commitment among knowledge workers. Instead, attention should be paid onto the level of knowledge work when selecting the appropriate strategy. This paper incorporated the micro-level characteristic of knowledge work to traditional relationship with emphasis on how different strategies appeal to different knowledge work categories.

**Keywords:** affective organizational commitment; career management; knowledge work; mentoring relationship; pay satisfaction

Introduction

Businesses in the present world are operating in a highly competitive and borderless environment. Survival has become the key focus for many of these businesses and they are constantly seeking for ingredients that can help to establish their competitive advantage. In their quest for strategic excellence, knowledge has been identified as a crucial source of competitive advantage (Neumann and Tome 2011).

Knowledge is a mix of experience, values, related information, expert insight and grounded intuition that provides an environment and framework for evaluating and incorporating new experiences and information (Davenport and Prusak 1998; Awad and Ghaziri 2004). This valuable resource resides in the mind of individuals (Davenport and Prusak 1998; Beveren 2002; Yahya and Goh 2002) – primarily referred to as knowledge workers. In a nutshell, knowledge workers

bring to an organization their prior education, experience, knowledge and skills, and as they interact within the organization they draw on this experience to develop their skills and knowledge further, thus adding to their human capital and to the value of the organization. (Bogdanowicz and Bailey 2002, p. 126)

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Hence, this group of employees with new knowledge is highly sought after by firms which acknowledge the fact that these employees can contribute towards the renewal of valuable knowledge (Drucker 1998; Thompson and Heron 2005).

Fundamentally, as knowledge resides in the mind of knowledge workers, most organizations struggle with the task of embedding individual knowledge into the organizational knowledge pool (Davenport and Prusak 1998; Yahya and Goh 2002). It is becoming increasingly important for organizations to encourage individual employees to share their knowledge and contribute towards the enhancement of the organizational knowledge base (Bhatt 2002). However, with most of this important resource locked within the mind of individuals, knowledge workers have the power to decide what they want to contribute to the organization (Hislop 2003; Syed-Ikhsan and Rowland 2004), hence rendering this process particularly challenging. The conversion of individual knowledge to organizational knowledge is easily said than done. Howe and Levin (2007), as cited in Acsente (2010), correctly asserted that it is flawed to assume that knowledge can be separated from the knower. Instead, we believe it is important to retain the human capital in order to ensure that valuable knowledge remains within the organization. Basically, we posit that knowledge workers who are committed may be more inclined to share their individual knowledge and contribute towards the organizational knowledge pool.

Evidently, organizations should be showering more attention upon the retention of knowledge worker. However, this process is becoming more exigent especially with this new generation of workforce being exceptionally mobile and regularly looking for greener pastures to move on to (Bogdanowicz and Bailey 2002; de Sousa and Dierendonck 2010). Their exposure to propriety knowledge in organizations they have worked with enhances the marketability of their knowledge and opens up alternative employment opportunities (Abbasi, Belhadjali and Hollman 2009). Hence, they generally have the proclivity to change jobs regularly. This propensity to leave causes knowledge workers to take their individual knowledge with them in their search for self-advancement and this clearly increases the risk of knowledge loss (Bogdanowicz and Bailey 2002).

In addition, turnover among knowledge workers is becoming even more serious with the existence of job opportunity in companies beyond the boundary of a nation. As the global economic climate swirls towards K-economy, owners of knowledge (knowledge workers) are becoming highly desired by firms around the globe. Malaysian organizations are also affected by this phenomenon of brain drain. Malaysians residing overseas have increased 100 times in 45 years from 9576 in the year 1960 to 1,489,168 in the year 2005. Disturbingly, a large proportion of this group consists of knowledge workers. Statistics indicate that 77.24% of 132,468 citizens who move abroad in the year 2000 were graduates with tertiary education (Docquier and Marfouk 2007). A recent report by National Economic Advisory Council on the New Economic Model reported a similar trend with more than half of some 350,000 Malaysians working abroad possessing tertiary qualifications. The ratio of Malaysian science and technology based researchers employed in the United States to ones in Malaysia is a staggering 76.35% (Docquier and Rapoport 2009). Despite a shortage of health workers here, a large number of Malaysian medical personnel prefer to be employed in the Organization for Economic Co-Operation and Development (OECD) countries such as Australia, the United States and the UK. In the year 2000 only, a total of 7431 nurses, 4129 doctors, 652 dentists and 798 pharmacists from Malaysia were working in OECD countries (Dumont and Zurn 2007). In fact, over a
span of 10 years (1990–2000), the number of Malaysian residing in OECD countries has increased tremendously (Docquier and Marfouk 2007).

