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Knowledge processing and faculty engagement in multicultural university settings: A social learning perspective

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In educational studies much attention has been directed to engagement as a precondition for positive student outcomes. Very few studies, however, have focused on the engagement of the faculty members. This is a regrettable omission because engagement has been argued to lead to more satisfied, more productive and healthier faculty members. In this study, based on a sample consisting of 489 members of multicultural university departments, we set out to investigate the relationship between internal knowledge processing – conceptualised as the ability to locate and share knowledge in the faculty group – and faculty engagement. Our hypotheses are based on social learning theory and social exchange theory predicting that increased knowledge sharing activities could facilitate an environment in which faculty engagement thrives. In order to test our hypotheses we use multiple regression analysis. We assessed indicators of behavioural, cognitive and emotional engagement. Results showed consistent positive associations between group knowledge processing and all the studied faculty engagement indicators. Implications and suggestions for future research are discussed in detail.

Keywords: engagement; knowledge sharing; knowledge location; multicultural groups; university; work engagement; social learning

Introduction

Student engagement has been a central concept in educational studies in recent years (Appleton, Christenson, and Furlong 2008; Jimerson, Campos, and Greif 2003). In recent research, engagement has been shown to reduce problems such as low student performance and dropout (Finn and Rock 1997; Fredericks, Blumenfeld, and Paris 2004; Graham and Congdon 2011; Jackling and Natoli 2011; Wehlage et al., 1989). Much less work, however, focuses on faculty engagement. This is unfortunate since the engagement of teachers may well have important consequences for the support of students
as well as the functioning of staff members as a group (Bathmaker and Avis 2007; Croninger and Lee 2001; Goddard, Hoy, and Hoy 2000; Rumberger and Thomas 2000). Moreover, engaged faculty could be argued to perform better than non-engaged faculty for several reasons, such as: (1) they experience positive emotions, including happiness, joy and enthusiasm; (2) they experience better health; (3) they create their own job and personal resources; and (4) they transfer their engagement to others (Bakker and Demerouti 2008).

A limited number of studies have examined antecedents of faculty engagement. In a sample of more than 2000 primary school teachers, Hakanen, Bakker, and Schaufeli (2006) found that job control, information, supervisory support, innovative climate and social climate were all positively related to work engagement. In a similar study among Finnish teachers working in elementary, secondary and vocational schools, Bakker and Demerouti (2007) found job resources to be positively associated with faculty engagement.

In this study we focus on the effects of knowledge processing on faculty engagement in multicultural university departments. More specifically, we examine the impact of knowledge location and knowledge sharing on behavioural, cognitive and emotional engagement. This is an important and relevant endeavour for several reasons. First, few quantitative studies have been concerned with faculty engagement and, as far as we know, none of those have studied faculty in higher education; nor have they examined outcomes of knowledge processing. Second, knowledge is becoming an increasingly important resource in today’s organisations, where learning is often in focus – not least in the educational sector (Blackmore et al, 2011; Lauring 2009). Research on knowledge processing and social learning in educational organizations is therefore both relevant and timely. Finally, internationalisation of higher education is increasing in most parts of the world, but very little research has examined the functioning of multicultural faculty groups (Morrison, Lumby, and Sood 2005). Accordingly, there are good reasons to study the effect of group knowledge processing on faculty engagement in multicultural educational organisations.

The remainder of this article first deals with defining the main concepts of this investigation: knowledge processing and faculty engagement. This is succeeded by a short theory section and the generation of hypotheses to be tested. The methods section delineates the target group, the sample and the measures applied. Results are displayed and subsequently discussed in terms of main findings, limitations and implications. Finally, the conclusions of this study are drawn.

**Conceptualisations**

In recent years, university faculty have faced highly complex problems, rapidly changing technologies and a dynamic growth and diversification of
knowledge in terms of multidisciplinary and multinational concerns (Da Silva and Davis 2011; Kanzler 2010). In consequence, the individual academics will often have difficulties providing all the expertise necessary to plan and carry out teaching and research (Hara et al, 2003). This encourages them to engage in more collaborative projects in which dialogue and information transfer is crucial, making university departments a most relevant setting to study the effect of knowledge processing (Antal and Richebé 2009; Lee and Bozeman 2005). In culturally heterogeneous settings, this could be even more important, since diversity has been shown to provide useful knowledge resources in organisational and educational contexts (Shaw 2009; Stahl et al, 2010).

