Predictors of self-directed learning for low-qualified employees

A multi-level analysis

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Abstract

Purpose

This study examines which variables at the level of the individual employee and at the company level are predictors of self-directed learning in low-qualified employees.

Methodology

Results were obtained from a sample of 408 low-qualified employees from 35 different companies. The companies were selected from the energy sector, the chemical industry and the food industry. Multilevel analysis was applied to examine which variables are significant predictors of perceived self-directed learning.

Findings

At the company level, the economic sector in which the employee is employed in particular played a striking role in the prediction of self-directedness, as did presence of a participatory staff policy. At the level of the individual employee, a proactive personality (a disposition to take personal initiative in a broad range of activities and situations), striving for knowledge work, past learning initiative, task variety and the growth potential of the job were significant predictors of self-directed learning.

Originality/value

Research on the predictors of self-directed learning has primarily focused on correlational studies examining the relation between individual variables and level of self-directedness. There is little research available that systematically traces the extent to which individual as well as company factors play a role in level of self-directed learning. Nor is it clear which category of variables should be considered as the most critical. In addition, earlier research on this subject has mainly focused on a higher-
qualified group of workers (employees with at least a diploma of secondary education). Factors that are predictors of self-directed learning and their relative weight might differ for certain groups of employees. This issue has hardly been addressed up to now.

**Keywords:** predictors, self-directed learning, low-qualified employees, work, multilevel

1. Introduction

Within competitive business markets and an ever-changing workplace, employee involvement in learning activities is increasingly important to both organizational effectiveness and employee chance of remaining in the workforce (Maurer *et al.*, 2003; O’Donoghue and Maguire, 2005). An expectation has arisen that employees should themselves take the responsibility and the initiative for learning. The latter implies that employees need to become self-directed learners. This is true for both high and low-qualified employees as these continuous changes affect all levels in an organization (Jones and Bergmann Lichtenstein, 2000). Yet, there is a small amount of research focusing on the self-directed learning of low-qualified employees (employees with no diploma of initial secondary education). An understanding of the factors that predict self-directed learning for low-qualified employees is important for several reasons: First, low-qualified employees experience an increasingly difficult situation to remain in the workforce. Organizations need to realize that it is important to support the self-directed learning of low-qualified employees. Most studies on self-directed learning to date focus on higher qualified employees. Brookfield (1985) evaluated the research related to self-directed learning and criticized the overuse of
educated, middle-class Caucasian samples in quantitative studies. Brockett (1985, p. 55) reacted to this criticism by arguing that “there are studies available which provide evidence that hard-to-reach adults (those who are underrepresented in continuing education such as disadvantaged blue-collar workers) can and do engage in self-directed learning” and that “the evidence of self-directed learning among the hard-to-reach is quite strong”. Raemdonck (2006) concluded, on the basis of interviews with low-qualified employees, that there were large differences in level of self-directed learning within this group of employees. It was not clear how these differences in self-directed learning could be explained. Moreover, the factors that are predictors of self-directed learning and their relative weight might differ for certain groups of employees. This issue has hardly been addressed up to now.

Second, research in the field of self-directed learning has primarily focused on correlational studies examining the relations between individual variables and level of self-directedness. The impact of the context in which the individual is operating has been neglected. There is hardly any research available that systematically traces the extent to which individual as well as organizational factors play a role in level of self-directed learning. Nor is it clear which category of variables should be considered as the most critical. Developing a deeper insight into this issue is to be considered as an essential, preliminary condition for further research in the near future (especially in relation to low-qualified employees). Onstenk (1996), for example, on the basis of an exploratory study among lower-qualified employees (> 35 years), stated that individual factors were of less importance than the contextual factors. However, his statement was founded on general indicators and not on large-scale comparative empirical research. Therefore the central research question in this paper is: What are the predictors of self-directed learning for low-qualified employees?
Accordingly, the present study presents and tests a comprehensive model of self-directed learning including individual and organizational variables. The development of this model is based upon the literature (Frese et al., 1996; Judge et al., 1995) and includes a wider range of theoretically relevant variables than those examined in previous studies. We expect this to result in a more comprehensive and accurate model for understanding differences in levels of self-directed learning among low-qualified employees.

