Self-directedness in learning and career processes. A study in lower-qualified employees in Flanders.

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Proefschrift ingediend tot het behalen van de academische graad van Doctor in de Pedagogische Wetenschappen

2006

Voor mijn moeder en vader

Voorwoord

In de eerste plaats wil ik Prof. Dr. Martin Valcke danken. Hij was het die altijd de nodige faciliteiten en omgeving creëerde waardoor ik dit doctoraat tot een goed einde kon brengen.
Zijn deskundigheid, enthousiasme, steun en constructieve feedback hebben veel voor me betekend. Ik wil hem ook danken voor zijn sterke rol als hoofd van onze vakgroep. Hij maakte deze tot een plaats waarin kennisdeling een heel spontaan gebeuren is.

De tweede sleutelfiguur in dit doctoraatsproces was ongetwijfeld Prof. Dr. Jo Thijssen. Het was een hele eer dat hij dit copromotorschap op zich wou nemen. Hij maakte me wegwijs in het onderzoeksdomein, deelde met me zijn expertise en introduceerde me aan andere onderzoekers. Ik bewaar zeer goede herinneringen aan zijn begeleiding.

De overige leden van mijn begeleidingscommissie, Prof. Dr. Rita Claes, Prof. Dr. Thierry Marchant wil ik bedanken voor hun bijdrage en deskundig advies en in het bijzonder Prof. Dr. Dirk Van Damme die in de beginjaren als promotor dit doctoraat op het juiste spoor zette.

Dank aan Bert Vanosmael van VitamineW, Geert Meesschaert van ADV-consult en Valerie Evers van ESF-Vlaanderen. Zonder jullie contacten en inzet had ik nooit zo snel medewerking kunnen krijgen van de organisaties. Eveneens dank aan Bureau van Dijk voor het gratis ter beschikking stellen van hun databank ‘Belfirst’.

Ik ben de organisaties bijzonder erkentelijk voor hun deelname aan mijn onderzoek en de HRM-afdelingen voor de praktische organisatie en hartelijke ontvangst. Bijzonder veel dank aan alle werknemers die bereid waren te participeren aan dit onderzoek. De periodes van dataverzameling waren voor mij de meest plezante en boeiende.

Nkora, Maruja en Nele. Merci voor jullie nauwgezette codering en data-input. Ook de studenten Pedagogische Wetenschappen die in het kader van een werkcollege sommige data hebben verzameld, wil ik bij deze in de bloemen zetten.

Dank aan mijn collega's en vroegere collega's van de vakgroep Onderwijskunde voor hun inhoudelijk advies en aanmoedigingen. De meest baanbrekende momenten kwamen er door overleg met jullie. Speciaal dank aan Gudula, Hester en Katrien voor hun steun en groot hart. Ook dank aan mijn vroegere collega en maatje Jo Scheeren voor zijn steun en deskundige feedback.

Verder, woorden van dank aan het Nederlandse 'werkplekleren-groepje' voor de boeiende discussies tijdens onze bijeenkomsten in Arnhem. Jullie interesse werd bijzonder gewaardeerd!

Mijn levensgezel Haroun, voor de morele steun en het vele werk dat hij mij de afgelopen jaren uit handen heeft genomen. Mijn zusjes en vrienden, bedankt voor de aanmoedigingen en ontspannende momenten. I'm back in town!

Tot slot en niet in het allerminst mijn ouders. Dit doctoraat is mede te danken aan hun onvoorwaardelijke liefde en steun. Ik draag dit proefschrift dan ook aan hen op.

Isabel Raemdonck
Brussel, 17 april 2006

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Chapter 1

General Introduction[1]

Abstract

This article outlines the background for the increased attention for self-directedness in learning and career processes and describes its foundations. On basis of a literature review a conceptual model for self-directedness in learning and career processes is presented and four new directions for future research are proposed. First, instruments for self-directedness in learning and career processes should be developed which are suitable for low-qualified employees as well. Second, in the workplace context both individual and organizational characteristics should be examined as predictors of self-directedness in learning and career processes. Third, the relation between self-directedness in learning processes and self-directedness in career processes can be better understood. Fourth, empirical research is needed to examine the relation between self-directedness in learning and/or career processes and future employability. These new directions were put forward as objectives guiding us throughout this dissertation.

Keywords: *lifelong learning, employability, self-directedness, foundations, transitions, research agenda*

LIFELONG LEARNING AND EMPLOYABILITY

In recent decades, Western Europe is being characterized by labour market related developments that have consequences on lifelong learning: technological innovations, the need for a highly skilled workforce, continuous job mobility within and between organizations and an increasing individual scope in performing paid labour. These developments are interrelated and mark the transition from an industrial

[1] Parts of the introduction are based on: Raemdonck, I. & Thijssen, J. (2005). Lifelong learning and employability. *Lifelong Learning in Europe*. *10* (2), 66-69.

to a post-industrial society, as it progresses in most OECD-countries. A further consequence of this transition is a gradual shift from public care taking with relatively low-qualified jobs in the secondary sector to a more individualized self-managing culture with quite a lot of knowledge-intensive labour in the tertiary sector. This phenomenon is also referred to as the transition from 'brawn' to 'brains' industries. The knowledge economy is emerging more strongly than ever. The manufacturing of physical products is gradually being replaced by knowledge-intensive services. Knowledge constitutes the cork on which the Western economy floats (Drucker, 1993). It is the basis for innovation and process improvement. When coupled with the increased outsourcing and automation, the demand for 'knowledge workers' as opposed to 'hand workers' is still growing. As this happens, jobs are demanding broader knowledge and skills such as problem-solving competencies, technical knowledge and management skills (Onstenk, 1997). As a result of these trends *the need for lifelong learning* is quite evident and the capability and willingness to learn becomes a prerequisite for the modern worker (Onstenk, 1997) who wants to guarantee his/her 'employability'. Due to these influences, the nature of lifelong learning, has undergone some rather important changes (Nijhof, 2004; Van Damme, 1996).

Views on recurrent education that arose in the sixties and seventies (Faure et al., 1972; Schouten, 1975) are reviving with the appearance of the concept of lifelong learning on the public agenda (Baert, 2002, 2005). Nevertheless, in recent considerations one can notice some

obvious shifts in accent that can be seen as indicators for the direction in which reflection on employees as education-consumers develops. This is confirmed in different studies from the OECD and UNESCO (see e.g. Bassanini & Scarpetta, 2001; Behringer & Coles, 2002; Delors, 1996). Three important shifts are the strong emphasize on social-economic aspects, the increased attention towards informal learning activities and the high level of appreciation for self-directed learners.

Emphasizing social-economic aspects

Lifelong learning and recurrent education include both social-cultural and social-economic aspects. Nonetheless, the emphasis lies more and more on social-economic aspects, with the educational consumption also moving in that direction. The education-consumer is increasingly considered as a 'homo economicus': an individual that performs paid labour and is able to do so in various changing conditions.

Employability has become an important notion: a diffuse concept which can be defined as the ability of employees to survive on the labour market in spite of all the existing turbulence (Hall, 1996; Hyatt, 1995; Waterman, Waterman & Collard, 1994). Transferable work competences are considered to be very important, while self-directedness and the ability to manage on one's own during working life are highly appreciated (Nijhof, 2004; Baert, Kusters, Van Damme & Scheeren, 2000; Glastra, Hake & Schedler, 2004). Although lifelong learning is not the exclusive right of employees, there is at the least a strong focus on working life. Nowadays labour, in particular paid labour, is an important

entry to every form of societal participation and functioning. The perceivable economic effects of education upon labour draw much attention, suggesting that the notions about 'training for impact' (e.g. Robinson & Robinson, 1989) and 'human performance' (e.g. Stolovitch & Keeps, 1992) that were introduced quite some time ago have become widely accepted in society. The focus of attention is on the relationship between education and labour productivity, i.e. on returns on investments, and on the relationship between education and labour participation, i.e. on employment effects. The link between education and employability has hardly been researched. The empirical evidence about the economical impact of education does not provide policymakers with a solid foundation for legitimizing far-reaching policy decisions. It is not unthinkable that the relationship between education on the one hand, and labour productivity and employability on the other, is of a more indirect and interactive nature than is often presumed (see also Van der Kamp, 1995).

Emphasizing informal learning activities

In the conceptualization about lifelong learning one can perceive another important shift in accent. Both lifelong learning and recurrent education comprise a variety of formal and informal learning opportunities: school-based teaching and learning, post-academic education, self-education, on-the-job training, study circles, and educational programmes via radio and television etc. The potential of none of these opportunities is to be neglected (see Baert, 2002). It would be a

misunderstanding to assume that the formal opportunities are more important than the informal opportunities. We do not build on suggestions that recurrent education is limited to formal lessons set up in a school-based context or that lifelong learning is limited to informal extra-curricular activities. Early views on lifelong learning in Europe, have never implied such a restrictive view (see among others Faure, 1972; Schouten, 1975). Yet, in recent years, one can observe a shift in focus that reflects increasing attention being paid to informal learning activities. This increased attention is justified in the context of surviving in a changing work environment (Wildemeersch & Jansen, 2000). The shift in focus also centres on the learning process in which the individual plays a central and self-directed role. Learning is a process of active construction which is realizable in various ways. As a consequence, in conceptualizing learning one include both formal and informal ways of learning.

High level of appreciation for self-directedness

A third and crucial change is the shift in the political discourse pertaining to the nature of lifelong learning and the way concepts like self-directedness and emancipation are being perceived in a globalizing world (Wildemeersch & Jansen, 2000). Policies and practises with regard to lifelong learning came to reflect dominant socio-economic orientations. The arguments for lifelong learning involve economic competitiveness in a globalizing world, the wish to transform towards a knowledge economy and to correct for shortages on the labour market

(Glastra et al., 2004). The adult education sector has undergone a transformation from primarily social-cultural and community education toward adult general education and vocational education and training. In organizing this learning, the free market is given an important role while at the same time the government's role is one of creating active citizenship. The importance of the individual initiative is highly stressed in facing the speed and scope of changes in a globalizing information society. Citizens are expected to play an active role in different domains of life (in labour, in education etc.) and processes of self-directedness are to a large extent encouraged. Individual responsibility, self-motivation, autonomy and flexibility are key competencies to be able to cope with a continuously changing environment. This trend is observed in both educational and work related issues. Traditional assumptions about career are disappearing. The comfortable notion that careers travel predictable routes along organizational or occupational hierarchies, no longer holds (Dany, Mallon & Arthur, 2003). There is a shift from the 'organizational career' to the so-called 'boundaryless career' (Arthur & Rousseau, 1996), 'protean career' (Hall et al., 1996) or 'free agent career' (Hecksher, 1995). Careers are less predictable, less organizationally dependent and more boundaryless and allow a variety of career stories (Dany, Mallon & Arthur, 2003). The traditional idea of career development as upward progression (Mirvis & Hall, 1996; Rosenbaum, 1984) has made way for an emphasis on lateral moves and growth within one's job. Career responsibility has shifted from the organization to the individual. Workers are not longer employees that are dependent of employers but rather 'entrepreneurs of their own talents'. People become responsible for their own career development,

constantly adding new skills to increase their value on the labour market (Crant, 2000). Although, career-related changes are as well determined by external factors such as the availability of mobility opportunities within the labour market, individuals following boundaryless careers are expected to be more self-directed in their career and approach to lifelong learning (Jackson, 1996).

In literature, self-directedness is considered to be a key competence. We define 'self-directedness in learning processes' as *a characteristic adaptation to influence work-related learning processes in order to cope for oneself on the labour market.* Parallel to this definition we define 'self-directedness in career processes' as *a characteristic adaptation to influence career processes in order to cope for oneself on the labour market.* According to Brockett and Hiemstra (1991) the concept of self-direction in adult learning should not be limited to the term self-directed learning. To expand the concept, they recommend that the term 'self-directed learning' is seen as only one form of a broader concept (i.e. self-directedness). The term 'self-directedness in learning' can provide the span needed to get a fuller understanding of the concept (Owen, 2002). Accordingly, we will use the terms 'self-directedness in learning processes' and 'self-directedness in career processes' throughout this dissertation. If used 'self-direction' or 'self-directed' no difference in meaning is intended. Similar constructs related to the concept of 'self-directedness' are: self-management, self-development, self-planning and self-regulation.