**Faculty knowledge processing**

Group knowledge processing can be described as the ability of individuals in a group to handle, distribute and apply relevant information (Argote 1999). In this study we focus on knowledge location and knowledge sharing. The ability to locate knowledge refers to the extent to which faculty members know where internal knowledge resources are located. Work groups that generally know where knowledge is positioned among its members have been argued to function more efficiently (Becker 2001). Awareness of expertise location requires information about a variety of potentially useful resources in identifying where to find a direct answer to a question or whom to call upon to develop a solution to a more complex problem (Faraj and Sproull 2000). The capacity for locating knowledge could be especially useful in multicultural university departments where increasing rates of international students, demands of international publications, and international projects have made staff internationalization highly useful. In other words, if there is a need for diverse knowledge and the diverse knowledge exists in the organization it becomes essential to be able to extract and disperse that knowledge (Lauring and Selmer 2010; Tarry 2011). However, it may also be more challenging, as individuals often group together based on language and nationality.

The group’s knowledge locating ability is only of value if the information is subsequently shared and used (Borgatti and Cross 2003). Knowledge sharing is here conceived as the provision or receipt of knowledge in the form of information, know-how and feedback (Cummings 2004). The ability to locate and share existing internal knowledge resources is a precondition for becoming a learning organisation in which the newest academic knowledge and knowledge of pedagogical methods are distributed and put to use (Argyris and Schön 1978). Knowledge sharing is also a social process in which individuals learn about each other’s competencies and at the same time establish trust. Knowledge sharing has been argued to consist of both explicit and tacit dimensions.
Tacit knowledge is often described as residing in the background of our consciousness, enabling us to perform certain tasks and attend to specific problems. This type of knowledge, however, cannot be always be clearly articulated or codified as explicit knowledge (2001; Tsoukas 1996). For Nonaka (1994), tacit knowledge contains an important cognitive dimension, residing in individuals’ minds and consisting of mental models and perceptions. Hence, tacit knowledge may often be shared in an informal context (Levin and Cross 2004). However, formal learning by doing (such as an apprenticeship situation) can also facilitate the transfer of tacit knowledge (Carlson et al., 2003). Hence, knowledge sharing could be very important in multicultural settings where a number of cultural and linguistic boundaries exist.

Faculty engagement

Engagement can be defined as a positive, fulfilling, yet pervasive and persistent cognitive state of mind (Schaufeli et al., 2002). Maslach and Leiter (1997) describe engagement by using words such as energy, involvement and efficacy. Hence, engaged individuals have an energetic and effective connection with their work activities and see themselves as able to deal completely with their job demands. However, engagement as such cannot be registered directly. Rather, one can measure outcomes in behaviours and achievements that may be seen as a result of engagement.

While faculty engagement is an underdeveloped research area, much more has been done in the area of student engagement (Appleton, Christenson, and Furlong 2008; Finn and Rock 1997; Fredericks et al. 2004). Here, student engagement is generally presented as a meta-construct with two to four dimensions (Sharkey, Sukkyung, and Schnoebelen 2008). Such dimensions often include behavioural, cognitive, academic and psychological aspects (Harris 2011). This meta-construct is, based on an exploratory factor analysis by Handelsman et al. (2005). They found four dimensions including participation, skills, performance, and emotional engagement. Other studies, however, have used only three components, since skills and performance may be very similar or interrelated constructs. Connell and Wellborn (1994), for example, found that engagement consists of daily behaviour, emotions and thought processes. In this case behavioural engagement was described as time spent on work, intensity of concentration and effort, tendency to stay on task and propensity to initiate action when given the opportunity. Cognitive components of engagement were assessed as performance and individuals’ understanding of why they are doing what they are doing. Emotional components of engagement included heightened levels of positive emotion during the completion of an activity. This could be demonstrated by enthusiasm, optimism, curiosity and/or interest (Klem and Connell 2004). Janoszet al. (2008) and Fredricks et al. (2004) use a comparable definition of engage-
ment as divided into behavioural, cognitive and emotional dimensions. Accordingly, we use a similar conceptualisation for assessment of faculty engagement.