2. A conceptual model of self-directed learning

We define ‘self-directed learning’ as a tendency to take an active and self-starting approach to work-related learning activities and situations and to persist in overcoming barriers and setbacks to learning (Raemdonck et al., 2008 based on Seibert et al., 2001). Workers who are strong in work-related self-directed learning discover learning opportunities, take the initiative to learn and will persevere in their attempts to learn if they come up against obstacles. Workers who are only self-directed in their work-related learning to a low degree exhibit the opposite pattern: they do not discover learning opportunities, or they fail to exploit those opportunities (Seibert et al., 2001).

Different variables can influence self-directed learning. In addition to factors at the level of the individual employee, factors at the organizational level are important, such as direct organizational factors (staff policy) and indirect organizational factors (size, sector, knowledge intensity). Figure 1 displays the hypothetical model of self-directed learning which was developed on the basis of a review of the literature. The sublevels are on the one hand selected in the light of empirical results found in
research on the self-directed learning of high-qualified employees and on the other hand based on cross-disciplinary literature about low-qualified employees. We hypothesize that different (sub)levels of variables predict self-directed learning. Inspired by Judge et al. (1995) we distinguish two levels of predictors that influence self-directed learning.

<Insert figure 1>

2.1 Predictors at the individual employee level (level-1)

The first level concerns variables at the level of the individual employee (see Figure 1). It comprises the demographic variables age and sex, human capital variables, personality variables and characteristics of the job that the employee is doing.

The demographic factor age might be an important factor in predicting self-directed learning. Given the changing demographic profile of many developed nations, where more employees will be required to work longer, understanding the relation between age and self-directed learning is increasingly important. On the one hand, older employees may be more self-directed in their learning than younger employees because of their work experience; on the other hand they may be less self-directed because of reduced career development goals. Studies examining the differences in self-directed learning with age either show a significant positive relationship between increased age and self-directed learning scores or no significant differences at all between younger and older employees (Stockdale, 2003). Another demographic variable is sex. We expect sex to have an impact on self-directed learning, as women
might be more oriented towards learning behaviour in order to develop their career in comparison with men, who might favour self-presentation and networking behaviour at work. In previous research on self-directed learning, differences between men and women have been reported, although results pointing towards the opposite conclusion have also been observed (Cheong et al., 1995).

*Human capital variables* are defined by Judge et al. (1995, p.489) as “the cumulative educational, personal, and professional experiences that might enhance an employee’s value to an employer”. Besides formal qualification level, which is controlled for in the present study, relevant human capital variables are occupational level, years of work experience, past educational initiatives and past career experiences (employment and mobility experience). Self-directed learning has been found to be positively correlated with *occupational level*. Stockdale (2003), for example, summarizes a number of studies in which particular groups such as entrepreneurs, managers and female executives showed significantly higher levels of self-directed learning than members of the general population. These types of occupations require higher levels of self-responsibility and initiative taking than other type of occupations. Findings from Gardner (1989, as cited in Bromfield-Day, 2000) showed that job responsibilities were related to self-directed learning readiness. In a study among young office technologists and machine operators from six countries, Claes and Ruiz-Quintanilla (1998) found that proactive skill development behaviour was less evident among respondents belonging to the machine operator group than in the office technology group. As well as occupational level, we expect *years of work experience* to influence the self-directed learning of employees in a positive way. Work experience makes people more confident in their work domain. Employees are more
self-directed in tasks when they have acquired a certain level of experience. As Knowles (1980) asserts, work experience can become a rich source of learning. Self-directed learning can also be affected by one’s past learning initiative. Research into self-directed learning indicates a positive relationship with participation in educational activities (Oddi, 1986), with the number of learning projects, the number of self-planned projects and the number of hours devoted to self-initiated learning activities (Brockett and Hiemstra, 1991; Bryan and Schulz, 1995). Past career experience is another aspect of human capital. Past career experience reflects the quality and quantity of employment and influences the willingness to invest in learning. Results from a longitudinal study in six countries involving over a thousand young employees in two occupational groups explored the impact of prior career experience on skill development behaviour (Claes and Ruiz-Quintanilla, 1998). Employment experience positively influenced proactive skill development behaviour, while periods of unemployment negatively influenced proactive skill development behaviour. The authors also found a positive effect of mobility experience: both internal mobility through changes of position and external mobility through changes of organization had a positive impact on proactive skill development behaviour.