FOUNDATIONS OF SELF-DIRECTEDNESS IN LEARNING AND CAREER PROCESSES

Historical foundations of self-directedness in learning processes

Over the past decades, self-directedness in learning processes has emerged as an important topic in adult learning research (Brockett et al., 2000; Owen, 2002). Foundations were laid through the observations of Houle (1961/1988) which were published in his book '*The Inquiring Mind'*. Houle interviewed adult learning participants and identified three categories based on their reasons for participating in continuing education: (a) goal-oriented learners who engage into educational activities in order to reach some end goal; (b) activity-oriented learners who participate for social reasons and (c) learning-oriented learners, who learn for the sake of learning. The latter group has initially been characterized as self-directed learners (Hiemstra, 1994). The first attempt to characterize the learning-oriented learner was done in Allen Tough's dissertation (1965, as cited in Brockett & Hiemstra, 1991). Tough described these self-teachers as adults who not necessarily learned in isolation from others. In a later study, Tough examined the frequency of learning projects planned by individuals which he defines as "a highly deliberate effort to gain and retain certain definite knowledge and/or skills" (Tough, 1979, p. 250). Therefore, he interviewed participants about their engagement in learning projects of the last year and concluded that adults engage yearly in several learning projects (M= 8) (Tough, 1993). The majority of projects were primarily initiated by the adults themselves and where undertaken because of the

learner's anticipated future application of the new knowledge and skills. The results were reported in '*The Adult's learning projects*' (1979).
During the same period, Knowles popularized the term 'andragogy' (Hiemstra, 1994), the art and science of helping adults learn. Knowles stated that the art of andragogy includes self-direction as one of its key components (Owen, 2002). In his '*Self-directed Learning: A Guide for Learners and Teachers'*, Knowles (1975, p.18) defined self-directed learning "as process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating leaning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies and evaluating learning outcomes" . Although this definition has been criticized because of its linear character and the author himself no longer mentioned this definition in later publications (Knowles, Holton III & Swanson, 2005), it remains the most cited characterization (Merriam & Caffarella, 1991). Knowles provided as well foundational assumptions that were directive for much subsequent research: a) as persons mature into adulthood, their self-concept evolves from one of dependency to one of increased self-direction; b) as persons mature, they obtain valuable experiences and are thus important resources for learning; c) adults learn what is required in order to perform their life tasks; d) adults have a problem-centred orientation to learning.

In the seventies, the most significant contribution to the self-directed learning research field was Guglielmino's (1977) dissertation research about the development of the 'Self-directed Learning Readiness Scale' (SDLRS). This instrument is until now still the most used for measuring

self-directedness in learning processes and for examining correlations between self-directedness in learning processes and several characteristics (Hiemstra, 1994). In spite of its popularity, the instrument has not been secured from any criticism, most notably Field (1989, 1991) and Brockett (1985).

Later, Oddi (1984) developed the 'Continuing Learning Inventory' to provide an instrument that measure personal characteristics related to self-directedness in learning processes. Oddi's measure is now the second most frequently used instrument (Confessore, Long & Redding, 1993).

In the eighties innovative work was done by Spear and Mocker (1984) on organizing circumstances as environmental determinants of self-directedness in learning processes. Their study was based on the qualitative analysis of interviews conducted with seventy-eight self-directed learners with less than high school completion, and demonstrated the importance of understanding a learner's environmental circumstances in promoting self-directedness in learning processes. Spear and Mocker (1984) concluded that the organizing circumstance direct the structure, methods, resources and conditions for learning rather than the individual characteristics of the learner (motivation, creativity, energy,…). Learner characteristics have a different impact depending on the context (situation) of the learner. This conclusion was crucial for a new direction in theory-construction since until then the social context of the learner had been neglected by focusing on the individual isolated learner.

Since 1987 an annual International Symposium on Self-directed Learning has been organized by Long and his colleagues. These symposia have generated many publications and theory-building efforts (Hiemstra, 1994).

We complete this historical picture in the nineties when new models of self-directedness in learning processes started to appear. The 'Staged Self-directed learning Model' from Grow (1991), the 'Two-Shell-Model of Motivated Self-directed Learning' from Straka and Nenniger (1996), Garrison's Comprehensive Theoretical Model' (1997) and the 'Personal Responsibility Orientation (PRO) Model from Brockett & Hiemstra (1991) are among the best-known. The models share a strong emphasis on the teacher-learner interaction and the importance of student's perceptions of motivation and control (Stockdale, 2003).

Over the years research on self-directedness in learning processes has followed three courses. The first direction builds on survey research that focused on the frequency and nature of adults' learning projects. The second stream consists of qualitative research about the meaning of self-directedness in learning processes. And the third stream builds upon an impressive body of correlational research based on Guglielmino's Self-directed Learning Readiness Scale (Conn, 2000). Authors who have made important contributions to the knowledge base surrounding self-directedness in learning processes and have published a lot about self-direction, are: Brockett (1985, 1991, 2000), Brookfield (1984, 1993, 2000), Caffarella (1987, 1991), Candy (1991), Carré (2000), Garrison

(1997), Guglielmino (1977, 1995, 1996) Hiemstra (1994), Long (1983, 1995, 1996), Oddi (1984, 1986) and Straka (1996).

Historical foundations of self-directedness in career processes.

The foundations of self-directedness in career processes must be understood in the broader history of career theory.
The interest in the concept of careers and career development in organizations has evolved since the seventies and was strongly related to changes in thinking about careers and career related processes. The first decade stresses the institutionalization of career development processes and techniques e.g. the emergence of assessment centres, career planning workshops, career planning discussions between managers and professionals and man power planning (Burke, 1995). From the second decade on, the focus shifts towards an employee's informal development and the role of on-the-job experiences and learning in career advancement.

The theories explaining career behaviour are multidisciplinary (Boudreaux, 2001; Herr, 2001; Lawrence, 1995; Vondracek, 1996). According to Super (1990, p. 197) the pioneers of career development are people who emanate from four different disciplines: differential psychologists interested in work and occupation, developmental and educational psychologists interested in the 'life course', sociologists focusing on occupational mobility as a function of social class, and personality theorists who view individuals as organizers of personal experiences.

The history of career development begins in psychology and sociology (Lawrence, 1995). In psychology, career theory originates with studies of *vocational choice*. Early theoretical perspectives in the 1940s and 1950s assume that people choose vocations during young adulthood and that once selected, vocations generally do not change. As later life experiences do not influence these initial choices, these theories did not study adult life. Two types of vocational choice theories occurred: the trait factor and personality theories. *Trait-factor theories* assume that people's abilities and interests can be matched with available vocations. These matching theories resulted in the development of psychological instruments used for vocational counselling.

Personality theories start from the idea that people select vocations that meet their needs. People's needs are studied in the process of vocational choice as well as personality characteristics associated with different occupations (Lawrence, 1995).

Sociologists in the 1920s and 1930s began to apply life histories to study careers. According to Lawrence (1995) the focus was on connecting the individual's interpretation and experience of career with institutional definitions.

In this early stage, research was set up by psychologists such as Super, Holland, Roe and Crites; and sociologists such as Merton and Becker (Hall & Mirvis, 1995).

In the 1970s vocational choice theories were revisited and a more lifelong perspective on career choices was adopted. New types of career development theories emerged: *Career stage theories* which propose career-related development changes at certain ages, *situational theories*

which concentrate on careers as an essential component of social systems and *career typologies* which detect different career development patterns (Lawrence, 1995). Lawrence describes the differences between the different types of career theories more briefly:

Career stage theories assume that career development corresponds with human development, that career development is an evolutionary process, and that its must be examined throughout the life-course. Predominantly, these theories have their origin in developmental psychology and focus on the changes of the individual's self-concept over time. Careers are divided into segments which correspond to different life stages. Most popular is the 'career life cycle model' which suggests that and individual progresses along four career stages. Yet, the model has been criticized as some employees do not progress along these four career stages in this particular order (Judge, 1997).

The starting-point of *situational theories* is the assumption that an individual's career development is influenced by the social system. Situational theories originate from organizational psychology and sociology. Organizational theories within this type of career theories study for example the socialization processes of individuals in organizations and how identity and psychological success are related over time within organizational careers (Hall, 1990 as cited in Lawrence, 1995). Sociological theories within this category encompass studies examining the influence of socio-economic status on career choice or the differences between cultures in determining occupational entry.

Career typologies assume that individuals' careers fall into different patterns. Typologies distinguish careers on basis of people's internal experiences of work. Different self-concepts lead to different typologies. The career concepts model (Driver, 1989) and the career anchors model (Schein, 1978) are among the best known. The former model proposes that individuals mostly adopt one out of four specific career concepts that reflect assumptions about their career. The latter model suggests that individuals in different occupations have different career anchors i.e. occupational self-concepts that evolve from self-knowledge obtained during early work experiences. Schein (1978, 1997) distinguishes five career anchors and aims at matching individual career preferences with occupational choices or job tasks. Although both career models are popular they have hardly been grounded in empirical research (Judge, 1997).

In the 1980s the global economy, corporate downsizing, technological changes and changes in job types started to change drastically the very nature of careers. It is in this context that the interest for self-directedness in career processes is situated. Organizations started to realize that the development of human resources was one of the key levers for organizational success and survival (Van Loo, 2005). The development of human resources encompasses individual development of competence, career development of personnel and organizational development (Swanson & Holton, 2001). In this period, Human Resources Development developed into a multidisciplinary science that applies insights from educational science, psychology and economics (see Van Loo, 2005).

As a response of the changes taken place, the concept of 'modern career' occurred most notably with the introduction of concepts like 'the boundaryless career'(Arthur & Rousseau, 1996), 'protean career' (Hall et al., 1996) and 'the free agent career' (Hecksher, 1995). The concept of the 'modern career' is strongly related to changes in thinking about the nature of employees' relationships with employing organizations (Sullivan & Emerson, 2000; Van Loo, 2005). In literature, this relationship between the employer and employee has been described as the 'psychological career contract' (Argyris, 1960; Rousseau, 1989, 1995). Many authors have recognised that an individual's responsibility for self-directedness in career processes is an integral part of a modern psychological career contract (Mirvis & Hall, 1994; Sullivan & Emerson, 2000; Van den Brande, 2002).

While the debate about new careers is ongoing, the time seems ripe to reconsider and revise the existing career theories (Lawrence, 1995).

> A theory of careers is needed that takes a holistic view of the individual and encompasses all spheres of activity and all corresponding facets of personal identity. Moreover, career development theory and research should not be overlooked by human resources development and educational specialists (Boudreaux 2001, p. 807).

Future research should take into account the 'self-directed career'. In present research, the majority of the research issues still relates primarily to career choice and occupational selection or the transition from school to labour market (Boudreaux, 2001; Kuijpers, 2003) and the number of publications focusing on specific socio-cultural populations remains

relatively small (Arbona, 2000). Authors who have made important contributions to the knowledge base surrounding self-directedness in career processes are for example: Arthur (1996), Hall (1995,1996), Noe (1996), Seibert (2001), Sullivan (1999, 2000).

Conclusion

Self-directedness in learning processes and self-directedness in career processes have their roots in different traditions. Nowadays, both concepts receive a renewed attention as a consequence of changes related to the knowledge economy. Future research should build upon the past and present thinking to address learning and career issues (Boudreaux, 2001). Empirical research on self-directedness in learning and career processes must further continue to increase the body of knowledge related to learning and careers today.

PROBLEM STATEMENT

Initially, the concept of self-directedness in learning processes was only studied in the formal and institutionalized context of adult education. It is only since the nineties that the context of the workplace has also been discovered as a powerful learning environment for self-directedness in learning processes (Onstenk, 1999). According to L.M. Guglielmino and P.J. Guglielmino (1994) three major factors can be distinguished contributing to the increased interest in self-directedness in learning in business and industry: The rapidly technological and societal changes that require increased flexibility and continuous learning, the trend

toward self-directed teams in the workplace, and research findings that consistently demonstrate positive correlations between readiness for self-directed learning and job performance. Marsick & Watkins (1990) were the first to examine how organizations perceive and facilitate self-directedness in learning processes. But research about self-directedness in learning processes in the workplace remains scarce. Most available studies have been set up in North America (Brockett & Hiemstra, 1991). In Flanders only one study is available from Buyens, De Vos & Wouters (2001). Research on self-directedness in the workplace area is therefore still needed as human resources development is the fastest growing and perhaps most highly visible area of adult education (Watkins, 1989).

A review of the available research results in a list of critical points that can be raised about earlier research approaches in the area of self-directedness. At the same time, this review results in an agenda for future research:

(1) Self-directedness in learning processes and self-directedness in career processes is until now studied into separate domains

In empirical studies self-directedness in learning processes and self-directedness in career processes are addressed into separate domains while theoretically and in the working profession both forms of self-directedness coexist (see Van Loo, 2005). It is therefore not clear whether both concepts are interrelated or whether both concepts can be captured by one single construct such as ‘self-directedness’ (see Brockett and Hiemstra, 1991; Owen, 2002). The relationship between

self-directedness in learning processes and self-directedness in career processes needs further clarification.