The loss of knowledge workers will make the quest of achieving the nation’s vision to become a developed nation by the year 2020 a challenging task. This loss indicates a loss of both tangible and intangible knowledge and potential competitive advantage. With the high turnover of knowledge workers, organizations will need to ‘repeatedly reset the frequency of interaction clock and absorptive capacity back closer towards learning’ (Guidice, Heames and Wang 2009, p. 156), which is not only time consuming but also highly costly. Hence, as mentioned above, it is important to retain knowledge workers to reduce the loss of valuable knowledge. Past researches (e.g. Somers 1995; Griffeth, Hom and Gaertner 2000; Meyer, Stanley, Herscovitch and Topolnytsky 2002; Paré and Tremblay 2007) have reported that having a committed workforce, especially one that wants to stay because they simply love the organization (affective commitment), can significantly reduce the intention to quit. Similar patterns were noted when the abovementioned relationship between commitment and turnover intention was tested among knowledge workers. For example, Bagraim (2010) reported that affective commitment was found to significantly reduce turnover intentions among information-technology knowledge workers. Calisir, Gumussoy and Iskin (2011) reported similar findings.

It is therefore clear that knowledge workers who are committed to the organization tend not to leave the organization. More importantly, retaining knowledge workers who stay because they want to (affective commitment) can increase the possibilities of them sharing their individual knowledge voluntarily and contributing towards the organization knowledge pool. Hence, organizations that rely on knowledge workers in their businesses need to determine how to gain the commitment of this group of employees so as to retain them and their valuable knowledge.

Therefore, this study intends to address the need to improve affective commitment among knowledge workers in organizations. Although, many studies have investigated various factors that hold potential to influence affective organizational commitment, we are not aware of any study that specifically addresses different level of knowledge work at a microlevel. This study sets out to determine the influence of pay satisfaction and organization career management on affective organizational commitment among knowledge workers. In addition, we include the level of knowledge work (the extent to which the daily work of individuals involves acquisition, creation, organization and application of knowledge) involved to determine how the influence of these factors may differ accordingly.

Theoretical bases and development of hypotheses

Bonded for life: knowledge work and knowledge workers

Knowledge workers are recognized as the incumbents of knowledge work. They ‘have high level of skills/education, with technological literacy, high cognitive power and abstract reasoning’ (Horwitz, Chan and Quazi 2003, p. 31). They have a knack for integrating data, construing meaning from the integrated data set by looking at it from different angles and sharing their insights (Horwitz et al. 2003). Such abilities facilitate their role in executing knowledge work in organizations. In essence, knowledge is the key element in their work (de Sousa and Dierendonck 2010).

Up to date, there is a dearth of literature on what knowledge work actually means (Donnelly 2006). In fact, there is a misleading trend that categorizes knowledge work in terms of occupational titles instead of recognizing the possibility that all work may incorporate varying degrees of knowledge (Kelloway and Barling 2000; Donnelly 2006).
This general conceptualization of knowledge work created a situation in which only certain occupations were found fit to be recognized as knowledge work (Withey 2003). This may limit knowledge work to specific jobs instead of paying attention to what it is that knowledge workers actually do on the job (Kelloway and Barling 2000).

As knowledge work is highly complex and not easily discernible or quantifiable (Davenport and Prusak 1998; Ramirez and Nembhard 2004), defining this concept has remained a challenge. A review of the literature shows that knowledge work is highly intertwined with what knowledge workers do (see, e.g. Kelloway and Barling 2000; Withey 2003; Ramirez and Nembhard 2004). As a general rule, knowledge work may encompass occupations which highlight work that involves manipulation and application of knowledge. It could involve creation of novel knowledge that will be used by others (e.g. scientists), application of technical and tacit knowledge to execute formerly established tasks (e.g. managers) or application of highly specialized and codified knowledge that is limited to specific tasks (e.g. doctors) (Dove 1998, as cited in Ramirez and Nembhard 2004).

In developing a scale to measure knowledge work, Withey (2003) referred to the work of Davenport, Jarvenpaa and Beers (1996) to identify ways in which knowledge can be employed in knowledge work. The list included four primary dimensions of knowledge work which encompasses acquisition of existing knowledge, creation of new knowledge, codifying or packaging knowledge for others, and applying knowledge. An in-depth analysis of the scale developed by Withey (2003) shows that the level of knowledge work can be defined as the degree to which the abovementioned dimensions of knowledge work is used in the daily work of individuals. Simply put, the level of knowledge work describes to what extent the daily work of individuals involves acquisition of existing knowledge, creation of novel knowledge, organization of knowledge and finally application of knowledge.