*Personality characteristics* are likely to be influential in predicting self-directed learning. One of the most important indicators is proactive personality. A proactive personality is considered a stable disposition to take personal initiative in a broad range of activities and situations (Seibert et al., 2001, p. 846). As a proactive personality points to someone who actively shapes the situations in which they find themselves, we expect proactive personality to positively predict self-directed learning. It is also relevant to take the employee’s career ambition into account, as this
may influence employee orientation towards learning and development. Career ambition includes pursuit of knowledge work (the extent to which the employee prefers to carry out knowledge work) and mobility aspiration (pursuit of a particular career position over time). In the literature, knowledge work is often associated with autonomous, learning-oriented, self-directed work that involves a significant amount of dealing with changes and a high degree of creativity and problem-solving (Onstenk, 1999). Therefore, we expect employees who prefer to carry out knowledge work to be more oriented towards self-directed learning than employees who have no preference for knowledge work. Kuijpers (2003) found mobility aspiration to be an important predictor. Her findings show that employees who pursue the same career position over time are more self-directed in their learning than employees who pursue mobility (vertical or horizontal) for their future career (Kuijpers, 2003).

Job characteristics. Jobs differ from each other in a variety of ways. The nature of tasks performed in a job is most likely to affect the development of metacognitive skills (knowledge, control and regulation of cognition, see Pintrich, 1999), and exposure to self-directed learning. This hypothesis has been supported in a limited number of studies (Frese et al., 1987). The degree of autonomy allowed in the job varies and may affect the degree of initiative in learning that employees are free to take. Close supervision inhibits self-directed behaviour (Kohn and Schooler, 1982). However, when a worker is not closely supervised, this does not automatically imply that he/she is free to take initiatives and is able to develop independent thoughts and judgement. What counts is the worker’s subjective appraisal of his/her freedom to disagree with the supervisor and freedom to make his/her own judgements (Kohn and Schooler, 1982). Task variety is another aspect that might positively influence self-
directed learning. The more tasks vary from one workstation to the next, the more employees will be in a position to make choices about their learning goals and the content of learning activities (Foucher, 1995). A high level of routine limits the exercise of self-direction, while a high level of variability in tasks facilitates or even requires self-direction (Kohn and Schooler, 1982). The growth potential of the job, the degree to which the job provides opportunities for learning and mobility, is another job-related characteristic that might be relevant. Confessore and Bonner (1997) found a clear relationship between the actual number of self-directed learning activities undertaken and the employee’s perception of the learning opportunities in the design of the job. A high degree of job specialization or low-skilled work restricts mobility and reduces learning opportunities, which negatively influences self-directed learning efforts (Kops, 1993). A final job characteristic that can be expected to influence employees’ self-directed learning is the level of job complexity. Based on interviews conducted with a sample of males employed in civilian occupations in the United States, Kohn and Schooler (1982) concluded that ‘job complexity’ was the main job-related determinant of self-directedness. As Foucher (1995) states, the more complex the tasks to be performed, the more employees are required to develop higher levels of skills, knowledge and understanding at work.

2.2 Predictors at the company level (level-2)

Of particular interest for this study are the variables at the organizational level. A distinction is made between indirect organizational and direct organizational variables. Indirect organizational variables are economic sector, company size and
knowledge intensity of the company. Direct organizational variables are staff policies such as participatory policy and learning and career policy.