(2) Focus on individual factors as predictors of self-directedness

The limited amount of research which is available on self-directedness in the workplace, concentrates on individual factors as determinants of self-directedness in learning and career processes. Little attention has been paid to contextual factors that might influence self-directedness. Especially in quantitative research, attention has hardly been paid to the environmental factors that contribute to differences in self-directedness. Traditional approaches ignore the influence of the work context and do not recognize the interrelationship between individual and contextual forces (Baskett, Dixon & Chuchmuch, 1994). This research tradition underestimated the idea that self-directedness can be supported by implementing organizational conditions. Self-directedness could be understood in terms of the relationships among individual characteristics and organizational conditions. It is advisable to integrate both individual and organizational factors when studying the concept of self-directedness in a workplace context.

(3) The problem of generalization

The problem of generalization is related to the one-sided focus on (a) the research group and (b) the cultural context addressed in most of the studies. Both are restrictive factors in generalizing research findings.

(3a) Focus on higher qualified employees and managers. Have we forgotten the low-qualified workers?

In literature, self-directedness seems to be a rather elitist idea. Research in the field of self-directedness in learning and career processes mainly involved higher-qualified workers and managers (Brookfield 1984, 1985; Caffarella & O'Donnell, 1987; Claes & Ruiz-Quintanilla, 1998; Forrier & Sels, 2005; Long & Morris, 1995; MacKeracher, 2004; Raemdonck, 2003; Reio & Davis, 2005). Long & Morris (1995) e.g. conducted a review of the literature related to self-directed learning in business and industry and concluded that in nearly half of the studies business managers were used as research subjects. Also in HRD-practise, initiatives stimulating self-directed learning concentrate to a lesser extent on low-qualified workers as compared to higher-qualified employees since it is assumed that higher qualified people are more willing and capable to self-direct their own learning and career processes (see Hake, 2000). For this reason, organizations prefer to invest in these people although each person has the potential to be self-directed (Jarvis, 2002). It seems that investments in employees' development and career usually depend upon a persons' economic output which is not the same for each qualification level or employee (Glastra & Meijers, 2000). The same trend can also be observed in relation to instrument development. The content of the items in most of the instruments is attuned to the majority culture (i.e. higher qualified middle class) and is not always relevant to other groups including adults with lower levels of formal qualifications. It is not clear whether self-directedness in learning and career processes is realizable for certain categories of the workforce e.g.

older workers, low-qualified workers. The low-qualified employees group seems to be forgotten although the growing and continually changing demands from market developments, technological developments and organizational concepts do also affect their work:

- Firstly, due to the permanent changing market, lifetime-employment is no longer guaranteed. Employees are less certain about their employment position. Especially low-qualified employees are an easy victim since the market is demanding higher qualified knowledge workers. Workers experience an increased rate of skill obsolescence (Kaufman, 1995, Rocco & Thijssen, 2006) that pushes the demand for learning in order to stay 'employable'.
- A second factor influencing the task and functions of low-qualified workers is the increased automation that decreased the demand for unskilled labour. Instead of routine work, the work requirements shifted towards process control (monitoring and solving process disturbances) and quality improvement. This calls upon the skill to develop creativity, problem solving skills and the capability to learn.
- At last, a trend that has to be considered is the introduction of new work organization models, such as (a) job rotation, (b) the implementation of self-directed teams and (c) flattening organizational structures. These models are broadening the tasks and functions of low-qualified workers in the sense that (a) workers have to carry out more varied functions, (b) workers

need to be more responsible and master planning skills and the skill to work independently as an individual or as a group and (c) workers are encouraged to find solutions for practical problems and take decisions.

It is clear that these economical and technological changes and the organizational innovations require higher standards of the knowledge and skills of the work force. As the pace, the multiform, the scale and the depth in which these current transformations occur, is much bigger in comparison to changes in the past, the tasks and functions and as a consequence also the knowledge and skills need to be regularly redefined during career. In this way employees are forced to continually update their knowledge and skills.

(3b) Research has mainly been set up in the Northern American context

Research about self-directedness in learning and career processes has hardly been set up in the European context (Caffarella & O'Donnell, 1987; Claes & Ruiz-Quintanilla, 1998; Guglielmino, Klatt & Guglielmino, 1995). Most of the studies are carried out in organizations with a U.S. cultural influence. As Brockett and Hiemstra (1991, p. 182) point out "There does not exist a large volume of related literature outside of North America". Continued study in other national cultures is an obvious need in order to develop a universality in our knowledge and

understanding of the concept of self-directedness in learning and career processes.

(4) Lack of empirical evidence linking self-directedness in learning and/or career processes to future employability.

Self-directedness in learning processes and self-directedness in career processes are considered as employability skills. It is assumed that both positively determine future employability outcomes (Marx, Ramioul & Sels, 2004). However, there is a lack of empirical research to ground this assumption. It is not clear whether persons who are highly self-directed are more capable to maintain their job or are realizing to a higher extent their job mobility objectives or are more capable to realize their future learning projects, as compared to people who are less self-directed. Available studies have especially centred upon the relationship between self-directedness and job performance (see e.g. Durr, 1992; Durr, Guglielmino, L.M. & Guglielmino, P.J., 1994; Guglielmino, P.J., Guglielmino, L.M. & Long, 1987; Roberts, 1986) or on objective and subjective career success (see e.g. King, 2004; Seibert, Kraimer & Crant, 1999, 2001; Van Loo, 2005).

Conclusion

On basis of the previous limitations observed in earlier research about self-directedness, elements for an agenda for future research can be listed:

Limitation 1

- There is a need for empirical research examining both self-directedness in learning processes and self-directedness in career processes.

Limitation 2

- There is a need to study self-directedness in the workplace context.
- There is a need for research focusing both on individual and organizational characteristics as determinants of self-directedness in learning and career processes.

Limitation 3

- There is a need for empirical research which focuses upon self-directedness in learning and career processes of low-qualified employees (i.e. having no diploma of initial secondary education).
- There is a need for instruments which are suitable for measuring self-directedness in learning and career processes in low-qualified samples.
- There is a need to set up studies on self-directedness in learning and career processes in the European context.

Limitation 4

- There is a need to examine the relationship between self-directedness in learning and/or career processes and future employability.

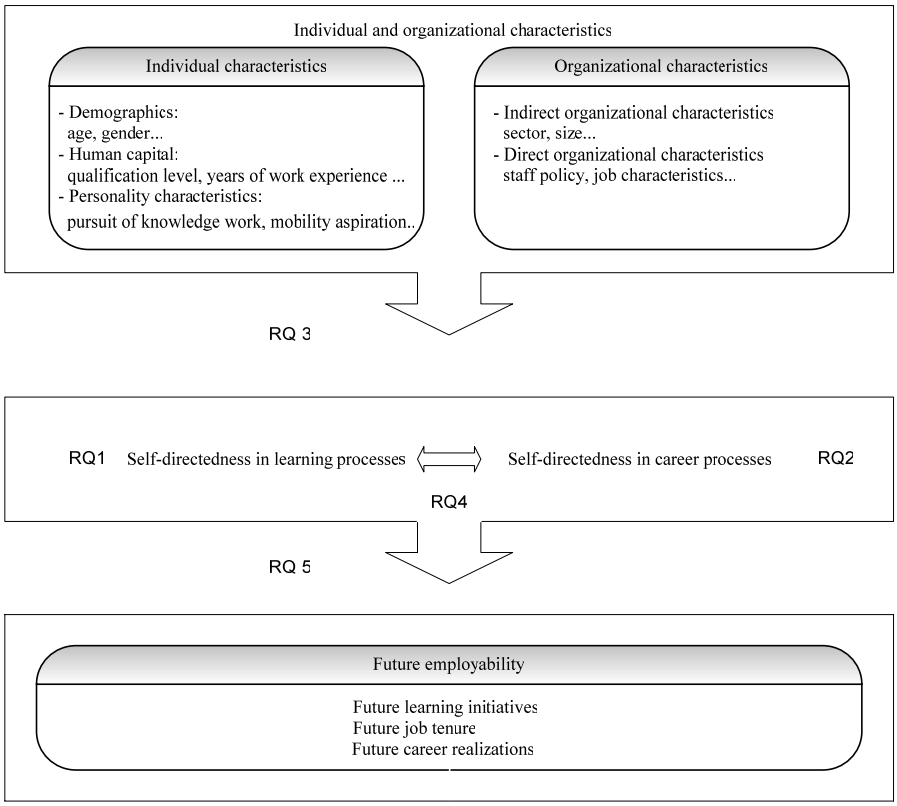
Four research objectives are put forward in this dissertation:

Objective 1: Measuring self-directedness in learning and career processes among low-qualified employees
Objective 2: Identifying the individual and organizational predictors of self-directedness in learning and career processes
Objective 3: Exploring the relationship between self-directedness in learning processes and self-directedness in career processes
Objective 4: Linking self-directedness in learning and/or career processes to future employability outcomes.

RESEARCH MODEL

On basis of a literature study, a research model was developed to define the relationship between different variables and self-directedness in learning and career processes. The model presents an integrative framework that builds on the various concepts and transitions that were outlined in this chapter, that is: Individuals in working life and in their particular organizational context coping with the continuous changes in this globalizing world by influencing their own learning and career. At the same time, organizations themselves are as well facing the continuous changes in this globalizing information society by creating 'learning organizations'. However, we deliberately chose to focus on the individual 'self-directedness' and not on the organization's 'self-directedness'. Therefore, the different variables are selected in line with

the individual's goals to cope for oneself on the labour market and are not necessarily in line with the organization's goals.



Note. RQ= Research Question

Figure 1. Research model

As shown in Figure 1, the research model distinguishes two categories of predictors for self-directedness in learning and career processes:

'individual characteristics' and 'organizational characteristics'. Central in the model are the variables 'self-directedness in learning processes' and 'self-directedness in career processes'. At the bottom, one can observe the output variable 'employability'. The main goal of this dissertation is to empirically test the relationships between self-directedness in learning and career processes and the other variables in the model. Each part of the model is discussed briefly.

Individual and organizational characteristics as predictors of self-directedness in learning and career processes.

Theorising self-directedness in a workplace context should account for the interaction between individual and organizational characteristics (Baskett et al., 1994). Most of the workplace studies dealing with self-directedness in learning and career processes focus on individual characteristics. Several authors have suggested that individual differences may be an important determinant of the degree to which individuals take initiative in self-directing their own learning and career processes (Seibert, Kraimer & Crant, 2001). There is an absence of research on organizational factors to stimulate self-directedness in learning and career processes. Researchers agree that there are many variables which play a role in the process of self-directedness. A review of the literature did not result in an integrative theory to encompass all relevant issues in explaining differences in level of self-directedness. It was therefore seen as premature to frame this research within a single theoretical framework.

The final selection of the variables involved in the study is based upon a literature review and results from expert opinion, and is in line with the changes related to the knowledge economy.
We hypothesize that both individual and organizational characteristics predict self-directedness in learning and career processes.

Self-directedness in learning and career processes

Several studies have verified that self-directedness in the process of learning and career exists in adults (Caffarella & O'Donnell, 1987). However, these verification studies primarily deal with middle class and higher qualified populations (Brookfield, 1984; Claes & Ruiz-Quintanilla, 1998). The concept is not yet fully verified among other social classes and among adults with lower qualification levels. There are a few studies available which provide evidence that self-directedness is present among the 'hard-to-reach'. Caffarella and O'Donnell (1987) refer to the work of Kratz who focuses on adult basic education students and Leean and Sisco who concentrate their study on lower-educated adults in rural Vermont. These studies conducted in the Tough tradition studying the amount of adult learning projects undertaken, verified the existence of self-directed learning among low-qualified adults. Based on the results from these studies, we expect the existence of self-directedness in learning and career processes among low-qualified adults in the context of business and industry.
As learning and career processes are connected in the context of business and industry we expect an interrelation between the level of

self-directedness in learning processes and the level of self-directedness in career processes.

Self-directedness in learning and career processes and future employability outcomes

A link is suggested between self-directedness and future employability. Self-directedness in learning and career processes are considered as determinants of employability (Marx, Ramioul & Sels, 2004). In our study, future employability is operationalised as future leaning initiatives, future job tenure and future career realizations. In former research findings, self-directedness in learning processes has been has been positively correlated with self-directed continuing learning (Jude-York, 1993), success in continuing education courses (Savoie, 1979), future enrolment and engagement in self-directed learning courses (Conn, 2000), job tenure (Van Loo, 2005) and vertical job changes (Kohn & Schooler, 1982). Findings of research examining self-directedness in career processes demonstrate positive correlations with learning and development initiatives (Opengart & Short, 2002) and external labour market potential (Van Loo, 2005).

We hypothesize that a high level of self-directedness in learning and/or career processes positively predicts future learning initiatives, future job tenure and future career realizations.

RESEARCH QUESTIONS

In line with the research objectives put forward, the following research questions (as visualized in Figure 1) are central in this dissertation:

Objective 1:

(1) Can we develop a reliable and valid instrument to measure self-directedness in learning and career processes which is appropriate for low-qualified employees?

(2) To what extent are low-qualified employees self-directed in their learning and career processes?