Behavioral engagement is generally defined as participation in important activities (Harris 2011). Much educational research focuses on this particular dimension, typically used to measure involvement (Zyngier 2008). Behavioural engagement is sometimes measured by examining attendance, compliance with rules and participation in activities (Appleton, Christenson, and Furlong 2008; Furlong and Christenson 2008). An indicator of faculty members being behaviourally engaged could be their involvement in group activities.

Cognitive engagement relates to individuals’ personal investment in a task (Lee and Anderson 1993; Meece, Blumenfeld, and Hoyle 1988). This includes development of skills, including goal-setting, self-regulation and commitment to mastery of an activity. Cognitive engagement appears to have the strongest relationship with improvements in performance and achievement (Ainley 1993; Miller et al. 1996). If individuals feel they are successful in their faculty group, that could be seen as an expression of cognitive engagement.

Emotional engagement refers to affective or psychological relations to institutional activities (Blumenfeld et al. 2005). The term can be used to describe enthusiasm, interest, happiness, enjoyment and feelings of belonging (Marks 2000). Emotional engagement could be argued to find expression in faculty who show positive emotions and satisfaction with their work.

Theory and hypotheses

Hypotheses in this article are based on the argument that if faculty members map and use each other as valuable resources (knowledge location) and interact in order to facilitate learning processes (knowledge sharing), they will experience evaluative and affective commitment/motivation, leading to a higher level of engagement. We draw on social learning theory arguing that individuals learn and develop knowledge in social communities and that learning is fundamentally a social phenomenon. Hence, faculty members’ knowledge acquisition can be directly related to observing others within the context of social interactions. This can be related to the concept of ‘communities of practice’ introduced in the work of Lave and Wenger (1991), Wenger (1999) and Brown and Duguid (2001). Communities of practice can be described as self-directed and self-organising social systems. They are dynamic and fluid, existing also outside the institutional boundaries. Brown and Duguid (2001) see knowledge not only as abstract, explicit but also as situated and embedded as tacit practices in the community. Put differently, knowledge is not only neutral information but inseparable from daily practices within the group of individuals that uses the knowledge. Accordingly,
communities of practice are particularly effective for distributing tacit knowledge to their members. In such communities knowledge is integrated in activities and social relations and cannot easily be codified or exported (Brown and Duguid 1991). Hence, the processes of learning and membership in a community of practice are inseparable (Lave and Wenger 1991). Since learning is intertwined with participation in the community of learning, and knowledge sharing creates the sense of membership in the community’s activities, faculty engagement therefore may well be a result of group knowledge processes in higher education institutions. We also draw on social exchange theory (Blau 2005/1964). In this theory, social exchange relationships are developed in situations where members develop a bond based on informal commitment and trust between group members, thus creating an expectation of receiving a non-monetary reward (Reychav and Weisberg 2009). We expect this to be particularly clear in multicultural groups where the successful overcoming of cultural and linguistic group boundaries and the use of dissimilar others’ rare skills could facilitate strong faculty engagement.

**Knowledge location**

The experience of being in an environment where valuable knowledge can be located as a useful resource creates confidence in faculty members that goals can be accomplished (see Bakker and Demerouti 2007). The feeling that goals are within reach as a result of utilising the resources available among peers has been argued to increase employees’ work engagement (Bakker and Bal 2010). Obtainable relevant knowledge resources are assumed to play either an intrinsic motivational role, because they foster employees’ growth, learning and development, or an extrinsic motivational role, because they are instrumental in achieving work goals (Bakker and Demerouti 2008; Schaufeli et al. 2002). Hence, the location of useful knowledge may well have a positive effect on performance as well on emotional and interactional aspects of faculty work life.