*Indirect organizational characteristics.* Based on the results of training-related surveys, Foucher (1995) considers the economic *sector* of the company to be a variable that impels particular attention. Kops (1997) also mentions the type of business as one of the variables affecting self-directed learning efforts. Foucher (1995) also identifies the *size* of the organization as a critical variable affecting self-directed learning. He states that small businesses often stress on-the-job training, whereas larger organizations focus on a larger collection of ways to address training needs. Small companies allocate proportionally less funding to addressing their organization’s training needs (Long and Morris, 1995). Foucher suggests that this factor might affect people’s self-directedness in learning. A final indirect organizational characteristic is *knowledge intensity*. Schooler *et al.*, (2004) state that working in an intellectually more demanding work environment increases people’s intellectual functioning and self-directed orientation. Low-qualified employees might benefit from working in such an environment, as simple occupational environments are less likely to provide opportunities to make extra efforts or to call on higher levels of cognitive processing. Knowledge intensity also refers to the qualification levels of the workforce (Marx *et al.*, 2004). Several training-related studies have suggested that the qualification level of workers that represent the majority of employees in an organization (professionals, low-skilled workers, etc.) has an impact on training practices within the organization (Foucher, 1995). Self-directed learning seems more likely to occur in organizations with a high proportion of high-qualified employees. It is yet not clear whether low-qualified workers benefit from working in a job context
with a high percentage of high-qualified workers as compared with job contexts where the majority are low-qualified.

**Direct organizational characteristics.** Employees can experience a greater sense of involvement and control over their work situation if the organizational policy encourages them to participate in organizational decision-making processes. Based on interviews with eleven directors of training services in health care centres, Foucher and Brézot (1997) concluded that high participation levels and a decentralized management model stimulates better organizational support for self-directed learning. Other studies examining the influence of participative management style on self-directedness (Bromfield-Day, 2000) and studies examining the influence of participation policy on employees’ personal responsibility (Beer et al., 1984) underpin the assumption that self-directed learning can be stimulated by a strong *participatory policy*. Furthermore, in exploring a model for self-directed learning, Foucher (1995) stated that organizations whose culture supports career development, and where many training opportunities are presented to employees, will invoke a higher level of self-directed learning. His hypothesis was confirmed in later qualitative research. Foucher and Brézot (1997) conducted a study among directors of training services in the field of health care and concluded that the application of a supportive *learning and career policy* sets a climate that is favourable to the emergence of actual self-directed learning practices.

### 2.3 Interaction between individual and company level variables
Baskett et al. (1994) and Judge et al. (1995) suggest that in a workplace context one should account for the interaction between the individual and the organizational factors in predicting self-directed learning. Particular combinations of individual and company level variables might interact and lead to increased levels of self-directed learning. These enhanced results might not be anticipated on the basis of the main effects of the individual and company level variables concerned. For instance, having a proactive personality or working in an organization whose organizational policy encourages employees to participate in organizational decision-making processes might affect the level of self-directed learning. However, people who have a proactive personality and work in an organization whose policy encourages participation have a much higher chance of demonstrating higher levels of self-directed learning. People might be more self-directed in their learning when they have proactive personalities, but such people might be even more self-directed when they work in an environment which stimulates them to act in a self-directed way. Conversely, a stimulating work environment is much more likely to increase the level of self-directed learning for people with proactive personalities than for people who are not proactive.

3. Research questions

In order to gain insight into the predictors of self-directed learning for low-qualified employees the following research questions were put forward:

*Research question 1*: Which variables at the individual and company level are predictors of self-directed learning for low-qualified employees?
Research question 2: Are there significant interaction effects between individual and company level variables that are associated with higher levels of self-directed learning for low-qualified employees?