Fundamentally, all jobs may involve these practices at varying degrees. Therefore, Withey (2003) suggested the use of ‘high’, ‘moderate’ and ‘low’ knowledge work to distinguish between different levels of knowledge work in various jobs. Naturally, high level of knowledge work includes daily work that requires the incumbent to constantly seek and acquire existing knowledge, focus on the creation of new knowledge and contribute towards the advancement of knowledge, gather relevant knowledge and package it in a way that could be easily understood by others, and finally employing creative solution to organization problems. On the contrary, low knowledge work would not reflect such intensity and depth of knowledge-based tasks.

Hence, instead of using means of occupational title categorization to define knowledge work, we posit that it would be best to employ the level of knowledge work to conceptualize the discretionary use of knowledge in work. The rationale behind this argument is that the level of knowledge work of a business development manager in one organization may not be at par with the work involved in a similar position but at a different organization. In brief, the level of knowledge work measures the extent to which abovementioned knowledge work behavior is displayed by the respondent in his or her work (Withey 2003).

**Organizational commitment among knowledge workers**

Commitment is a multi-foci concept. An employee can be committed to his/her job, supervisor, peer or organization (Boshoff and Mels 2000; Morin, Morizot, Boudrias and Madore 2010; Paillé, Fournier and Lamontagne 2011). In general, knowledge workers are said to be more committed to their occupation and less committed to the organization
(May, Korczynski and Frenkel 2002; Horwitz et al. 2003; O’Neill and Adya 2007). Although commitment to profession does help in reducing turnover intentions (Boshoff and Mels 2000), we believe that it is equally important to get knowledge workers to be committed to the organization as well to ensure that organizations do not lose knowledge due to turnover of knowledge workers. Therefore, this study will focus on developing affective commitment to organizations among knowledge workers.

As mentioned earlier, affective commitment is a well-established antecedent in models of turnover. Hence, if organizations can focus on establishing affective commitment among knowledge workers, the chances of retaining them will increase tremendously. However, there is a need to revisit the possible factors that could improve the level of commitment among workers, especially with the emergence of a new workforce identified as knowledge workers. Knowledge workers are said to be different, hence require eccentric management practices. The use of generic techniques to keep them committed may no longer bear the desired impact (Wickens 1995; Jooste 1997).

Unlike their blue- and white-collar counterparts, knowledge workers possess high focus of control. This characteristic allows them to choose how much to invest in their careers, hence allowing them to feel that they are in control of their own destiny (Davenport 1999). Knowledge workers desire a great deal of autonomy and discretion in their work environment (Jooste 1997; Horwitz et al. 2003; de Sousa and Dierendonck 2010). They expect to be treated as colleagues rather than subordinates to acknowledge their independence (Balkin, Gomez-Mejia and Mulkovich 1990; Koopman 1991). Hence, they welcome more room for participation in decision-making (May et al. 2002). Fundamentally, they are versatile, autonomous and highly skilled personnel who are able to leverage and build knowledge, hence rendering them to be a valuable resource for organizations. They are also known to be very mobile and regularly seek new opportunities for self-development elsewhere (Bogdanowicz and Bailey 2002; Horwitz et al. 2003). Consequently, they are less likely to be highly committed to an organization (Horwitz et al. 2003; O’Neill and Adya 2007).

By comparing the current contingent nature of knowledge worker employment relationship, it is believed that affective organizational commitment would play a more important role, as compared with continuance and normative commitment, towards retaining the services of knowledge workers. We believe that the constant demand for them, locally and globally, in addition to their independence, reduces the possibility of them remaining with an organization because they feel obliged to do so (normative commitment) or feel they have no other option for financial sustenance (continuance commitment). They have the power to decide whether they want to remain with an organization (affective commitment). Affective commitment refers to a sense of identification with and involvement in an organization (Meyer and Allen 1991). It refers to an emotional attachment or a psychological bond between individuals and an organization (Meyer and Allen 1997). Since knowledge workers are said to consider ‘work as a source of implicit pleasure and fulfillment’ (de Sousa and Dierendonck 2010, p. 232), we would argue that knowledge workers would most likely remain with an organization if their level of affective commitment is highly significant.