This applies particularly to diverse settings. Here it has been documented that when group members locate and use the task-related knowledge available from interaction with dissimilar others, positive and productive relationships develop (Pelled 1996; Simons, Pelled, and Smith 1999; Webber and Donahue 2001). Group members’ identification and use of each other’s knowledge has been found to be positively associated with openness, changed attitudes, collective problem solving and shared interpretations, which further bind group members together (Widén-Wulff et al. 2008). Accordingly, we present the following hypotheses:

**Hypotheses 1a-c**: Knowledge location is positively associated with behavioural engagement (1a), cognitive engagement (1b) and emotional engagement (1c).
Knowledge sharing
Arguments have been made that through cycles of knowledge sharing, group members acquire personal knowledge about each other that assist in developing and strengthening their social ties (Levin and Cross 2004). Guzman and Wilson (2005) argue that positive intra-group attitudes, such as mutuality, trust and respect, can be derived from the social value of knowledge sharing. Empirical evidence shows frequent knowledge sharing to be positively associated with improved coordination, relationship effectiveness and low dysfunctional conflict (Dougherty 1992). In a qualitative study of academics in the science discipline, Antal and Richebé (2009) found that in addition to the instrumental gain of the exchange, sharing knowledge involved an emotional dimension – a personal engagement underlining the importance of the relationship itself. It is also well known that faculty members turn to their colleagues for guidance and support, so that work groups become small, informal problem-solving social systems (Handelsman et al. 2005). Such networks of colleague-to-colleague consultation and advice are argued to be the primary microstructural elements facilitating a successful and satisfactory environment (Armstrong-Stassen and Lee 2009).

Sharing knowledge is also argued to positively influence the group’s collective identity (Cronin 1995). It is a form of self-disclosing behaviour known to foster the development of satisfying, trusting interpersonal relationships. This mechanism may be especially important when groups are culturally and linguistically diverse and mistrust or conflict is a potential risk (Roberge and van Dick 2010). Hence, we hypothesise:

Hypotheses 2a-c: Knowledge sharing is positively associated with behavioral engagement (2a), cognitive engagement (2b) and emotional engagement (2c).

Method
Target population and data collection
A database of e-mail addresses of faculty members of natural science departments in three large universities in Denmark was constructed. In total 16 departments were targeted, ranging from chemistry and physics to nanotechnology and pharmacology.

The data was collected electronically and a commercial web survey software package was used to administer the questionnaire. However, the investigators’ university affiliation was identified as the official sender and the potential respondents were assured of anonymity and confidentiality. The survey used advanced electronic mail functions that allowed participants to register their responses directly on the form, which then fed into a database. A total of 1022 faculty members were invited to participate in the survey; 489 responses were received, amounting to a response rate of 47.8 per cent.
Sample background

Most faculty members were Danish citizens (62.9%) but a substantial minority was made up of foreign nationals (37.1%), of which respondents from non-EU countries made up 16.7% and faculty from EU countries other than Denmark represented 20.4% of the sample (Table 1). The number of respondents from each department ranged from nine to 54 and the share of foreign national respondents from each department ranged from 14.3 per cent (four of 28 departmental respondents) to 57.1% (8 of a total 14). As such, all departments had multicultural characteristics. Furthermore, departmental gender diversity ranged from 3% women (Machine Technology) to 55% women (Pharmacology). The average age of faculty members was 37.05 years (SD=11.34); 39.3% were PhD students, 51.1% were Associate/Assistant Professors, and 9.6% were full Professors. As also shown in Table 1, the majority of the respondents were male (71.5%) and had an average period of employment of 7.59 years in their respective department (SD=9.19).

Instrument

The theoretical concept of faculty engagement was represented by three constructs: behavioral engagement, cognitive engagement and emotional engagement. The construct of group knowledge processing was depicted by the two concepts locating knowledge and sharing knowledge. Except for behavioural engagement, all multi-item scales used the same seven-point Likert-type scale, with response categories ranging from (1) ‘strongly disagree’ to (7) ‘strongly agree’.

Table 1. Background of the sample (N=489).

<table>
<thead>
<tr>
<th>Background Variables</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>344</td>
<td>71.5</td>
</tr>
<tr>
<td>Female</td>
<td>137</td>
<td>28.5</td>
</tr>
<tr>
<td>Position:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professor</td>
<td>47</td>
<td>9.6</td>
</tr>
<tr>
<td>Associate/Assistant Professor</td>
<td>250</td>
<td>51.1</td>
</tr>
<tr>
<td>PhD Student</td>
<td>192</td>
<td>39.3</td>
</tr>
<tr>
<td>Nationality:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-EU</td>
<td>78</td>
<td>16.7</td>
</tr>
<tr>
<td>Non-Denmark EU</td>
<td>93</td>
<td>20.4</td>
</tr>
<tr>
<td>Denmark</td>
<td>287</td>
<td>62.9</td>
</tr>
</tbody>
</table>

1 Frequency totals may be less than 489 due to missing values.
Faculty engagement

Behavioural engagement was assessed by a five-item, five-point Likert-type scale adapted after Mor-Barak, Cherin, and Berkman’s (1998) measure of work group involvement. Response categories ranged from (1) ‘strongly disagree’ to (5) ‘strongly agree’. A sample item is: ‘I feel part of informal discussions in the department’ (alpha=.88).