4. Method

4.1 Sample and procedure

The companies were selected from the energy sector, the chemical industry and the food industry. The reason why we selected these three sectors was based on two criteria: (1) presence of low-qualified employees and (2) varying levels of investment in formal training within the sector. The latter aspect is essential to ensure variance in the organizational conditions and to make it possible to study the potential impact of those conditions on the level of self-directedness. Based on empirical data from the Continual Vocational Training Survey 2 (Buyens and Wouters, 2002), results from the Panel Survey of Organizations (Delarue et al., 2003) and figures from The Social Balance 2010 (Heuse and Zimmer, 2011) three sectors were selected that met the above criteria.

The selection of the organizations within the three sectors was made with the BELFIRST database. The BELFIRST database is an electronic database containing detailed information on Belgian companies and businesses. Organizations with ≥ 20 employees, located in Flanders and NACE-BEL code 15 (food industry), 24 (chemical industry), 40 and 41 (both energy sector) were contacted [1]. 35 organizations were prepared to participate in the study (17.7% response rate).
In each organization, at least 10 low-qualified employees were selected at random. ‘Low-qualified’ was defined in practice as referring to employees with no diploma of initial secondary education. Employees who did not receive their formal education in Belgium were seen as low-qualified if they had not had more than ten years of formal education in their country of origin. Respondents participated voluntarily and needed to have at least six months of job experience in order to be selected because they needed to be familiar with the characteristics of their job and the variables measured at the company level in order to be able to assess these variables. The type of job carried out by the employee was of no importance in the selection.

408 low-qualified employees were interviewed individually by one of the members of the research team by means of a survey. The survey was read aloud to the low-qualified employees to overcome problems with reading comprehension. Prior to the interview, each participant signed an informed consent form.

Small organizations and organizations from the food industry were underrepresented compared to the population characteristics. The average age of respondents was about 38 years ($SD= 9.69$) and the average length of work experience was 19 years and 8 months ($SD= 10.41$). A majority of participants was male (65%) and of Belgian nationality (94.8%).

### 4.2 Research instruments

Table 1 gives an overview of the *scales* used in this study.

<Insert Table 1 about here>
The human capital variables ‘employment and mobility experience’ were measured by asking the participants if they had mainly been employed or unemployed in their career (from 1= always employed to 5= mostly unemployed) and how many internal and external job moves they had had over the past five years. ‘Hierarchical position’ was measured by asking the participants whether they had an executive function or not. In order to measure ‘past educational initiatives’ the participants were asked whether they had participated – on their own initiative – in courses or obtained certificates that were relevant to their work or career [2]. A dummy variable was used with 0 for ‘no’ and 1 for ‘yes’.

The indirect organizational variable ‘size’ was defined as the total number of employees in the company. ‘Knowledge intensity’ was measured in two ways (see Marx et al., 2004): the HRM-manager was asked to rate (1) the proportion of complex work versus low-qualified work, trained work and skilled work and (2) the percentage of low-qualified workers in the workforce. Economic sector and sex were coded as dummies.

5. Data analyses

Preliminary data inspection included computation of descriptive statistics (see Table 2) and correlations between predictor and dependent variables.

Multilevel regression modelling was applied to test our hypothesis with regard to the prediction of self-directed learning. Such an approach was suggested by the hierarchical structure of the data. Employees are nested within companies (representing cultures and contexts), and companies are nested within sectors (chemical industry, energy sector and food industry). Theoretically, this data structure
yields three levels. However, because only three units were observed at the sector level, it was decided to apply a two-level approach, with employees at level-1 nested within companies at level-2. In this model, sector was included as an intercompany variable (at level-2).

First, an unconditional intercept model was fitted to obtain an estimate of the interclass correlation, indicating the strength of the hierarchical structure of the data. Next, the model was extended by adding predictor variables, starting with dummy variables indicating the differences between the three sectors. Finally, cross-level interactions were computed and included in the model. Fixed effects of predicted variables were evaluated by computing z-values (estimate/standard error estimate). Predictor variables were evaluated to have random effects (random slopes) using the likelihood-ratio test (Hox, 2002). Multilevel modelling was carried out using the multilevel analysis program MLwiN 2.02 (Rasbash et al., 2004). IGLS was chosen as the method of estimation. Other data analyses were conducted using SPSS 14.0.