Factors that influence affective commitment among knowledge workers may be unique to this group of employees. There are generally two schools of thoughts on what drives knowledge workers. On one end, scholars believe that knowledge workers are more driven by factors such as personal growth (Cook 1997; Levering and Moskowitz 1998) and not monetary rewards. The use of rewards to get knowledge workers to perform in accordance is perceived as manipulative (Amar 2002; Politis 2005).
On the other hand, satisfaction with pay may also contribute towards one's willingness to stay. Reward is also claimed to be a powerful motivator in influencing knowledge workers' behavior by several researchers (Kubo and Saka 2002; May et al. 2002; Horwitz et al. 2003; DeTienne, Dyer, Hoopes and Harris 2004; Lin and Tseng 2005; Al-Alawi, Al-Marzooqi and Mohammed 2007; Forstenlechner and Lettice 2007). In fact, several reports have highlighted that the competitive pay structure which commensurates with their intellectual contribution is a pull factor for many Malaysian migrants. Hence, this study sets out to determine the influence of organization career management and pay satisfaction on knowledge workers' level of affective commitment.

**Career management and affective organizational commitment**

Career management has always been an integral part of human resource program. It is defined as attempts made to influence the career development of one or more people (Arnold 1997). The program may consist of mostly formal activities, such as training courses, and assessment centers to careers advices. Some elements of informal career management may also exist when informal relationships may be established with influential others within the organization. Hence, our study will be looking at formal and informal career management. Formal career management includes opportunities for skill enhancement (training and development, opportunities for lateral moves, job rotation and assignment of special projects), whereas informal career management includes mentoring relationships.

Fundamentally, employees who do not receive adequate career management help from their employer, will be dissatisfied and they will seek opportunities outside the organization (Horwitz et al. 2003). There is a significant association between formal career management and organizational commitment (Sturges, Guest, Conway and Mackenzie 2002). Employees are likely to stay with a particular company as long as they perceive that they are provided with opportunities to continue to grow intellectually and to be challenged with interesting projects (Zidle 1998; Horwitz et al. 2003; Carleton 2011). This can be especially true with knowledge workers as they are constantly seeking opportunities for self-development (Bogdanowicz and Bailey 2002). When opportunities for skill enhancement are readily available in organization, employees will perceive that the organization is committed to their personal development. Such positive perceptions will in turn encourage them to be committed to the organization (Eisenberger, Fasolo and Davis-LaMastro 1990; Meyer and Smith 2000).

Similarly, having a good working mentor–mentee relationship helps employee understand the organization better and gain opportunities for personal development. Mentoring relationships help employees feel competent in their work role (Allen and Meyer 1990) and has been recognized as the antecedent experience for each of the organizational commitment dimensions (Stallworth 2003). Hence, we hypothesize that:

**Hypothesis 1:** Opportunity for skills enhancement is positively associated with affective organizational commitment among knowledge workers.

**Hypothesis 2:** Mentoring relationship positively associated with affective organizational commitment among knowledge workers.

**Pay satisfaction**

In general, pay satisfaction is said to play a crucial role in retention policies in organizations. For example, Vandenberghe and Tremblay (2008) found that higher order pay satisfaction significantly improves elements of affective commitment and
subsequently reduces turnover intention among their respondents. This may or may not be the case with knowledge workers. There are contradicting views on the role of pay satisfaction among knowledge workers. One school of thought delineates that knowledge workers are said to be more inclined towards personal growth and not rewards (Amar 2002; Politis 2005; Carleton 2011). They may be looking for more than money (Zidle 1998).

On the contrary, with some reports identifying a competitive pay structure as a pull factor for knowledge workers, satisfaction with pay may be an important motivator (DeTienne et al. 2004; Al-Alawi et al. 2007; Forstenlechner and Lettice 2007). In a knowledge worker’s mind, pay symbolizes their value in the external labor market as well as within the organization (May et al. 2002). Basically, the level of pay is used to gauge how important they are to knowledge-intensive firms and how much bargaining power they have in any employment relationship (May et al. 2002). Horwitz et al. (2003) reported that competitive pay packages, and performance incentives and bonuses are among the most effective strategies in retaining knowledge workers. In fact, they found that most of their respondent organizations lost their valuable knowledge workers due to pay and job prospects issue. Basically, satisfaction with salary is said to increase job satisfaction and employee commitment, and subsequently reduce turnover intentions (Wallace 1995; Luna-Arocas and Camps 2007). Therefore, we hypothesize that:

Hypothesis 3: Pay satisfaction is positively associated with affective organizational commitment among knowledge workers.

**Boundary condition of level of knowledge work**

Although much work has been done to study the relationship of factors such as rewards (pay), formal career management and informal career management towards organizational commitment (e.g. Lee and Maurer 1997; Daigle-LeBlanc 2001), we are not aware of any study that has investigated the moderating effect of different levels of knowledge work on the abovementioned relationships. In order to understand what keeps them committed, we believe that it is important not only to determine the different factors associated with affective commitment but also to distinguish the expectation of employees with different level of knowledge work towards these factors.