Objective 2:

(3) Which individual and organizational characteristics are determinants of self-directedness in learning and career processes?

Objective 3

(4) Is self-directedness in learning processes interrelated with self-directedness in career processes?

Objective 4

(5) Are self-directedness in learning processes and/or career processes determinants of future employability?

Table 1 provides an overview of the research questions addressed in the different chapters:

Table 1

Overview of the research questions addressed in the different chapters

Chapter	*Research question*
Chapter 1	General Introduction
Chapter 2	Research question 1, 4
Chapter 3	Research question 2, 3, 4
Chapter 4	Research question 3,
Chapter 5	Research question 5
Chapter 6	General Conclusion

DESIGN OF THE STUDIES

Research design of previous research about self-directedness

Brockett et al. (2000) conducted a review of the literature on research articles related to self-directedness in learning processes, published between 1980 and 1998 in 14 periodicals. Survey research comprised 20% of the total research articles which were screened and correlational research 26%. Survey research included research articles on attitudes and descriptions of the frequency and nature of self-directedness in learning processes and correlational research mostly focused on personality and psychosocial factors and demographic variables. Qualitative research articles made up about 25% of the articles. Recurrent themes in these studies are low-educational-attaining adults, career development and environmental determinants. The quantitative research involved students from formal learning situations while qualitative research focused on participants from non-formal learning

situations (Stockdale, 2003). Before the nineties, the majority of the research efforts on self-directedness in learning processes have been qualitative in nature (Hiemstra, 1994).
Long and Morris (1995) encourage quantitative studies when studying self-directedness in the workplace with a focus on instrumentation and longitudinal time-spans and the involvement of a diversity of the employees and work place settings.

Our design

A quantitative research design was put forward to study the list of research questions for three basic reasons. A first motive was based on the earlier conclusion that there is a clear lack of quantitative research studying contextual factors as predictors of self-directedness. Secondly, previous research on levels of self-directedness in non-formal professional contexts was mainly based on qualitative research settings. A last reason was based on the objective to be able to generalize our research findings. Therefore, large samples are needed.
The design of our study is based on the results of two studies, involving two different large samples. The sample in the first study consisted of low-qualified and high-qualified employees from the private and public sector (*N*= 942). The sample in the second study consisted only of low-qualified employees from the energy sector, the chemical and food and nourishment industry. (*N*= 408). In the second study a longitudinal perspective was adopted as respondents were involved in the study during a time-span of about one year.

The distinction between low-qualified and high-qualified was exclusively based upon an individual's qualification level. Low-qualified was defined throughout the study as having no initial diploma of secondary education.

RELEVANCE OF THE STUDY

The relevance of this dissertation is theoretical and practical of nature. From a theoretical point of view, this dissertation contributes to the clarification of the concept of self-directedness in learning processes and self-directedness in career processes, and the way both concepts are interrelated. Empirical evidence is given that self-directedness exists and thus can be stimulated among low-qualified people. The identification of the relevant individual and organizational factors contributing to self-directedness in learning and career processes is valuable because of the analysis methods used. Previous studies are mostly restricted to correlational research. Moreover, asking the low-qualified employees themselves about their perceptions of the work and learning environment, how they look at these factors and feels about them, is from a methodological viewpoint quiet relevant. These perceptions might be decisive for the growth of a need to be self-directed and the actual engagement in self-directed processes (Baert et al., 2002).

From a policy-related perspective, examining the actual contribution of self-directedness in learning and career processes on differences in employability outcomes, might convince policy-makers of further investing into the development of self-directed learning practises and

learning to learning skills as an active response to upgrade the employability of low-qualified employees.

This dissertation also aims to offer research-based evidence for the practise of human resources development. This evidence especially on organizational characteristics influencing self-directedness was absent until now in research in the field of human resources development. The dissertation study explicitly reports on the relative contribution of each of the selected individual and organizational factors to the level of self-directedness in learning and career processes that was reported. The recommendations which result from these findings may influence workplace and organizational changes. Moreover, the instrument that was developed is helpful for organizations to diagnose the level of self-direction in learning and career processes among their employees at different moments in time. Our results that demonstrate that self-directedness exist among low-qualified employees, may counter existing conceptions stating that low-qualified employees are not motivated and capable of self-directing.

OVERVIEW

Chapter 2 aims at providing a better understanding of the concepts of 'self-directedness', 'self-directedness in learning processes' and 'self-directedness in career processes'. In addition, a conceptual model for self-directedness is presented. Based on this conceptual model, the development and validation of instruments to measure self-directedness

in learning processes and self-directedness in career processes for low-qualified employees is described.
Chapter 2 is submitted for publication in *International Journal for Training and Development.*

Chapter 3 addresses the relationship between self-directedness in learning processes and self-directedness in career processes. Level of self-directedness in learning and career processes is compared between low-qualified and high-qualified employees. Moreover, the influence of individual and organizational characteristics on self-directedness in learning and career processes is examined. The study results in a preliminary theoretical model to explain differences in level of self-directedness in learning and career processes.
Chapter 3 is published in *Lifelong Learning in Europe.*

Chapter 4 is a replication of the study in chapter 3 but only focuses on low-qualified employees. The results from chapter 3 are taken into account and the model is being extended. Different categories of individual and organizational characteristics are examined as predictors of self-directedness in learning and career processes. This study results in an explanatory model for self-directedness in learning and career processes.
Chapter 4 is submitted for publication in *Adult Education Quarterly.*

Chapter 5 defines the construct of employability and sets out a holistic framework for understanding the construct, acknowledging the importance of both individual and labour market factors affecting

employability outcomes. The study explores whether self-directedness in learning processes and self-directedness in career processes are actually employability skills when controlled for other factors such as mobility opportunities within the labour market. Applying a one-year time interval, level of self-directedness in learning and career processes was examined as predictors of future employability in a sample of low-qualified employees.
Chapter 5 is submitted for publication in *Journal of Career Development.*

Chapter 6, the final chapter of this dissertation brings together the findings of the subsequent chapters. An integrated overview of the results is presented and suggestions for future research are made.

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Chapter 2

Development of an instrument to measure self-directedness in learning and career processes

Abstract

This study describes the development of an instrument to measure self-directedness in learning processes (SDL-scale) and an instrument to measure self-directedness in career processes (SDC-scale) of low-qualified employees. The SDL-instrument and the SDC-instrument are 14-item scales which measure an individual's characteristic adaptation to influence learning processes or career processes in order to cope for oneself on the labour market.

An exploratory study involving 942 low-qualified and high-qualified employees revealed a uni-dimensional structure for both scales. A second study was conducted in a sample of 408 low-qualified employees and confirmed the one-factor structure of both scales. Discriminant and convergent validity was also examined. In a third study building on the exploratory dataset, model fit was compared of the low-qualified and higher-qualified group separately and was found invariant across both samples. In each of the samples, both scales showed satisfactory internal consistency.

Keywords: *self-directed learning, self-directed career management, confirmatory factor analysis, scale development, proactive personality, low-qualified*

INTRODUCTION

Over the years, the concept of 'self-directedness' has been studied in a variety of domains and disciplines (e.g. educational sciences, human resources management, human resources development, psychology, economics). This widespread interest in self-directedness stems largely from the fact that it is assumed that self-directedness leads to improved employability and success in terms of labour market outcomes and organizational performance (Guglielmino & Guglielmino, 1994;

Jackson, 1996; Raemdonck & Thijssen, 2005; Van Loo, 2002). Consequently, self-directedness is becoming a key competence for the modern worker. There is a shift from what is called the 'organizational career' to the 'protean (Hall, 1976, 1986) or boundaryless (Arthur, 1994) career', a career based on self-direction. Individuals engaging in such careers are expected to be more proactive in their career and lifelong learning (Claes & Ruiz-Quintanilla, 1998).

The increasing influence of the upcoming knowledge economy not only affects the work and career of those who are highly qualified. The change in nature of work and career is taking place at every level in an organization (Raemdonck, 2003). Although self-directedness in learning and career processes has been a focus of research in a variety of domains, there is a lack of research on how low-qualified employees engage in these processes. Long and Morris (1995) e.g. conducted a review of the literature related to self-directedness in learning processes in business and industry and concluded that in nearly half of the studies business managers only were used as research subjects. According to Brookfield (1984, 1985) self-directed learning describes the process of learning of the majority culture and neglects many subgroups. Claes and Ruiz-Quintanilla (1998) and Forrier and Sels (2005) point to the same selectivity in studies examining self-directedness in career processes. This tendency is observable in instrument development as well. The items' content in most of the instruments is attuned to the majority and is not always relevant for e.g. low-qualified employees. There is a need for a reliable and valid instrument to measure self-directedness in work-

related learning and career processes which is applicable to the context of employees with a low-qualification level.

The purpose of this study is to conceptualize 'self-directedness in learning processes' and 'self-directedness in career processes', distinguish them from other related concepts and to develop reliable and valid instruments to measure self-directedness in learning processes and self-directedness in career processes which are applicable to the context of low-qualified workers. It is expected that both scales will achieve an internal consistency of at least .70. To explore the discriminant validity of the measures of self-directedness in learning processes and career processes, the relationship between scores from the Proactive Personality Scale - short version (Bateman & Grant, 1993) will be examined in order to distinguish both constructs from related conceptions in the literature. Convergent validity will be evaluated by examining the relationship between the scores on self-directedness in learning and career processes of employees and supervisors and interviewer ratings. Lastly, both measures will be tested as to their invariance across different samples.

THE CONCEPT OF SELF-DIRECTEDNESS, SELF-DIRECTEDNESS IN LEARNING PROCESSES AND SELF-DIRECTEDNES IN CAREER PROCESSES

Self-directedness is defined a characteristic adaptation to influence processes in life in order to be able to cope for oneself. If applied to working life, self-directedness is then defined as a characteristic

adaptation to influence processes in working life in order to cope for oneself on the labour market. The level of self-directedness refers to the extent in which an individual influences his/her work processes at a particular point in time.

Self-directedness is characterized by the following features: (1) is changeable (2) is domain specific, (3) is an active approach, (4) centres on the individual's perspective and his/her ability to cope for oneself on the labour market, (5) has a long term focus, and (6) is dynamic.

First, in contrast to a personality trait which is determined by biological factors, self-directedness is a characteristic adaptation. A characteristic adaptation is a psychological feature that is developed as the person encounters his or her environment, and it reflects the influences of traits, the social environment, and their interaction (McCrae & Costa, 1999, 2003). It is *characteristic* because it reflects the operation of enduring personality traits, and it is an *adaptation* because it is shaped in response to the demands and opportunities offered by the environment. A characteristic adaptation includes beliefs, attitudes but also behaviour (De Fruyt et al., in press). It is acquired and can be more easily modified in comparison to a personality trait. A characteristic adaptation varies across cultures, families, and portions of the lifespan. Consequently, self-directedness is best viewed as a continuum or characteristic that exists to some degree in every person and situation (Hiemstra, 1994; Long, 1991). There are many factors that employees weigh in choosing whether to behave in a self-directed way at a particular point (Knowles, Holton III & Swanson, 2005). These may include: work orientation, personality, previous experience, organizational factors etc… The

exercise of self-directedness is affected as well by personal characteristics of the individual as by characteristics of the environment. It is a result of both the individual and the environment. Characteristic adaptations change over time and across circumstances in response to biological maturation, changes in the environment, or deliberate interventions (McCrae & Costa, 2003). Self-directedness is thus described as a learned characteristic that is amenable to the educative process and influenced by environmental circumstances (MacKeracher, 2004). This changeable feature is intended to help the individual adapt to the requirements and opportunities of the social environment.

Second, the concept of self-directedness has been studied in many forms, under different labels and in an array of domains, such as socialization, feedback seeking, adult learning and career (see Crant, 2000). The term 'self-directedness' has mostly been used in educational sciences. Some researchers have conceptualized a generalized sense of self-directedness. However, the exhibition of self-directedness is presently argued as domain-specific. In line with Candy (1991), Delahaye, Limerick, and Hearn (1994), Grow (1991) and Ponton, Derrick and Carr (2005), we argue that self-directedness must be understood as a domain-specific concept. That is, one can have a high or low level of self-directedness in different domains. For example, an individual may demonstrate a low level of self-directedness in working life but show at the same time a high level for self-directedness in social life. Even in working life, individuals can behave differently depending on the area of functioning. As we are particularly interested in the area of learning and career, which are both considered as tools to cope for oneself on the labour

market, we found reason in this to distinguish between 'self-directedness in learning processes' and 'self-directedness in career processes' (see also Houle, 1961, Van Loo, 2005). For example, an employee can demonstrate a high level of self-directedness in learning processes in order to master the various tasks involved in one's occupation. At the same time, the level of self-directness in career processes can be low because the employee does not prioritize his career and is not looking for any career opportunities. Reversely, employees can prioritize their career processes over their learning processes and demonstrate a higher level for self-directedness with regard to the first domain. Moreover, distinguishing between self-directedness in learning processes and career processes offers researchers the opportunity to explore more deeply the similarities and differences in the nomological network of both constructs. Applied researchers often are interested in content-bound constructs to understand and predict behaviour (Jaccard & Blanton, 2005). In this study, we define 'self-directedness in learning processes' as *a characteristic adaptation to influence work-related learning processes in order to cope for oneself on the labour market*. Parallel to this definition 'self-directedness in career processes' is defined as *a characteristic adaptation to influence career processes in order to cope for oneself on the labour market.* 'Learning process' is defined *as a series of informal and formal work-related learning activities that result in the achievement of learning-related goals,* such as mastering new tasks or updating skills and knowledge. 'Career process' is defined as *a series of career activities which result in the achievement of career-related goals*, such as an increase in rewards, lateral or vertical job move or a more favourable career perspective (see Van Loo, 2005). Examples

of learning activities are: participation at training, workshops and courses, knowledge sharing among colleagues, looking for information in manuals or professional handbooks, etc. Examples of career activities are: networking, work exploration, self-presentation, etc.