6. Results

6.1 Descriptives

There was a moderate to high score for self-directed learning (see Table 2). The average employee stated that he or she was to a large extent self-directed in his or her learning. Moreover, employees claimed that they strove to carry out knowledge work to a relatively large extent and that they were proactive. With regard to the organization’s staff policy, employees claimed that a participatory policy and a learning and career policy were present, but not overwhelmingly so. Most participants
were of the opinion that they had enough opportunities to carry out a variety of different tasks. Other job characteristics such as autonomy, growth potential and task complexity tended to be given rather average scores by the participants.

<Insert Table 2 about here>

6.2 Predictors of self-directed learning

The unconditional model for self-directed learning (SDL) yielded an intra-class correlation estimate of .05. Five per cent of the total variance in employees’ level of self-directed learning was linked to differences between the companies. Extension of this model by incorporating dummy variables coding the different sectors showed that a significant amount of the intercompany variance was explained by the difference between the chemical industry and the other sectors. Without this variable the intra-class correlation dropped to .02. In subsequent models sector differences were therefore included by adding a dummy variable indicating the difference between the chemical industry and other sectors (CHEMDUM). Differences between the other sectors did not show significant effects.

Next, predictor variables and interaction variables were added to the model. For interaction variables no significant fixed effects were found.

Not surprisingly, because of the relatively low conditional intra-class correlation, the random effect of the intercept at Level-2 was not significant ($\chi^2 = 1.94$, $df = 1$, $p > .05$). None of the predictor variables showed a significant random effect (random slope) either.

Results of the final model (only significant effects) are reported in Table 3.
Table 3 shows significant positive effects on employees’ level of self-directed learning for the variables proactive personality, pursuit of knowledge work, past learning initiative, task variety and growth potential of the job. Those employees who have proactive personalities, who strive to carry out knowledge work in their jobs, who have taken learning initiatives in the past and who perceive a high degree of variety and growth in their jobs show higher levels of self-directed learning. Concerning company characteristics, significant positive effects were found for the variables participatory staff policy and CHEMDUM (also explained above). Working in the chemical industry and the presence of a participatory staff policy in the company are reflected by significantly higher levels of self-directed learning.

7. Discussion

7.1 Research findings

Research question 1: Which variables at the individual and company level are predictors of self-directed learning for low-qualified employees?

This study examined the role of variables at the individual level and at the organizational level in predicting self-directed learning in a large sample of low-qualified employees. The results of our analyses show that different subclusters of variables are indeed relevant. However, based on the intra-class correlation, we can
conclude that variables at the level of the individual employee are of more importance than variables at the level of the organization (only 5% of the variance in self-directed learning). Employees working in the same organization are no more alike than employees working in two different organizations.

At the level of the organization, the *economic sector* is a significant variable in the prediction of self-directed learning. Specifically, there is a difference between the chemical industry and the other two sectors. A possible explanation is that recruitment in the chemical industry is more stringent considering the higher risks associated with jobs in the chemical industry. Because of the higher risks, “superior” employees are selected. Not surprisingly, pay level within this sector is noticeably higher, especially as compared with the food industry, where significantly lower levels of self-directed learning were observed. Another explanation is that there are more formal and informal learning opportunities present in the chemical industry. This may influence the level of self-directed learning. A survey in the Belgian chemical industry (Huys and Van Hootegem, 2001) sheds more insight into staff policy trends in the chemical industry. According to Huys and Van Hootegem (2001) staff policy within chemical companies is centred around supporting the multi-skilling of operators in order to improve their mutual co-ordination and understanding. Formal training for experienced workers is often delivered by a specific department within the company, but training is mainly provided informally by production workers themselves and may be conducted by colleagues as well as the shift leader. Promotion policies are stringent and selective, but there are a number of promotion opportunities for production workers (who are often low-qualified workers). Generally, a formal examination that includes a theoretical and practical test must be passed in order to
gain promotion, and evaluation criteria include the degree to which the operator is multi-skilled and an assessment of his/her daily work. In this way, the management seeks assurance that multi-skilling has been achieved by means of formal proof. The conclusions of these authors are supported by case-studies of Verdonck (1998) on the training policies of chemical companies in Belgium. Verdonck concluded that the chemical plants investigated in his study offered good learning opportunities for operators.