As discussed earlier, traditional classification based on job title or qualification of the employees clearly is limited in scope and does not reflect the true nature of knowledge work. In reality, the level of knowledge work is reflective of the extent to which knowledge acquisition, creation, codification and application are practiced as part of the daily work of employees (Withey 2003). For example, although managers are considered as knowledge workers (Ramirez and Nembhard 2004), the level of knowledge work involved may vary from one knowledge-intensive firm to another. In other words, the daily work of some managers may encompass greater extent of problem solving or generation of new ideas compared with their counterparts with similar job titles. Ideally, it is more important to look at the extent of knowledge work being done when defining knowledge workers (Kelloway and Barling 2000). According to Withey (2003), knowledge workers can be categorized as high, medium or low based on the degree to which the abovementioned dimensions of knowledge work are used in the daily work.

We posit that the expectations and behavior of knowledge workers will vary in accordance to the variations in the level knowledge work they are engaged in. This implies
that the adoption of ‘one size fits all’ idea may not be practical in reality. Instead, understanding the best combined strategy to retain their knowledge worker, based on the actual level of knowledge work involved, will be more beneficial.

There is not much literature we can draw from to hypothesize the moderating effect of knowledge work. However, we postulate that when higher levels of knowledge work is involved, the nature of work is generally more challenging and demanding, therefore leading towards higher expectations. For instance, employees engaged in jobs that require more creativity and application of novel methods will have greater expectation for their remuneration. As discussed in May et al. (2002), pay is a reflection of the value of the knowledge worker. Therefore, it is natural to expect higher pay when employees are engaged in high level of knowledge work which involves greater need to acquire, create, codify and apply knowledge. Similarly, support systems such as training opportunities and impartial career advice from mentors will be welcomed to help tackle challenging tasks that are present in high knowledge work. Thus, our final hypothesis postulates that:

**Hypothesis 4:** The influence of opportunity for skill enhancement, mentoring relationship and pay satisfaction on affective commitment will be greater when higher level of knowledge work is involved.

**Methods**

**Research site, participants and procedures**

We distributed our survey questionnaire to 500 respondents from various industries and diverse job functions to ensure representation of all levels of knowledge work. Prior to distributing our survey, we identified from the literature common occupations that have been recognized as knowledge work, such as managers, engineers, information technology professionals, accountants, lawyers, financial analysts and professors. These groups of employees were commonly selected as samples of knowledge workers in past studies (see, e.g. Lee and Maurer 1997; Stallworth 2003; Bagaim 2010). This list provided a general guideline in selecting our respondents, but it did not limit our pool of respondents to only those holding the listed occupations.

When approaching our respondents, we enquired if their job involved any tasks of developing or using knowledge. If the answer was affirmative, we then requested them to respond to our survey. There was no systematic approach in specifying the level of knowledge work at this point of time as we posit that the level of knowledge work is not necessarily tied to occupational titles. Instead, a measure of the level of knowledge work was incorporated into the survey.

We received 350 usable surveys – giving us a response rate of 70%. The sample had almost equal proportion of male and female respondents. More than half (58%) of the respondents were less than 30 years old. Most respondents were degree holders (69%). The racial composition did not reflect Malaysia’s population. Instead, we had a large proportion of Chinese respondents (74%).

The sample included respondents from industries such as the banking/finance industry (27.4%), engineering/construction industry (25.4%), service/hospitality (18.3%), educational sector (10.3%), retail businesses (5.4%), pharmaceutical and healthcare industry (4.6%), information technology (5.7%) and communication and advertising (2.9%). Our sample consists of a balanced mix of first-line managers, administrators and professionals with a wide variety of occupational titles and differing level of knowledge work. For instance, there were
engineers whose daily work included low level of knowledge work compared with some of their counterparts with corresponding job titles. They were only required to apply the standard operating procedures in solving problems and were not required to develop novel solutions. Similarly, some first-line managers were expected to develop new ideas using knowledge acquired through their interaction with employees, whereas some were encumbered with daily work that was guided by predetermined course of action.

Moving on, we are aware that the use of common raters for all the variables in our study could increase the possibility of common method variance, hence affecting our study’s internal validity (Podsakoff, MacKinzie, Lee and Podsakoff 2003). However, the use of common raters was necessary as knowledge workers could provide a more accurate picture about their perception on career management, pay satisfaction and their commitment. Fundamentally, self-report is a more viable alternative to obtain precise information about internal conditions such as attitude or emotions (Spector 2006).