Third, self-directedness encompasses an active approach, in which people actively give direction to current and future learning and career issues rather than they respond passively to environmental change. Moreover, an active approach implies that the employee is persistent in overcoming barriers which would prevent the person from carrying out his/her plans. High self-directed people scan their environment more actively for opportunities then low self-directed people. Self-directedness involves self-initiated, deliberate and sustained pursuit of learning and career activities with the goal of enhancing and increasing one's capacity to cope for oneself on the labour market (Anderson, Ones, Sinangil & Viswesvaran, 2001). Self-directedness is primarily controlling and actively shaping the own learning process and career process but does not necessarily imply direct external change. 'Influencing' learning processes and career processes implies controlling and, if desirable, take initiative to affect change.

Fourth, the individual's learning and/or career goals can be consistent with the organizational goals but this is not a necessity. Central are the individual's goals and the extent to which they are helpful to the individual to retain and improve his/her ability to cope for oneself. Whether the own goals are as well 'pro-company' goals depends upon the characteristics of the individual's personal learning and career goals.

Self-directedness is thus not necessarily a pro-organizational concept. Instead, the individual perspective and his/her ability to cope for oneself is the main focus.

Fifth, self-directedness has a long term focus. By self-directing the learning process and career process the employee does not only react to what is currently needed to guarantee his/her ability to cope for oneself on the labour market but reflects and anticipates on problems and opportunities to come in the future. The person chooses to deal with them immediately rather than wait until one *must* respond to environmental changes. This long-term perspective is an integral part in self-directing learning and career processes. Therefore, we speak in terms of self-directedness in learning *processes* and career *processes.* 'Process' expresses a course or state of going on, a series of activities, a forward, developmental and continuous movement.

Sixth, self-directedness is characterized by a dynamic process. It is an individual's ongoing functioning in creating constant adaptation to the environment which is expressed in behaviour and regulated by cognitive (beliefs), affective (attitudes), volitional (intentions) and earlier behavioural patterns (see Fishbein & Ajzen, 1975; Ajzen & Fishbein, 2005). A characteristic adaptation is thus a dynamic and interactive network of beliefs, attitudes, intentions and behaviour that allows one to interact meaningfully with the social environment (McCrae & Costa, 2003). Moreover, the behaviour which is expressed encompasses a complex and cyclic process of controlling and actively shaping the learning/career process.

RELATED CONSTRUCTS

Research on self-directedness in learning processes and self-directedness in career processes has been very successful in improving our understanding of outcomes such as job performance and objective and subjective career success (Fay & Freese, 2001). Hence, it is not surprising that similar constructs have been developed in the literature. We discuss the concepts which are most closely related - proactive personality, personal initiative, locus of control and role breadth self-efficacy.

First, *proactive personality* is defined as a "relatively stable tendency to effect environmental change" (Bateman & Crant, 1993, p. 103). It is considered a stable disposition to take personal initiative in a broad range of activities and situations (Seibert, Kraimer, & Crant, 2001). Bateman and Crant (1993) defined a person with a prototypical proactive personality as someone who is relatively unconstrained by situational forces and who effects environmental change. Proactive personalities identify opportunities and act on them; they show initiative, take action, and persevere until they bring about meaningful change. In contrast, people who are not proactive exhibit the opposite patterns: they fail to identify, let alone seize and opportunities to change things. Less proactive individuals are passive and reactive preferring to adapt to circumstances rather than change them. Empirical evidence demonstrates that proactive personality is a uni-dimensional construct (Seibert et al., 2001). However, its structural equivalence has not been fully established beyond American culture (Claes, Beheydt & Lemmens,

2005). Conceptually, self-directedness in learning processes and self-directedness in career processes are related constructs but show as well differences. The overlap with proactive personality is that the constructs are also goal directed, intentional and based on an active approach. While proactive personality is a general construct, the proactive personality scale is as well applicable in a work-oriented context. Self-directedness in learning and career processes show conceptual overlap with proactive personality but can be distinguished from a theoretical and empirical point of view. First, while the proactive personality is a broad construct, self-directedness in learning processes and career processes are context-specific constructs. The proactive personality scale is not a measure that is specifically oriented towards influencing work processes but to general intention-action relationships. Self-directedness is a domain-specific characteristic with specific meaning to the learning/career process. Second, the measure developed by Bateman & Crant (1993) is thought to be a personality scale measuring a basic tendency, while the scales developed in this contribution are not. While proactive personality refers to a personal trait which is more or less stable, self-directedness in learning processes and self-directedness in career processes refer to a characteristic adaptation which originates in the interaction of basic tendencies and environmental influences. The extent of self-directedness in learning processes and self-directedness in career processes is expected to change as environmental conditions and/or employee's work experiences change. By consequence, the concept of self-directedness in learning and career processes has a dynamic and interactive characteristic. In contrast, the proactive personality concept does not reflect such dynamics. Third, while

effecting environmental change is an essential objective to the concept of proactive personality, the goal with self-directedness in learning processes and career processes is not necessarily to bring about environmental change. Influencing processes in working life implies controlling and if desirable change. Controlling is more essential with self-directedness. Fourth, while proactive personality effects proactive behaviour that usually matches the organizational goals, self-directedness in learning processes and career processes is more centered on the individual's objectives and the extent in which the individual succeeds to cope for oneself on the labour market rather than there is a match with the organization's goals.

The relationships between self-directedness in learning and career processes and proactive personality are also empirically tested in this contribution. Self-directedness in learning processes and self-directedness in career processes should show some overlap with the proactive personality. However, to establish discriminant validity both constructs should not correlate too highly with proactive personality ($r \leq .50$).

A second related construct is Frese's concept of *personal initiative*. The concept is defined as "a behaviour syndrome that results in an individual taking an active and self-starting approach to work goals and tasks and persisting in overcoming barriers and setbacks" (Frese et al., 1997, p. 140). Personal initiative is assessed through an interview (behavioural measure) and a questionnaire (personality measure). The personal initiative personality measure (Fay & Frese, 2001) is uni-dimensional and is found to be similar to the proactive personality measured by

Bateman and Crant (1993). Similar to the construct of self-directedness is that both are active constructs used for describing employees' (anticipated) reactions to changes. Both constructs are goal-directed and intentional. Moreover, both require a long-term focus to working life. In contrast to the proactive personality, personal initiative is closer to specific behaviours (Frese & Fay, 2001). However, personal initiative refers to general initiative at work and actively dealing with work problems one encounters in an organizational context. Self-directedness specifically refers to more specific domains of functioning (i.e. learning and career). Generally, personal initiative implies change (Frese & Fay, 2001). Self-directedness implies control and if desirable, affect change. An individual's personal initiative serves pro-company goals while self-directedness not necessarily matches the organizational goals. Personal initiative takes the framework of the organization as the starting point while self-directedness focuses on the individual's perspective. An additional difference is that personal initiative is conceptualized as concrete behaviour while self-directedness encompasses beliefs, attitudes, intentions and behaviour.

A third closely associated construct to self-directedness is *locus of control*. Locus of control refers to the extent to which individuals believe that they can control events affecting them (Hellriegel, Slocum & Woodman, 1989). It is the extent to which individuals believe their circumstances are a function of either their own actions or of external factors beyond their control. It is theorized that an internal locus of control should support self-directedness in learning processes and career processes, whereas an external locus of control should discourage the

exposure of self-directedness (Zimmerman, 2000). Locus- of control is not a domain specific construct and refers to general beliefs about the internality or externality of causality. It is a relatively stable personality trait while self-directedness is not. Self-directedness is an individual's characteristic adaptation to influence specific domains of functioning in working life and it refers to a dynamic interaction between beliefs, attitudes, intentions and behaviour.

A last related construct is *role breadth self-efficacy*. Role breadth self-efficacy is a uni-dimensional construct that captures an employees' perceived capability of carrying out a broader and more proactive set of work tasks that extend beyond prescribed technical requirements (Axtell & Parker, 2003; Parker, 1998). Role breadth self-efficacy derives from general perceived self-efficacy. Similar to self-directedness is that the construct is expected to change as environmental conditions change and that the construct refers to a specific (but subtly other) domain of functioning (Zimmerman, 2000). Moreover, both constructs suggest a sense of control over one's environment. Different then the constructs of self-directedness in learning and career processes is that role breadth self-efficacy assesses an employees' beliefs about their capability of performing a broad range of work tasks (initiative on the job and interpersonal and integrative skills included). Self-directedness as well encompasses beliefs but not exclusively and these beliefs are not related to one's capacity to perform work tasks. Beliefs in the construct of self-directedness in learning processes and self-directedness in career processes are specifically related to learning or career issues. They refer

for example to individuals' self-confidence about their ability to influence their learning and career processes.

In summary, the constructs of self-directedness in learning processes and self-directedness in career processes are conceptually distinctive from closely related constructs such as proactive personality, personal initiative, locus of control and role breadth self-efficacy.

TOWARD A MODEL FOR SELF-DIRECTEDNESS IN LEARNING PROCESSES AND CAREER PROCESSES.

The concept of self-directedness is recognized to be an important component in adult learning and career processes (see Knowles, 1990; Brookfield, 1996; Jackson, 1996). However, a lot of confusion and controversy exist in relation to the concept. In reviewing the literature on self-directed learning, various authors (e.g. Brockett & Hiemstra, 1991; Candy, 1991; Garrison, 1997; Long, 1989; Merriam & Caffarella, 1999) categorized self-directed learning as a *process oriented approach* to learning in which people take the initiative to influence the learning experience and self-direction as a *personal characteristic.* In process oriented conceptualizations towards self-directedness, self-directedness points at instructional processes in which people take the initiative to influence learning/career situations. The individual controls and shapes the learning/career process by taking initiative for goal setting, planning, implementing and evaluating the learning/career process. Conceptualizations in which self-directedness is approached as a personal characteristic of the individual, self-directedness points to an

individual's beliefs and attitudes, intentions and behaviour that predispose one to influence the personal learning/career process (Brockett & Hiemstra, 1991). Self-directed learning is mainly used to describe a process-oriented approach to learning (Long, 1989; Merriam & Caffarella, 1991). Until now, the process descriptions of Tough's (1971) and Knowles (1975) are still the most cited in adult education literature on this subject. Both describe a process of self-directedness which is linear in nature. More recent models are interactive (Stockdale, 2003; Roberson & Merriam, 2005) and reflect a constructivist framework. Authors like Brockett and Hiemstra (1991) and Garrison (1997) integrated both views of self-directedness and conceptualized them as complementary and interrelated.

A comprehensive review of the literature on self-directed learning and career management was conducted in order to develop a conceptual model of self-directedness which is applicable to self-directedness in learning processes and self-directedness in career processes. The model stresses the importance of environmental as well as personal factors for self-directedness. It emphasizes self-directedness as a personal characteristic (i.e. characteristic adaptation) but integrates at the same time the process oriented approach. We first discuss the overall model and subsequently focus on the inner part of the circle.

The model of self-directedness presented in Figure 1 represents self-directedness as a characteristic adaptation. The regulatory mechanisms (inner circle) reflect a coherent set of beliefs, attitudes and intentions and behaviour that predispose one to influence the personal learning/career

process. They serve as a basis for conceiving goals and plans, exercising freedom of strategy choice, executing plans and using rational reflection (outer circle). The self-directed person is able to invoke this cluster of patterns when influencing the learning/career process (Candy, 1991). Personality traits and the social and physical environment (both outside circle) interact with this cluster of patterns, to shape the characteristic adaptation (adapted patterns) which in turn regulates the flow of self-directed behaviour i.e. influencing processes in working life (McCrae & Costa, 2003). The person's actual self-directed behaviour (outer circle) is thus a result of a person's characteristic adaptation (inner circle) towards self-directedness which is in turn is a result of personal traits and the environment (outside circle).