The presence of a stimulating participatory staff policy was also favourable to self-directed learning. In organizations whose policy supports active participation, employees are expected to demonstrate higher levels of self-directed learning. This finding is in line with the findings of Bromfield-Day (2000), who studied the influence of a participatory leadership style on self-directed learning and with Beer et al. (1984) who studied the relationship between participatory staff policy and employees' personal engagement.

On the level of the individual employee a clear empirical link has been established between proactive personality and self-directed learning. Employees with a proactive personality will show more self-directedness in their learning. This is in line with findings from Bertolino et al. (2011) who found a positive relationship between proactive people and training behavioural intentions in a study among employees of a municipal government and with findings from Major et al. (2006) who found that proactive people were more likely to take part in voluntary developmental activities in a study among employees of a financial services firm. This connection between proactive personality and domain-specific proactive behaviour was previously suggested and confirmed by Bateman and Crant (1993), Crant (2000) Claes and De
Witte (2002). Our study made it possible to test this relation among a specific group of employees that has hardly been studied before. Therefore, the findings are potentially relevant to a wider range of employees.

The other personality characteristic, pursuit of knowledge work, also predicted self-directed learning in a significant way. Employees who have a strong preference to carry out knowledge work are more self-directed in their learning. This finding is in line with results from Kuijpers (2003) in a study which involved higher-qualified employees and with results from Raemdonck et al. (2005) in a comparative study between low-qualified and high-qualified employees. Raemdonck et al. concluded that pursuit of knowledge work was an important predictor of self-directed learning of both low- and higher-qualified workers.

Another predictor, past educational initiative (human capital variable) was found to be relevant. Past educational initiative is positively related to self-directed learning. Oddi (1986) also showed a positive relation between prior participation in formal learning activities and self-directed learning.

Lastly, as expected, some job characteristics significantly predict self-directed learning. Task variety and growth potential are significant variables in the prediction of self-directed learning. The more task variety there is, the more employees are in a position to be self-directed in their learning as a variety of different work activities creates different kinds of learning opportunities. Moreover, the greater the growth potential of the job, the more employees are inclined to self-direct their learning. The perceived benefits of a job that offers opportunities for promotion, might be favourable for investment in learning of low-qualified employees (Maurer et al.,
Contrary to our expectations, degree of autonomy and job complexity were not significant predictors of self-directed learning. Despite this, job design research argues that employees respond positively to enriched jobs (Prince, 2003). According to Karasek and Theorell (1990), the best jobs for promoting development are those with high demands (i.e. job complexity) and with a high level of personal control (i.e. job autonomy), because this combination provides contextual challenges and opportunities for successful learning. However, low-qualified employees might not perceive their abilities to be congruent with the requirements needed to perform a complex and highly autonomous job. Thus, although autonomy and job complexity should provide positive stimulation for self-directed learning, too much autonomy and complexity for low-qualified employees could result in too much stimulation, negatively affecting self-directed learning (Chung-Yan and Butler, 2011). Therefore, it might be interesting in future research to examine the possibility of a curvilinear relationship between these variables and self-directed learning and to include an instrument measuring ‘job requirements-abilities fit’ (see Chung-Yan and Butler, 2011).

Research question 2: Are there significant interaction effects between individual and company level variables that are associated with higher levels of self-directed learning for low-qualified employees?

The interaction terms between variables at the individual and organizational level did not generate additional explained variance. A stimulating participatory staff policy in combination with high levels of proactive personality, for example, does not lead to increased levels of self-directed learning. This finding is not in line with the
assumptions presented in the literature (see e.g. Baskett et al., 1994; Judge et al., 1995) and with previous empirical findings of research among higher-qualified employees.