Therefore, as suggested by Podsakoff et al. (2003), a psychological separation was created between the independent, moderator and dependent variable to minimize the possibility of this bias. Respondents were assured that there were no right or wrong answer and what mattered most was their honest view. They were initially asked to state their degree of agreement with pay satisfaction items, followed by their perception on the organization’s career management practices. Then, they were requested to indicate their level of agreement with the extent of knowledge work their job involves. Subsequently, they were asked to provide their response on items that measure their affective commitment level. This was done to reduce the likelihood of them trying to associate the variables of the study and provide favorable responses as probably expected by the researcher (Podsakoff et al. 2003).

**Measures**

We employed 18 pre-tested items from the Pay Satisfaction Questionnaire from Heneman and Schwab (1985). After the pilot test, complete statements were used instead of fragmented items. For example, instead of using the original item ‘size of my current salary’, we modified the statement to ‘I am satisfied with the size of my current salary’.

Career management items were adopted from the work of Arnold (1997), whereas affective commitment was assessed with the extensively used subscale developed by Allen and Meyer (1990). The level of knowledge work was measured using the scale developed by Withey (2003). This scale consist of five items which best represented the four dimensions of knowledge work – acquisition, creation, codification and application of knowledge. Sample items include ‘I learn new things when performing my work’ and ‘I generate new ideas to improve current practices’.

Apart from demographics data, all other measures required the participants to indicate on a 7-point scale (1 = strongly disagree; 7 = strongly agree) the degree of their agreement or disagreement with each statement. The items in each scale were summed and then averaged to arrive at an overall score for the scale. Higher scores represent higher levels of each of the constructs.

**Results**

**Dimensionality and distinctiveness of measures**

Prior to testing our hypotheses, we conducted exploratory factor analysis (EFA) to examine the psychometric properties of the measures employed in this study. The factor
loadings and cross loadings were examined using the pattern matrix. Items with factor loadings of more than 0.40 in a single factor were retained (Hair, Black, Babin, Anderson and Tatham 2006).

Responses to the 28 items measuring the independent variables were submitted to a principal component factor analysis. Several items were dropped due to cross loadings. Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was 0.925, thus indicating sufficient intercorrelations, whereas Bartlett’s test of sphericity was significant ($\chi^2 = 6267.984, p < 0.01$). The analysis provided a three-factor solution with 65.54% of total variance explained. The new factor configuration did not differ significantly from the original framework.

Affective commitment was also subjected to a principal component factor analysis. The final results showed a single-factor solution with a KMO measure of sampling adequacy of 0.69. Bartlett’s test of sphericity was significant ($\chi^2 = 691.991, p < 0.01$). Finally, the factor analysis on the moderator variable (level of knowledge work) also resulted in a one-factor solution with a KMO measure of sampling adequacy of 0.67.

We also used EFA to conduct Harman’s one-factor test. We examined the unrotated factor solution involving all 36 items of all the five variables (pay satisfaction, opportunity for skill enhancement, mentoring relationship, level of knowledge work and affective commitment) rated by the respondents and found that no single factor accounted for the majority of the variance. Thus, common method bias was not a concern in this study (Podsakoff et al. 2003).

Table 1 reports descriptive statistics, reliability coefficients and intercorrelations of all variables. It can be seen that all measures are highly reliable with reliability coefficient ranging from 0.7 to 0.93. As one would expect on theoretical ground, the constructs are fairly correlated.

Test of hypotheses

The hypotheses testing direct and moderating effects were tested using hierarchical regression analysis (see Table 2). In step 1, we entered the predictors (pay satisfaction, opportunity for skill enhancement and mentoring relationship). In step 2, the level of knowledge work (moderator) was included. Finally, in step 3, the interaction terms were included (predictor $\times$ moderator).

As shown in Table 2, the standardized coefficients in step 1 indicate that only satisfaction with pay is positively associated with affective commitment among knowledge workers, – hence supporting H1. Opportunities for skill enhancement and

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>PS</th>
<th>SE</th>
<th>MR</th>
<th>AC</th>
<th>KW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pay satisfaction (PS)</td>
<td>3.93</td>
<td>0.98</td>
<td>0.94</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Skill enhancement (SE)</td>
<td>4.48</td>
<td>1.08</td>
<td>0.63**</td>
<td>0.86</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Mentoring relationship (MR)</td>
<td>4.24</td>
<td>1.19</td>
<td>0.62**</td>
<td>0.79**</td>
<td>0.83</td>
<td></td>
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<tr>
<td>Affective commitment (AC)</td>
<td>4.38</td>
<td>0.75</td>
<td>0.44**</td>
<td>0.37**</td>
<td>0.38**</td>
<td>0.73</td>
<td></td>
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<tr>
<td>Level of knowledge work (KW)</td>
<td>4.85</td>
<td>0.80</td>
<td>0.25**</td>
<td>0.26**</td>
<td>0.27**</td>
<td>0.46**</td>
<td>0.70</td>
</tr>
</tbody>
</table>

Note: Diagonal entry shows reliability coefficients.