Cognitive engagement was assessed by a six-item scale adapted after a scale on group success by Martins et al. (2003). A sample item is: ‘Everything this department does turns out well’ (alpha=.90).

Emotional engagement was assessed by a three-item scale measuring satisfaction adapted after Martins et al. (2003). A sample item is: ‘I am very satisfied with the way I am treated by my colleagues’ (alpha=.91).

Faculty knowledge processing

Locating knowledge was assessed by a four-item scale adapted after Faraj and Sproull (2000). A sample item is: ‘Department members know what task-related skills and knowledge they each possess’ (alpha=.91).

Sharing knowledge was measured by a four-item scale adapted after Faraj and Sproull (2000). A sample item is: ‘People in our department share their knowledge and expertise with one another’ (alpha=.80).

Control variable

Size of department was included as a control variable and measured by the direct question to the department: ‘How many academic staff members are currently employed at your department?’ The size of university departments has been a debated issue in Danish universities in recent years. Large departments are provided with substantial funding to provide opportunities for more professional management. Accordingly, department size could have an effect on faculty engagement.

Data analysis techniques

As usual, sample means, standard deviations and zero-order Pearson correlations were computed for all variables of the study. The hypotheses were formally tested by way of hierarchical multiple regression.

Results

Table 2 displays sample means, standard deviations and zero-order Pearson correlations of the variables. One-sample t-tests showed that the mean scores for behavioural engagement ($t=24.95$, $p<.001$), cognitive
engagement ($t=26.08$, $p<.001$) and emotional engagement ($t=40.60$, $p<.001$) were all significantly higher than the midpoint of their respective scales. This indicates that the academics generally felt engaged in all three ways. The significant associations between size of department and all of the three dependent variables, behavioural engagement ($r=.12$, $p<.01$), cognitive engagement ($r=.28$, $p<.001$) and emotional engagement ($r=.13$, $p<.01$), indicate the need to make use of this variable for control purposes in the regression analysis.

The hypotheses were formally tested by way of hierarchical multiple regression (Table 3). The control variable, size of department, was entered in Step 1. Despite previous indications, there was only a positive association between size of department and cognitive engagement (beta=.14; $p<.001$). In Step 2, the two predictor variables were entered. This produced significant effects on all the criterion variables, explaining 34–40% of the variance in the dependent variables. There were positive relationships between locating knowledge and behavioural engagement (beta=.35; $p<.001$), cognitive engagement (beta=.34; $p<.001$) and emotional engagement (beta=.34; $p<.001$). There were positive associations between sharing knowledge and behavioural engagement (beta=.31; $p<.001$), cognitive engagement (beta=.36; $p<.001$) and emotional engagement (beta=.33; $p<.001$). All F values were statistically significant, indicating a proper fit between the regression model and the data. These findings provide support for all of our hypotheses.

Table 2. Means, standard deviations, and correlations among the variables.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Behavioural engagement</td>
<td>3.83</td>
<td>0.73</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Cognitive engagement</td>
<td>5.28</td>
<td>1.08</td>
<td>0.47***</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Emotional engagement</td>
<td>5.87</td>
<td>1.01</td>
<td>0.63***</td>
<td>.51***</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Locating knowledge</td>
<td>4.81</td>
<td>1.17</td>
<td>0.54***</td>
<td>.58***</td>
<td>0.55***</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Sharing knowledge</td>
<td>5.17</td>
<td>1.11</td>
<td>0.52***</td>
<td>.60***</td>
<td>0.54***</td>
<td>0.61***</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>6. Size of department (Control)</td>
<td>76.77</td>
<td>24.56</td>
<td>0.12**</td>
<td>.28***</td>
<td>0.13**</td>
<td>0.12**</td>
<td>0.25***</td>
<td>1.00</td>
</tr>
</tbody>
</table>

** $p<0.01$; *** $p<0.001$ (2-tailed)

1 476<n<484 due to missing answers.
Discussion

Main findings

This study has examined the effect of group knowledge processing on faculty engagement. The findings are unequivocal. Knowledge location and knowledge sharing both had strong positive associations with all the studied faculty engagement indicators. This finding suggests that social exchange theory is useful for prediction of the effect of group knowledge processing on faculty engagement.