7.2 Implications for human resource management practice and policy

The results have a number of implications for human resources practice that go beyond the Flemish context.

First, the economic sector in which the employee is working is relevant to self-directed learning. Differences between the sectors must be eliminated in order to provide equal chances for all employees. This can be achieved by encouraging organizations within those sectors currently characterised by poor results for self-directed learning, to create optimal conditions so that employees are more stimulated to self-direct their learning. Our results show that employees’ self-directedness in learning flourishes from working in a stimulating environment that offers task variety and growth potential and in which a participatory staff policy has been implemented. Those who have the opportunity to do high-quality work are more self-directed in their learning. Practitioners should pay attention to these variables in building a learning climate. In specific sectors, agreements about conditions of employment which are favourable to self-directed learning should be made between employers’ organization and trade unions.

Second, a striking finding is the role of the variable proactive personality. The findings suggest that a higher level of self-directed learning will be perceived in employees with proactive personalities. As proactive personality is a relatively stable factor, human resources practitioners should concentrate on coaching and training
practices to develop and stimulate self-directed *behaviour* in those employees who do not have a proactive personality (see Claes and De Witte, 2002). Self-directed learning behaviour can be exercised by providing feedback, observing other people’s self-directed behaviour, through inquiry and reflection on success and failure and through forward-thinking on consequences and implications of self-directed learning behaviour and by going through different scenarios in the mind and identifying ways to improve self-directed behaviour (Bindl and Parker, in press; Raemdonck *et al.*, in press). For those employees with proactive personalities, human resources practitioners may facilitate expression of the proactive personality trait by providing appropriate and timely cues that reinforce and motivates employees to learn in a self-directed way (Fuller *et al.*, 2010).

Third, as participation in past educational initiatives is a predictor of self-directed learning, a policy of stimulating lifelong learning might motivate employees to take the initiative of self-directing their learning. Learning to enjoy learning and acquiring insight into the benefits of learning might be a first step to stimulating self-directed lifelong learning. Especially for low-qualified employees who often have rather negative experiences in formal educational contexts, this is an important point for attention.

### 7.3 Limitations and future directions

Some limitations of the present study need to be considered. A first limitation is the cross-sectional design, which requires us to be cautious about drawing conclusions about causal relationships. The results do not allow us to state, for example, that self-directedness in learning will develop due to certain job characteristics. Second, the
present study builds on perceptions and self-reported ratings. Independent ratings based on the observations of researchers might be a future alternative. Third, some of the predictor variables (mobility aspiration, past educational initiative) were measured with a single item in the scales. Extending the number of items measuring those variables would increase the robustness of these measures. At the same time, we must consider the mental effort for low-qualified employees of answering long questionnaires. Fourth, the sample was drawn from only three sectors. It is not clear whether the results can be generalized to the larger population of low-qualified employees. Further research is needed to examine the influence of the different sectors. It might be interesting to explore the role of this variable by including more specific variables, such as the presence of an active labour market policy within the sector, the demographic profile and the presence of an enduring employability policy. This might make it possible to interpret the influence of the economic sector and suggest interventions.

Finally, the model studied here is a step towards a more comprehensive understanding of self-directed learning. Including factors outside the organizational context might also be relevant in the prediction of self-directed learning. Examples are: family composition, moral and financial support and general labour market mechanisms. Supporting learners in engaging in learning activities as part of their daily working life is a clear challenge in today’s society. With this study we have contributed to an understanding of the factors influencing the extent to which low-qualified employees self-direct their learning. Empirical evidenced models of self-directed learning in the workplace might play a crucial role in untangling the concept of self-directed learning and in enhancing self-directed learning at the workplace. This requires us to continue our study of self-directed learning by building on the findings reported above.
Note:

[¹] NACE Code is a pan-European classification system which groups organizations according to their business activities.

[²] The participant was asked to name these courses and training programmes.
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