**$p < 0.01$.**
mentoring relationship did not significantly influence affective organizational commitment. Therefore, H2 and H3 are not supported.

However, some interesting observations were made when level of knowledge work was included as the moderator. In step 3, all the three interaction terms were significant. This provides support for the proposition that the effect of the predictors on affective commitment is influenced by level of knowledge work. Figure 1 exhibits the moderating effect of level of knowledge worker on the abovementioned relationships.

We categorized knowledge work into two categories based on the level of knowledge work – low and high knowledge category – as Withey (2003) reported that there was no significant difference between moderate and high knowledge category. Significant difference was only noted between low and moderate/high knowledge category. We found similar results; hence, our respondents were categorized into low and high knowledge category.

In general, satisfaction with pay had a positive influence on affective commitment. However, this impact was greater among low knowledge category (see Figure 1a). Similarly, the influence of opportunity for skills enhancement was only significant for low knowledge category (see Figure 1b). Finally, mentoring relationship also had a greater impact on affective commitment among low knowledge category. Among all the three predictors, only mentoring relationship appears to hold potential to improve the extent of affective commitment among high knowledge workers.

Discussion
This study investigated the moderating role of the level of knowledge work on the relationship between pay satisfaction and affective commitment and the relationship between organization career management (opportunity for skills enhancement and mentoring relationship) and affective commitment. Given these objectives, we tested four hypotheses: (a) the relationship between pay satisfaction and affective commitment, (b) the relationship between opportunity for skill enhancement and affective commitment, (c)

Table 2. Hierarchical regression results using level of knowledge work as moderator in the relationship between predictors (pay satisfaction and career management) and affective organizational commitment.

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Std. β</th>
<th>Std. β</th>
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<tbody>
<tr>
<td></td>
<td>Step 1</td>
<td>Step 2</td>
<td>Step 3</td>
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<tr>
<td>Model variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pay satisfaction (PS)</td>
<td>0.322**</td>
<td>0.283**</td>
<td>0.943**</td>
</tr>
<tr>
<td>Skill enhancement (SE)</td>
<td>0.066</td>
<td>0.039</td>
<td>−0.907*</td>
</tr>
<tr>
<td>Mentoring relationship (MR)</td>
<td>0.128</td>
<td>0.076</td>
<td>1.044*</td>
</tr>
<tr>
<td>Moderating variable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of knowledge work (KW)</td>
<td>0.362**</td>
<td>0.696**</td>
<td></td>
</tr>
<tr>
<td>Interaction terms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PS × KW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE × KW</td>
<td>−0.860*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MR × KW</td>
<td>1.250*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.217</td>
<td>0.336</td>
<td>0.362</td>
</tr>
<tr>
<td>Adj $R^2$</td>
<td>0.210</td>
<td>0.328</td>
<td>0.349</td>
</tr>
<tr>
<td>$R^2$ change</td>
<td>0.217</td>
<td>0.119</td>
<td>0.026</td>
</tr>
<tr>
<td>Sig. $F$ change</td>
<td>31.902**</td>
<td>62.066**</td>
<td>4.608**</td>
</tr>
</tbody>
</table>

*p < 0.05, **p < 0.01.
Figure 1. Moderating effect of level of knowledge work on the relationship between predictors and affective commitment.
the relationship between mentoring relationship and affective commitment and finally (d) the moderating role of level of knowledge work on the abovementioned relationships.

Although the three drivers for affective commitment were assumed to hold potential in influencing knowledge workers, only satisfaction with pay had a positive influence on affective commitment. This was especially true for low knowledge work category. To a certain extent, employees engaged in high knowledge work do expect a satisfactory pay level. The absence of an acceptable pay does dampen their desire to remain with the organization. However, high levels of pay satisfaction do not have the ability to keep them committed. Evidently, beyond moderate levels, pay satisfaction does not drive affective commitment among employees engaged in high knowledge work. An acceptable pay appears to be a prerequisite for them to want to stay but not a factor that keeps them motivated to stay.