The arrows in the circle indicate that self-directedness is characterized by a dynamic process. The dynamic process reflects an individual's ongoing functioning in creating constant adaptation to the environment which is expressed in self-directed behaviour and regulated by cognitive (beliefs), affective (attitudes), volitional (intentions) and earlier behavioural patterns (see Fishbein & Ajzen, 1975; Ajzen & Fishbein, 2005). Self-directedness as characteristic adaptation is thus a dynamic and interactive network of beliefs, attitudes, intentions and behaviour that allows one to interact meaningfully with the social environment (McCrae & Costa, 2003). Moreover, the self-directed behaviour itself which is expressed encompasses a complex and cyclic process of influencing (i.e. controlling and actively shaping the learning/career process). Unlike Knowles' conceptualization of self-directedness, this process is not linear in nature but cyclic.

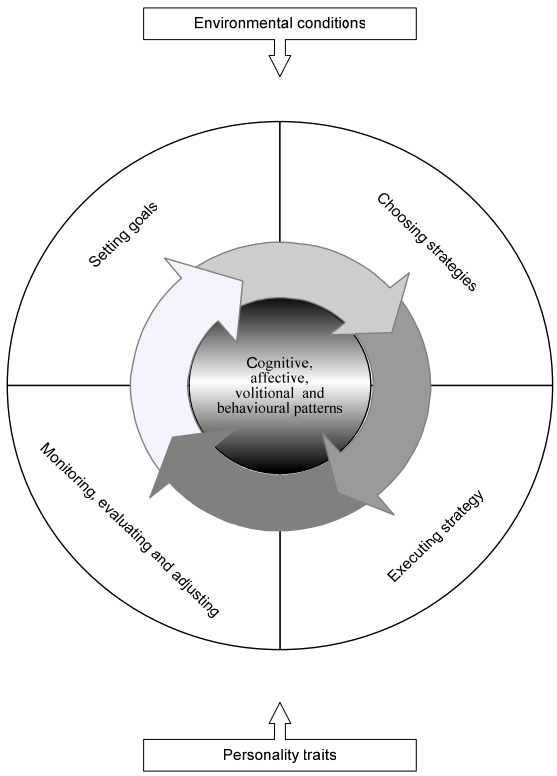

Figure 1. Model of self-directedness

We have focused on the operation of the system as a whole in order to explain how self-directedness as a characteristic adaptation is related to personal traits, the environment and the actual exposure of self-directedness in processes of working life. We focus now on the concept of self-directedness as a coherent network of cognitive (beliefs), affective (attitudes), volitional (intentions) and behavioural patterns.

The network of cognitive, affective, volitional and behavioural patterns which an individual requires to evoke in order to actually influence the learning/career process, relates to beliefs, attitudes, intentions and behaviour which are needed to control and shape the learning or the career in different components of the process. A learning/career process consists of four main components: goal setting, choosing strategies, executing the strategy, and monitoring and evaluation (see de Jong, 1992 ; Frese & Zapf, 1994 ; Knowles, 1975). The person diagnoses his needs. Once a goal is established, a person looks for strategies and human and material resources and, when dealing with dynamic systems, anticipates on future outcomes. The strategy choice leads to a plan which is then executed. During plan execution, appropriated strategies are applied and the action is monitored. In case of complexity and negative emotions, the person sticks to the plan. The person evaluates the outcomes and gathers information which helps him to adjust the process (see Knowles, 1975; Frese et al., 2001). This process is not linear or sequential in nature which means that individuals do not necessarily follow a predefined set of steps (Merriam & Caffarella, 1991) but at least each step will occur in the process. The steps are being constantly redefined during a process of self-direction (visualized with the arrows in the model).

The components of the learning/career process are described on the left-hand side of Table 1. For each component in the process, examples of self-directedness are displayed for self-directedness in learning processes and for self-directedness in career processes.

Table 1

Examples of Self-directedness Categorized According to the Components of the Learning/Career Process

Components	Self-directedness in learning processes	Self-directedness in career processes
Goal setting	Anticipate on future learning needs	Anticipate on changes in the labour market
	Detect knowledge/skill gaps	Detect career opportunities
	Diagnose personal learning needs	Diagnose personal career expectations
	Formulate learning goals	Formulate career goals
Choosing strategy	Collect information about learning opportunities	Collect information about job opportunities
	Select appropriate strategy	Select appropriate strategy
	Develop a learning plan	Develop a career plan
	Identify human and material resources for learning	Identify key persons
Execute strategy	Express learning interests	Express career interests
	Networking to create learning opportunities	Networking and self-presentation
	Ask advice to realize learning plan	Ask advice to realize career plan
	Explore learning market and work environment	Explore labour market and work environment
Monitoring and evaluation	Reflect on the self as a learner	Reflect on strengths, preferences, capacities.
	Prioritise learning	Prioritise career
	Overcome complexity and negative emotions	Overcome complexity and negative emotions
	Evaluate impact of strategy (result)	Evaluate impact of strategy (result)
	Register progress	Evaluate course of career
	Adjust goals, plan, implementation	Adjust goals, plan, implementation

Learning and career processes are goal-oriented and guided by goals. Goals are determined by needs (Frese & Fay, 2001). There is a

translations process from an individual's learning or career needs into learning or career goals. The next component is strategy choice. Possible learning or career opportunities are examined in the work environment or on the market. Information is collected on possible strategies that can be undertaken and the most suitable strategies are scanned to influence the learning or career. The individual develops a learning or career plan which specifies the steps to reach a goal. The third component relates to the execution of the strategy to be followed. The individual takes initiative to actively implement the plan that was set up. The final component in the learning/career process is monitoring and evaluation. The individual develops his or her own checks and evaluation (Frese & Fay, 2001). Through monitoring, the individual evaluates if he or she is on the right track during the course of one's career or if his/her knowledge and skills are still up to date. The individual reflects upon the learning or career progress. In case of complexity or emotional instability, one prioritises the learning or career and continues to make it an important aspect of working life. Evaluation of the (interim)outcomes can lead to the adjustment of goals, plans or the execution.

The four components in the learning/career process will serve as a basis to generate items which reflect an individual's beliefs, attitudes, intentions and behaviour towards each of the components in the learning process/ career process. Scale items reflect an individual's beliefs, attitudes, intentions or behaviour that predispose one to influence goal setting, strategy choice, application of strategies and, monitoring and evaluation. On basis of our conceptual model of self-directedness, we expect the scales to have a four-component structure (because of the four

components which are distinguished in the learning/career process) or a one-component structure (because of the cyclic nature of the process itself).

MEASURING SELF-DIRECTEDNESS IN LEARNING PROCESSES AND CAREER PROCESSES

Rationale to develop instruments for self-directedness in learning processes and career processes

The two most frequently used instruments to assess individuals in terms of self-directedness are the Self-Directed Learning Readiness Scale (SDLRS) (Guglielmino, 1977) and the Continuing Learning Inventory (OCLI) (Oddi, 1984). Both tests have been used extensively in research studies. A major concern about the measures is that their supporters claim them to be context free and culturally unbiased (Candy, 1991). However, both tests appear to measure self-directedness in formal, school- and book oriented learning contexts (Brockett, 1985). As our research group involves low-qualified employees, these schooling-related items might disadvantage the low-qualified employee due to former negative experiences with educational settings in which the employee felt helpless and passive (Knowles, 1990). A learner may be self-directed in informal contexts with emphasis on resources other than books, but paralysed in formal ones (MacKeracher, 2004). How relevant are these scales to adults who have spent little time in school?

A second related problem is that these measures may be inappropriate for assessing self-directedness in working life. These schooling-related

items do not pertain to self-directedness in working life. At the time we started to develop our scales, we were not aware of any instruments to measure work-related self-directedness in learning processes. Moreover, most of the instruments that have been developed are not easily accessible (i.e. free of charge).

Another problem is related to the construct validity of the SDLRS. According to Bonham (1991) the SDLRS rather measures an individual's attitude towards learning in general instead of an attitude towards learning described as self-directed.

Instruments for self-directedness in career processes have been developed for example by Kuijpers (2003) and Lankhuijzen (2002). These instruments are mainly used in research studies which involve higher qualified individuals. We express some concern towards the content and wording of the items when these instruments would be administered to adults of low initial qualification level. Developing our own scales would allow us to construct scales which reflect the conceptual model of self-directedness and to take into account the low-qualified adult group.

Item and scale construction

Two scales were developed to measure someone's beliefs, intentions, attitudes and behaviour to influence goal setting, strategy choice, strategy execution and the monitoring and evaluation of the learning process/career process. On basis of the literature and existing instruments (Ball, 1997; Brockett and Hiemstra (1991); Claes & Ruiz-Quintanilla, 1998; Guglielmino, 1977; Hiemstra (2000); Knowles, 1975;

Kuijpers, 2003; Lankhuijzen, 2002; Oddi, 1984; Stockdale, 2003; Straka, 1999, 2000) a large number of items was generated for each component (see Figure 1 and Table 1) to reflect the conceptual model of self-directedness in learning processes (SDL) and of self-directedness in career processes (SDC). Respondents were asked to rate each item on a 5-point Likert scale varying from 1= total disagreement to 5 = total agreement. Attention was paid to a straightforward wording and to item content that pertains to lower-qualified workers and their working life. Self-directed learning processes were related to both formal and informal learning contexts. That is, training initiated by the worker and learning initiatives which are initiated at the workplace for example by exchange of work experiences between colleagues (e.g.: item 1: I regularly take the initiative to exchange job experience with my colleagues; item 6: I strive for exchange of experiences with people who are very passionate about their job).

A field trial was set up involving 22 employees. The majority of the participants were low-qualified (i.e. employees having no diploma of secondary education). This led to item deletion due to social desirability and item refinement due to word difficulty and item complexity.

Next, as suggested by most authors on test construction (e.g. Nunnally & Bernstein, 1994, Crocker & Algina, 1986), the item pool was reviewed by three educational experts and one expert in the field of human resources management. Following Stockdale (2003) each expert was asked to rate anonymously on a 5-point scale the strength of their agreement (5= strongly agree) or disagreement (1= strongly disagree) as to the representativeness of the items to the model of self-directedness in learning/career processes. The expert opinion statistics are presented in Table 2.

Table 2 *Expert Opinion Statistics*

SDL-items	Mean rating	*SD*	Author-expert component agreement in %	**SDC-items**	Mean rating	*SD*	Author-expert component agreement in %
Item 1	4.00	.82	0	Item 1	5.00	.00	100
Item 2	5.00	.00	100	Item 2	4.75	.50	100
Item 3	4.50	.58	50	Item 3	4.50	.58	50
Item 4	4.00	.82	75	Item 4	4.75	.50	100
Item 5	4.75	.50	75	Item 5	3.75	.50	50
Item 6	3.66	1.15	25	Item 6	4.50	.58	100
Item 7	4.25	.50	0	Item 7	4.75	.50	50
Item 8	4.00	.00	100	Item 8	4.25	.50	50
Item 9	3.75	1.26	75	Item 9	4.75	.50	100
Item 10	4.25	.96	75	Item 10	4.00	.82	75
Item 11	5.00	.00	100	Item 11	4.25	.50	0
Item 12	4.00	.00	100	Item 12	4.75	.50	50
Item 13	4.50	.58	100	Item 13	4.75	.50	75
Item 14	4.75	.50	75	Item 14	4.50	.58	75
Item 15	4.25	.50	75	Item 15	4.50	.58	25
Item 16	3.25	.96	75	Item 16	4.25	.50	25
Item 17	4.25	.96	0	tem 17	4.75	.50	100
Item 18	4.50	.58	50	Item 18	4.00	.00	100
Item 19	4.00	.00	25	Item 19	4.25	.96	100
Item 20	3.25	.96	75	Item 20	4.75	.50	50
Item 21	5.00	.00	75	Item 21	3.75	.50	25
Item 22	3.75	1.50	25	Item 22	4.25	.50	50
Item 23	4.75	.50	100	Item 23	4.25	.50	100
Item 24	4.50	.58	100	Item 24	4.50	.58	100
Item 25	4.25	.96	25	Item 25	4.00	.00	100
Item 26	4.00	.82	0	Item 26	4.50	.58	50
Item 27	4.50	.58	75	Item 27	4.25	.50	100
Item 28	3.50	1.00	25	Item 28	4.25	.50	50
Item 29	3.75	1.26	100	Item 29	4.00	.82	75
Item 30	4.75	.50	75	Item 30	3.66	1.53	0
Item 31	3.75	1.26	100	Item 31	4.50	.58	25
Item 32	4.75	.50	25				
Item 33	5.00	.00	0				
Item 34	4.25	.96	25				

Note: SDL: self-directedness in learning processes; SDC: self-directedness in career processes

The mean item level score and standard deviations ranged from 3.25 (1.50) to 5.00 (.00) for the SDL-item bank and from 3.66 (1.53) to 5.00 (.00) for the SDC-item bank. Three SDL-items (16, 20, 28) yielded mean expert opinion ratings that most closely corresponded to "unsure that the item is representative for the scale". Those items were eliminated as we chose to delete items with a mean rating ≤ 3.50. Most of the item mean ratings pointed to experts' agreement or strong agreement with the representative nature of the item to the model (76,47% of the SDL-items and 90,32% of the SDC-items). 85% of the SDL-items and 97% of the SDC-items received a standard deviation smaller than 1.00. Experts were also asked to decide which component each of the items represented of the SDL-model/SDC-model. In some cases, some experts chose not to rate every item or suggested the item could reflect more than one component. Nine SDL-items (= 26,47%) and twelve SDC-items (= 38,71%) received a rating of 100% agreement between the author-designated component and the experts-designated component. The results of the author-experts component agreement did not lead to any changes in the item pool as the model itself already suggested overlap between the components by it's cyclic character. The general representative nature of the items to the model was our first priority.