The support for our hypotheses generally concurs with other studies on the relationships between knowledge-sharing activities and positive group outcomes. Reychav and Weisberg (2009) found knowledge-sharing engagement to be positively associated with development of strong social relations. Other studies have found information exchange to be positively associated with trust (Hansen 1999; Janowicz-Panjaitan and Krishnan 2009; Kachra and White 2008). Also in a university setting, Li, Zhu, and Wang (2010) found knowledge-sharing activities to be associated with group cohesiveness.

The findings on work engagement are also in line with our hypotheses. Extant studies showed that employees’ general perceptions of job resources

<table>
<thead>
<tr>
<th>Faculty engagement</th>
<th>Behavioural engagement</th>
<th>Cognitive engagement</th>
<th>Emotional engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>β</td>
<td>β</td>
<td>β</td>
<td></td>
</tr>
<tr>
<td><strong>Step 1 (Control)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size of department</td>
<td>.93</td>
<td>.14***</td>
<td>-.00</td>
</tr>
<tr>
<td>R</td>
<td>.12</td>
<td>.28</td>
<td>.12</td>
</tr>
<tr>
<td>R² (adjusted)</td>
<td>.11</td>
<td>.08</td>
<td>.01</td>
</tr>
<tr>
<td>F</td>
<td>6.47*</td>
<td>38.70***</td>
<td>7.28**</td>
</tr>
<tr>
<td><strong>Step 2 (Faculty Knowledge Processing)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locating knowledge</td>
<td>.35***</td>
<td>.34***</td>
<td>.34***</td>
</tr>
<tr>
<td>Sharing knowledge</td>
<td>.31***</td>
<td>.36***</td>
<td>.33***</td>
</tr>
<tr>
<td>R</td>
<td>.59</td>
<td>.67</td>
<td>.61</td>
</tr>
<tr>
<td>Change in R²</td>
<td>.34</td>
<td>.40</td>
<td>.35</td>
</tr>
<tr>
<td>R² (adjusted)</td>
<td>.35</td>
<td>.45</td>
<td>.36</td>
</tr>
<tr>
<td>F</td>
<td>84.80***</td>
<td>130.91***</td>
<td>90.67***</td>
</tr>
</tbody>
</table>

*a All standardised regression coefficients are from the final step in the analyses.
*p<.05; ** p<.01; *** p<.001; two-tailed.
are related to their overall levels of work engagement (e.g. Hakanen, Bakker, and Schaufeli 2006; Schaufeli and Bakker 2004). Organisational-based self-esteem and support from team members and colleagues has been found to be positively associated with work engagement (Bakker and Demerouti 2008). Accordingly, although no other studies have examined the relation between internal knowledge processing and faculty engagement, our findings are well in line with comparable studies in this field.

**Limitations**

As usual, there are a number of potential weaknesses of this investigation that could have biased the findings. First, while the response rate of 47.8% does not appear to raise any serious concerns, the extent to which this outcome has biased our results cannot be assessed with certainty.

Second, although the sample of academics in science departments in three large universities may be relevant representatives of members of multicultural educational organisations, all work in Danish universities. Hence, the results of this study may not be generalisable to other types of higher education organisations and to other countries.