Surprisingly, opportunity for skill enhancement and mentoring relationship did not have a significant association with affective commitment. Although we hypothesized that career management by the organization may enhance perceptions of organizational support towards self-development, it does not seem to be the case. This finding is in line with what was reported in May et al.’s (2002) study. In general, knowledge workers did not consider training and development courses or immediate supervisors as an important source of learning. Instead, peer learning was ranked as the most important source of learning (May et al. 2002). Knowledge workers tend to seek membership association with their peers through which they are able to share their knowledge and experiences (de Sousa and Dierendonck 2010). Therefore, when career management by the organization is not considered as an important source for learning, these elements of career management may not be able to influence knowledge worker’s commitment.

However, the abovementioned finding must be treated with caution. It does not imply that organizations can ignore skill enhancement programs and mentoring in totality. As posited, subsequent analysis indicates that organizations should consider the level of knowledge work when making an allowance for career management strategies. More meaningful results were obtained when level of knowledge work was included as a moderator. Although career management did not have a significant influence on the level of affective commitment among knowledge workers in general, a positive relationship was evident among employees involved in low knowledge work.

Contrary to H4, workers with low knowledge work were found to be more expectant of opportunities for skills enhancement and mentor support. Our assumption that higher level of knowledge work may require more support was unsubstantiated. A logical interpretation of this result will require us to consider the characteristics of high knowledge work incumbents. Statistically, there was no significant difference in terms of level of education between employees of ‘high’ and ‘low’ knowledge work. However, we believe that the ability of knowledge workers might differ according to the nature of their job. Therefore, the nature of knowledge work involved should be used to determine the ability of the incumbents of different levels of knowledge work. Evidently, high knowledge work can be more demanding due to its complex and challenging nature. Incumbents of high knowledge work need to engage in greater levels of knowledge generation and expected to demonstrate creativity. Therefore, highly capable knowledge workers who are well endowed to handle these demands will be hired. Naturally, capable knowledge worker may not rely much on the organization’s support in career management. Instead, unlike their counterparts engaged in low knowledge work, they may be more independent and possess greater internal locus of control. Furthermore, they
may prefer collaborative learning relationships with their peer. Peer learning provides an avenue for more specialized learning and collaborative exchange of knowledge (May et al. 2002). This could explain why they do not appear to be driven by the organization’s career management practices to remain in an organization. On the other hand, employees engaged in low knowledge work are probably still developing their knowledge base and network with their peer. They may be equipped with the relevant paper qualification, but are yet to gain an edge in their field of specialization. Therefore, career management efforts by the organization may be perceived as organizational support for self-development.

In conclusion, the findings of this study lend support to our proposition that the level of knowledge work should be considered when developing programs or strategies to retain knowledge workers. Past studies reported organization career management and pay satisfaction to be important drivers of organizational commitment in general (e.g. Lee and Maurer 1997; Daigle-LeBlanc 2001; Sturges et al. 2002). The inconsistency with findings of past research could be an indicator that findings of past studies may no longer be practical in this knowledge era.

Implication to theory

This study has some obvious theoretical ramifications. The findings of this study has reinforced that knowledge workers are distinct from traditional workers, hence entail eccentric management practices. Past studies have strongly supported the notion that pay satisfaction and career management is clearly needed to ensure commitment among employees. However, those findings were refuted when tested in a knowledge-based context. In addition, Withey (2003) clearly reiterated that most previous studies on knowledge work focused on managing knowledge organizations at a macrolevel and overlooked the need to address distinctive characteristics of knowledge workers. This study has incorporated the knowledge work measurement scale and provided interesting insights to conventional relationship between factors that can influence affective commitment among knowledge workers.

Implication to practice

The findings of this study will shed some light on human resource practices in knowledge-based organizations. Attracting and retaining knowledge workers is a challenge by itself. However, these organizations should not shy away from embracing this challenge because knowledge workers hold the key towards establishing competitive advantage. Therefore, these organizations need to understand that generic human resource practices may not bear the desired results. Clearly, factors such as pay satisfaction and career management that used to be advocated for knowledge workers in particular do not provide the expected results. These strategies should be shaped in accordance to the level of knowledge work involved. It is, therefore, hoped that this study will inform organizations the necessity to structure their human resource strategies according to the contingent nature of knowledge workers.

Limitation and direction for future research

Despite theoretical and practical contributions, our study has potential limitations. First, we only focused on two main variables – pay satisfaction and career management
Conclusion

The present study has clearly demonstrated that generic strategies to retain knowledge workers are no longer practical. Organizations must consider the level of knowledge work involved when identifying the best approach to keep knowledge workers committed. Evidently, the present approaches, such as pay satisfaction, seem to appeal to knowledge workers engaged in low knowledge work. In a nutshell, this calls for an investigation of factors that can retain employees in the high knowledge work category.

References