Finally, the screening process resulted in an item pool of 31 items for self-directedness in learning processes and 31 items for self-directedness in career processes.

STUDY 1

Purpose

The first and exploratory analysis was carried out to identify the underlying structure of the SDL-items and SDC-items. Data collected from a sample of low-qualified and high-qualified employees were used for scale construction.

Sample

A sample of 940 employees was compiled involving employees from 157 organizations in the private and public sector. Three low-qualified employees and three high-qualified employees were selected at random from each organization. Low-qualified was defined as a person without a secondary education diploma. High-qualified employees obtained at least a diploma of secondary education. The interviewers were university students in Educational Sciences, trained to carry out the data collection. The respondents had a mean age of 38 years (range 18 – 60 years; *SD*= 9.5). 53,2% were female, 46,8% were male (Table 3).

Table 3

Sample Description (N= 940)

Gender in %	
Male	46,8%
Female	53,2%
Age	
M	38,39
SD	9,55
Median	39,00
Minimum	18,00
Maximum	60,00
Years of work experience	
M	17,61
SD	10,29
Median	18,00
Minimum	0,60
Maximum	45,00

Analyses and Results

In order to investigate the underlying structure of the 31 SDL-items and the 31 SDC-items an exploratory principal component analysis was used with oblique rotation since no orthogonality across components was assumed. The analyses were performed using listwise deletion[2].

A first exploratory factor analysis was conducted on the SDL-items. A combination of methods was used to guide the extraction of components.

[2] The analyses were performed on the total sample. Similar high loadings were found when the data was analysed separately for the low-qualified and the high-qualified group. See Appendix A.

Initially, the Kaiser-Guttman rule was employed to extract all components with eigenvalues of 1.00 or larger. Eight components were identified using this method with eigenvalues ranging from 5.58 to 1.01, accounting for 49,67% of the common variance. However, this rule is known for overestimating the number of common factors (Finch & West, 1997; Tacq, 1997). Based on our conceptual model, we hypothesized that a four-component-structure might provide a good representation of an individual's characteristic adaptation to influence learning processes. However, the component structure did not replicate our conceptual model. Some variables showed relatively high loadings on different components and some components could not be interpreted in a meaningful way.

The scree plot was examined for alternative solutions. Results from simulation studies (Cattell & Vogelmann, 1977; Finch & West, 1997; Gorsuch, 1983; Zwick & Velicer, 1986) showed that the scree plot is a better predictor of the actual number of components compared to the Kaiser Guttman rule. The scree plot allowed a three, two and a one component solution. The primordial break was observed between the first and the second component.

The first component in the matrix of the three-component structure yielded items from several components as initially put forward. The second component measured someone's response pattern that could be associated with reverse items or negatively phrased items rather than beliefs, attitudes, intentions or behaviour related to someone's self-directedness in learning processes. The third component could not be interpreted. The three-component structure explained 31,29% of the common variance with eigenvalues of 5.58, 2.38 and 1.74.

The two-component structure explained 25,68% of the total variance and demonstrated an identical pattern. Again, all reverse items were grouped within the same component. It appeared that a one-component model was most representative of employees' responses to the SDL-scale. The SDL-scale was a homogeneous construct instead of a multi-factorial. The one-component model explained 18,00% of the variances in item responses and contained 16 items which had a factor loading ≥ .450. The items derived from the different components as initially put forward. No reverse-scoring items were included (Table 4). The Cronbach alpha of this scale was .82.

Table 4

The Component Loadings of the One-component Solution for the SDL-scale (N= 940, only loadings ≥ .450 are displayed, sorted by size)

		Component I
Item 31	I find learning an important aspect of my working life.	.613
Item 7	I know when it's time to learn new things for my job.	.564
Item 27	I like to undertake learning activities on my own initiative.	.560
Item 17	Last year, I learned a lot of new things for my job on my own initiative.	.545
Item 33	I regularly take the initiative to negotiate with a superior about training courses I want to follow.	.524
Item 15	I talk to others about additional courses or about job experiences that can help me to realize my learning plans.	.518
Item 12	When I learn, I understand more about the world around me.	.510
Item 25	I try to get involved in projects at work because they offer me opportunities to learn.	.490
Item 24	I will never be too old to learn new things for my job.	.489
Item 4	When I want to learn something new that can be useful for my job, I take the initiative.	.488
Item 11	I test myself in order to know whether I've learned something thoroughly.	.484
Item 18	I regularly look for information in order to know more about topics in my field of work that interest me.	.483
Item 30	I never give up when I am learning something difficult.	.482
Item 34	When I want to learn something for my job, I always find the time.	.458
Item 6	I strive for exchange of experiences with people who are passionate about their job.	.458
Item 14	I know which steps I have to take when I want to learn something new.	.450
Item 3		
Item 1		
Item 23		
Item 9		
Item 32		
Item 5		
Item 10		
Item 8°		
Item 29		
Item 2		
Item 22		
Item 13°		
Item 21		
Item 26°		
Item 19°		

Note: °Reverse items

The initial extraction for the SDC-items produced a seven component model, ranging from 6.83 to 1.01 and accounted for 52% of the common variance. The initial extraction solution yielded an illogical component solution. In a four-component structure, the four components that build on our conceptual basis could not be identified due to incoherence in the structure and high levels of cross-loadings. Moreover, the third component in the structure comprised the reverse-scoring items. A scree plot of the eigenvalues identified a clear break in the plot between the first and the second component. A one-component structure was obtained. The uni-dimensional scale measuring self-directedness in career processes, comprised 19 items, explained 22% of the total variance and contained items from the different components in the original construction. Reverse-scoring items were excluded (component loadings <.45, Table 5). The Cronbach alpha of this scale was .87.

Table 5
The Component Loadings of the One-component Solution for the SDC-scale (N=940, only loadings ≥ .450 are displayed, sorted by size)

		Component I
Item 15	I find it important to think about the course of my career.	.677
Item 12	I keep myself informed on new possibilities to develop my career.	.638
Item 13	I regularly express my career interests to people who can be of importance for my career.	.610
Item 2	I find it important to think about what I want to realize in my career during the following years.	.608
Item 8	I find it important to consider if my present position in the department and the organization is the right one.	.608
Item 14	I keep my manager informed on what I want to reach in my career.	.581
Item 16	I know when it's time to take a new step in my career.	.576
Item 24	I always think hard about the steps I have to take in order to reach my career objectives.	.572
Item 27	I find it important to get in touch with people who can be of importance to my career as much as possible.	.555
Item 6	I ask people for advice to improve my opportunities at work.	.525
Item 3	I regularly think about the kind of work I am most suitable for.	.551
Item 19	I find it important to think about what motivates me in my job.	.516
Item 28	When I want to take a new step in my career, I always start from what I want to reach myself.	.509
Item 10	I know what I want to obtain in my career.	.504
Item 5	When I want another job, I know where to find information about work.	.479
Item 29	I find it important to negotiate with my manager about new step in my career.	.474
Item 26	I will definitely try to adjust a next job to my own strengths.	.471
Item 4	I know which steps I have to take when I want a new job.	.464
Item 20	I always keep myself posted about new job opportunities.	.455
Item 7		
Item 11		
Item 9		
Item 31		
Item 1		
Item 17		
Item 21		
Item 22		
Item 23°		
Item 18°		
Item 30°		
Item 25°		

Note: °reverse items

STUDY 2

Purpose

The second study was carried out in order to investigate the stability of the scale structure. The study was also set up to test the construct and convergent validity and to examine the relationship between the SDL-scale and SDC-scale.

Sample

In view of cross validation of the instruments, data was obtained from 408 low-qualified employees of 35 organizations from the energy sector, the chemical and, food and nourishment industry. Per organizations at least 10 employees were selected at random. None of the organizations from the exploratory sample (study 1) were included in this sample. The data was collected by the researcher through interviews with individual employees. The average age of the participants was 38.3 years (range 19-63 years, *SD*= 9.8). A majority of participants were male (65%). Respondents with missing cases for the SDL-items/SDC-items were removed from the sample (*n*= 22).

Table 6

Sample Description (N= 408)

Gender in %	
Male	65,09%
Female	34,91%
Age	
M	38,38
SD	9,69
Median	38,00
Minimum	19,00
Maximum	63,00
Years of work experience	
M	19,81
SD	10,41
Median	20,00
Minimum	0,60
Maximum	44,00

Analyses and Results

A confirmatory factor analysis (CFA) with a one factor structure was used in order to investigate the structure stability of the SDL-scale and SDC-scale.

The CFA confirmed the underlying uni-dimensional structure of the SDL-scale (Figure 2). The results show an adequate fit between the hypothesized model and the observed data (χ^2= 212.8, *df*= 104, χ^2/df= 2.05, p<.001). The goodness of fit estimates were CFI= .90, GFI=.93 and AGFI= .90. The RMSEA of .052 with a 90% interval of .042 and .062, indicates that the one-factor solution represents an acceptable

approximation. Inspection of the modification indices (MI) suggested high error covariances with the pairing of item 33 and item 15, 25, 18 and, item 15 and item 25. These two items were problematic[3]. As a consequence, the model was respecified with item 33 and 15 deleted. This reduced the item set from 16 to 14 and improved the model fit considerably (χ^2= 125.8, *df*= 77, χ^2/df= 1.63, p<.001). The goodness of fit estimates were CFI= .95, GFI=.95 and AGFI= .94 and the RMSEA was .041 (with a 90% interval of .027 and .053). The Cronbach alpha of the SDL-scale for the second sample was .81.

[3] Evidence of large MI values with the error terms of item 33 and item 15 was as well found in a CFA performed with the sample in study 1 (total sample, and low-qualified and high-qualified sample separately). We found evidence in this to conclude that these measurement error covariances represent systematic, rather than random, measurement error in item responses.

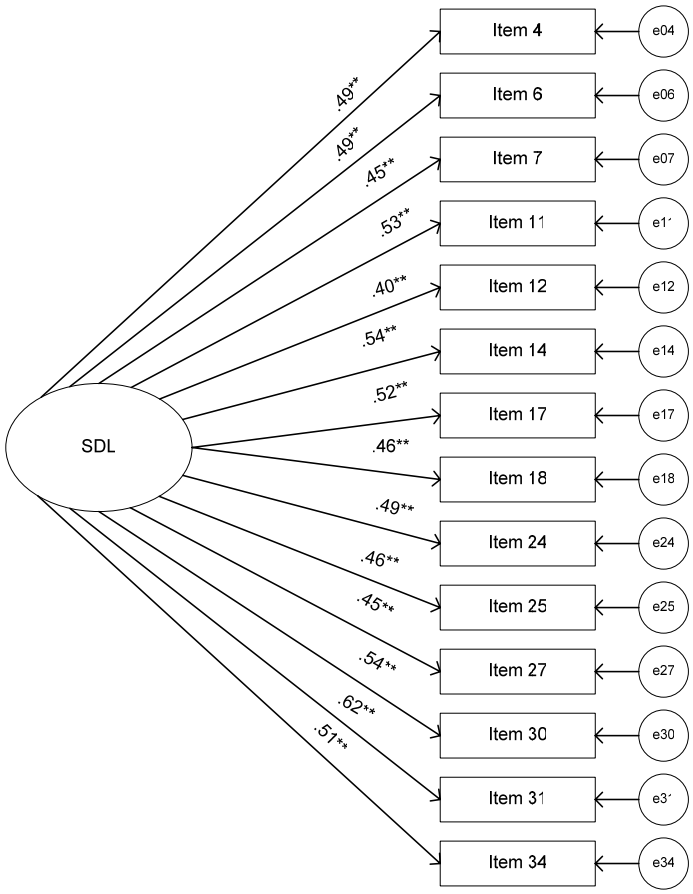

Figure 2. Results of the confirmatory factor analysis: factor loadings of the one-factor model for the SDL-items (N= 408) ** p<.001

For the SDC-scale, CFA indicated an unsatisfactory model fit (χ^2= 748.11, df= 152, χ^2/df= 4.92, p<.001). Fit indices were below .90 (CFI= .80, GFI= .82, AGFI= .78) while the RMSEA was .101 with a 90% interval of .094 and .108. Item factor loadings were adequate but too many correlated measurement errors (residuals) were observed due to item content overlap. Nevertheless, the scree plot which was carried out to check the structure of the scale clearly indicated a single dominant

latent factor. As a conclusion, psychometric refinement of the scale was needed with regard to the number of items. The SDC-instrument was refined through systematic item deletion on basis of the MI. Correlated residuals between item 4 and item 5, item 12 and item 20, item 13 and item 14, item 16 and item 24 and item 26 and item 28 were detected. Goodness-of-fit indices were examined at each step in the process. This reduced the item set from 19 to14. This change resulted in a significant improvement of the model fit (χ^2= 207.1, *df*=77, χ^2/df= 2.69, p<.001). Fit indices were ≥ .90 (CFI= .93, GFI= .93, AGFI= .90). The value of RMSEA was .066 with a 90% interval of .055 and .077 indicating an acceptable fit (Figure 3). The internal consistency of the SDC-scale in the low-qualified sample was .88.