Third, a potential problem of this study could be common method variance (CMV), since all the data were collected by cross-sectional self-reports. The general and automatic condemnation of cross-sectional self-report methods has been found to be exaggerated (Crampton and Wagner 1994; Lindell and Whitney 2001) to the extent that it may have achieved the status of a methodological urban legend (Spector 2006). The fact that data for this investigation were excerpted from a larger study may actually have contributed to keeping the probability of CMV at a low level. The items measuring the variables of this study were mixed in with other items measuring other variables. Nevertheless, to lessen the potential bias of CMV, some procedures were implemented in the larger study. As usual, the anonymity and confidentiality of the respondents were assured. Additionally, some of the items also had reverse polarity. The software did not allow a respondent to return to a previous page once a new page had been entered, making retrospective editing of answers impossible. These procedures and the design of the questionnaire may all have contributed to diminish effects of CMV (Podsakoff et al. 2003). However, to investigate the potential for remaining biases of CMV, Harman’s single factor test was applied (Andersson and Bateman 1997; Aulakh and Gencturk 2000). The exploratory factor analysis of the items, corresponding to all the variables of the study, resulted in a five-factor, unrotated solution. This may suggest that CMV was not a serious problem in this study (Podsakoff et al. 2003).

Last but not least, the cross-sectional research design of this study prevents any determination of causality. For better investigative control, a longitudinal design could have been applied, but that might have introduced
other methodological problems (see Menard 1991). Moreover, using a two-year longitudinal design, Mauno et al. (2007) found support for job resources leading to work engagement among Finnish health care personnel. This could support our predictions on the causality of our findings.

**Implications**

This study responds to a scarcity of research on faculty engagement in the education sector. In particular, we focused on the effect of knowledge location and knowledge sharing on behavioural, cognitive and emotional indicators of engagement. The findings give rise to a number of theoretical and practical implications as well as suggestions for further research.

This is the first study to suggest that knowledge processing has a positive impact on faculty engagement in culturally diverse settings in the higher education sector. Consequently, the results of our study provide novel insights to be integrated in the theoretical discussion within the literature on the management of human resources in educational organisations. The findings also contribute to the literature on organisational knowledge management, which has not previously examined the relation between knowledge processing and work engagement.

From a practical standpoint, our research may have several implications for higher education human resource strategies. Our results indicate that university managers may want to focus on creating departments with a climate that supports knowledge location and knowledge sharing as part of a human resource strategy. For example, the head of department, and other leading departmental members, could use frequent meetings and seminars to encourage interaction and dialogue that would have positive consequences for the engagement of the staff. To promote knowledge location, social events could be facilitated, allowing faculty members to acquire more personal knowledge of each other’s competencies. Individuals who know each other will have a better map of each other’s knowledge and thus be better able to utilise each other’s strengths (Borgatti and Cross 2003). Social events could include off-campus activities and activities that are not directly related to the work context.

A way to promote knowledge sharing could also be to use reward structures which emphasise the group’s super-ordinate identity (Homan et al. 2008). This could be promoted by rewarding groups on the basis of collective performance rather than for individual achievements. For example, with regard to scientific work, the inclusion of other department members in collaborative internal research projects should be seen as an advantage. With that in mind, more concretely, the gained internal value of a research publication to an individual should not be diminished as a result of more internal co-authors being listed. In terms of education, the teaching of students could be organised in teams rather than by individual researchers. In a diverse set-
ting, this would allow individual teachers to learn from each other and thereby also develop open attitudes to each other’s dissimilarities. Moreover, the usefulness of sharing knowledge with individuals of different backgrounds and with different networks, including other nationalities, could be stressed.

Future studies may try to eliminate some of the weaknesses of the current study and extend its scope. For example, effort could be expended to try to increase the response rate. In this study, we focused on knowledge processing at the departmental level. Future research could also extrapolate our findings to a broader (e.g. organisational or societal) context and examine whether locating and sharing each other’s knowledge affects engagement more generally. Finally, while internal knowledge processing has been argued to be of great importance to educational work, internationalisation and funding opportunities have made external contacts and interaction increasingly common (Lee and Bozeman 2005). A new worthwhile research endeavour could be to also assess the effect of external knowledge location and knowledge sharing on faculty members’ engagement level.

**Conclusions**

This study has examined quantitatively the effect of group knowledge processing on indicators of faculty engagement in a multicultural university setting. The results of this study are unambiguous: there are consistent positive associations between group knowledge location/sharing and all the studied faculty engagement variables indicating behavioural, cognitive and emotional engagement. The prediction of this result was based on social learning theory and social exchange theory. Our study thus indicates that social learning practices and social exchanges in the form of internal knowledge processing are beneficial for all those types of faculty engagement. Possible managerial interventions in order to facilitate internal knowledge processing as an antecedent for faculty engagement include workgroup seminars, social events and group rewarding.

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**References**