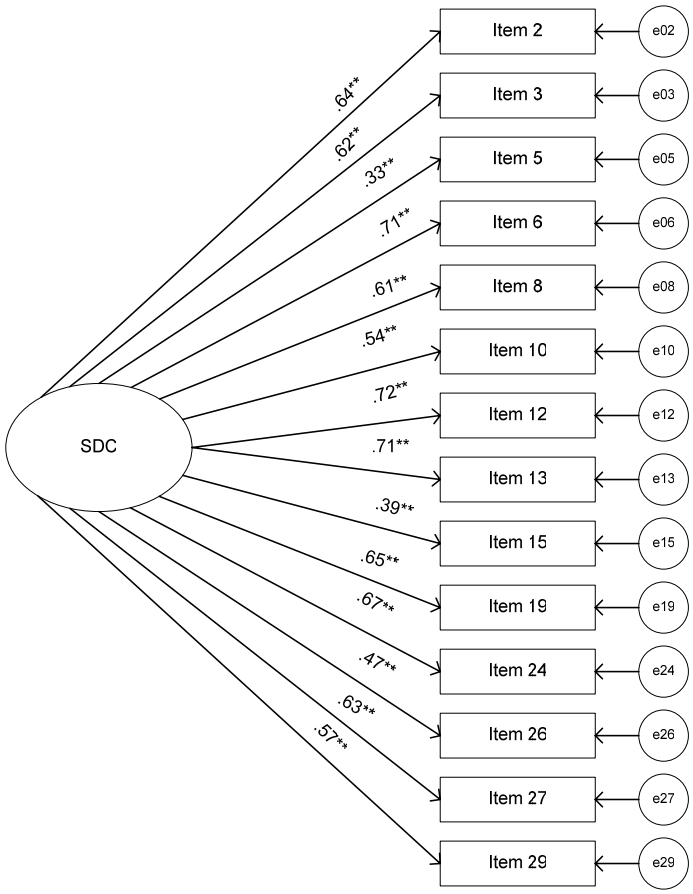

Figure 3. Results of the confirmatory factor analysis: factor loadings of the one-factor model for the SDC-items (N= 408) ** p<.001

This second study was as well set up in order (1) to examine the relationship between the SDL-scale and SDC-scale and (2) to examine the relationship of the SDL-scale and the SDC-scale with the Proactive Personality Scale - short version (Bateman & Grant, 1993). Next, the relationship between the scores on the SDL-scale and the SDC-scale and ratings by *supervisors* on the self-directedness of their employees who have completed the scales and *interview* ratings were examined (3).

(1) Relationship between SDL and SDC

The relationship between the scale for self-directedness in learning processes and the scale for self-directedness in career processes was examined through a CFA (Figure 4). The results show a good fit: χ^2= 663.6 (*df*=349, χ^2/df= 1.90, p<.001), CFI= .90, GFI= .89, AGFI= .87, and RMSEA= .048 (with a 90% interval of .043 and .054).

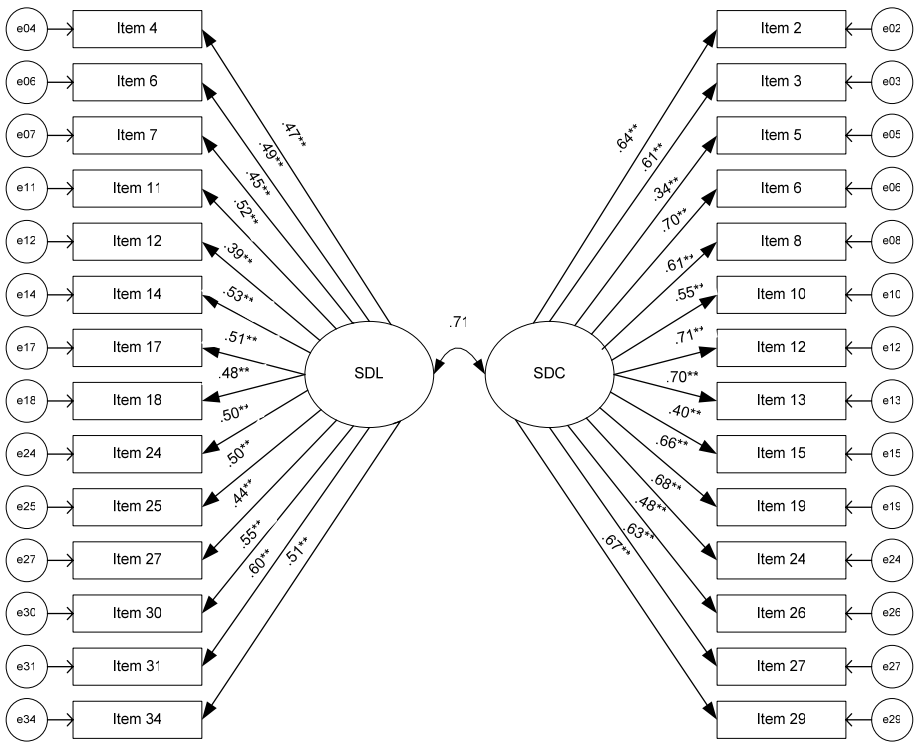

Figure 4. Results of the confirmatory factor analysis: factor loadings of the one-factor SDL-scale and SDC-scale (*N*= 408) ** *p*<.001

Results indicated a strong positive correlation between the SDL-scale and the SDC-scale (r=.71). Therefore a one-(SDL-SDC)factor CFA was carried out. A test of this model revealed poor model fit results (χ^2= 942.9, *df*=350, p<.001, χ^2/df= 2.69, CFI= .81, GFI= .82, AGFI= .79, and RMSEA= .066). These results give support to the assumption that it is useful to distinguish between self-directedness in learning processes and self-directedness in career processes.

(2) Discriminant validity: The Relationship of the SDL-scale and the SDC-scale with the Proactive Personality Scale.

The proactive personality scale measures a personal disposition toward proactive behaviour.

In this study proactive personality is measured using the short version of the Proactive Personality Scale (sPPS – 10 items) as used in a study by Seibert, Kraimer, and Crant (1999). The Dutch version of the scale was developed and validated by Pringels and Claes (2001).

In view of using the Bateman and Crant's Proactive Personality Scale to determine the discriminant validity of our instruments, the factor structure of the instrument had to be confirmed. Table 7 presents fit indices for the sPPS-scale.

Table 7

Fit Indices of the One-factor Solution for the sPPS (N=408)

Model	χ^2	*df*	χ^2/df	CFI	GFI	AGFI	RMSEA
sPPS one factor	45.2*	14	3.23	.93	.97	.93	.076

Note: sPPS: short version - Proactive Personality Scale; CFI: comparative fit index; GFI: goodness-of-fit index; AGFI: adjusted goodness-of-fit index; RMSEA: root mean square of approximation.

* $p<.001$

The results in Table 7 indicate that the one-factor structure of the sPPS could be reproduced. One item was excluded from the analyses due to non normality and two other items were deleted one at a time building on modification indices that point at strong correlations with other items in the scale. These items were redundant. The measurement model for the sPPS fitted well since the value of the RMSEA was below .08 and fit indices were above .90. The Cronbach's alpha of the sPPS was .74.

Given the fit results, the discriminant validity of the SDL-scale and the SDC-scale was investigated through examining Pearson correlations with the Proactive Personality Scale. The empirical correlations were .49 ($p<.001$, N=408) between the SDL-scale and the sPPS-scale and .45 ($p<.001$, N= 408) between the SDC-scale and the sPPS-scale. As hypothesized, these results suggest that 'proactive personality' correlates moderately with both self-directedness in learning processes and self-directedness in career processes. Additionally, an exploratory three-component analysis with oblique rotation revealed three components: SDC, SDL and sPPS. All of the items loaded on their designated

component. As seen in Appendix B, the SDC-items loaded on component 1, the SDL-items on component 2 and the sPPS-items on component 3.

(3) Convergent validity: The Relationship of the SDL-scale and the SDC-scale with supervisor ratings and interview ratings.

Participants were rated by their supervisors as to their degree of self-directedness in learning and career processes. Two scores were given on a five-point Likert scale. As documented in Table 8, significant positive relationships can be observed between supervisor ratings and self-reports of self-directedness based on the SDL-scores and the SDC-scores but correlations were relatively low.

Table 8

Correlations between SDL-scores, SDC-scores and Supervisor Ratings and Interview Ratings

		Supervisor rating	Interview rating
SDL-score	Pearson Correlations	.256**	.688**
	Sig. (2-tailed)	.000	.000
	N	391	165
SDC-score	Pearson Correlations	.243**	.757**
	Sig. (2-tailed)	.000	.000
	N	400	166

** significant at the .01 level

A part of the research group was also rated by the interviewer on basis of their answers to open questions. Based on the conceptual model of self-

directedness in learning processes and career processes, the interviewer gave two scores on a five-point Likert scale. This was a general impression given by the interviewer after the interview. Results in Table 8 show strong positive correlations between interview ratings and self-reports of self-directedness based on the SDL-scores and the SDC-scores.

Therefore, convergent validity between supervisor ratings and scores from the SDL-scale and SDC-scale, and between interview ratings and scores from the SDL-scale and SDC-scale was established although relationship between the interview ratings and scores from the SDL-scale and SDC-scale were much stronger.

STUDY 3

Purpose

In a third study, the final 14-item SDL-scale and the 14-item SDC-scale were cross validated building on the data from the first, exploratory study. The analysis was performed to test the invariance of the scales across a low-qualified sample and a high qualified sample.

Sample

The low-qualified and the high-qualified employees separately from the sample used in the first exploratory study were selected (see Table 9). The low-qualified sample consisted of 476 participants. Mean age was 40 years (range 18 – 60 years; *SD*=9.1). 46,9% were male and 53,1% were female. The high-qualified sample counted 464 participants. The mean age in this sample was 36 years (range 19-58 years; *SD*= 9.6). 46,5% were male, 53,5% female.

Table 9
Sample Description

	Low-qualified	High-qualified
Gender in %		
Male	46,9%	46,5%
Female	53,1%	53,5%
Age		
M	40,16	36,54
SD	9,15	9,60
Median	41,00	36,00
Minimum	18,00	19,00
Maximum	60,00	58,00
Years of work experience		
M	20,50	14,57
SD	10,33	9,32
Median	20,00	14,00
Minimum	0,60	0,60
Maximum	45,00	42,00

Analyses and Results

A multiple group factor analysis was carried out on the final SDL-scale and the SDC-scale. Both scales were primarily constructed in view of use by low-qualified employees but can also be used with other samples e.g. high-qualified groups. A multiple group factor analysis can compare model fit in both samples. A valid instrument implies that the one-factor model is applicable to both samples.

The results of the hypothesized models are reported in Table 10.

Table 10

Fit Indices of the One-factor Solution for low-qualified (n=476) and high-qualified employees (n= 464) - Multiple group model

Model	χ^2	*df*	χ^2/df	$\Delta\chi^2$	Δdf	CFI	GFI	AGFI	RMSEA
SDL one factor (initial model)									
	403.3*	154	2.62	-	-	.88	.94	.92	.042
SDL one factor (constrained model)									
	418.7*	167	2.51	15.39	13	.87	.94	.92	.041
SDC one factor (initial model)									
	430.6*	154	2.79	-	-	.90	.93	.91	.044
SDC one factor (constrained model)									
	449.2*	167	2.69	18.60	13	.90	.94	.92	.043

Note: SDL: self-directedness in learning processes; SDC: self-directedness in career processes; $\Delta\chi^2$: difference in χ^2 values between models; Δdf: difference in number of degrees of freedom between models; CFI: comparative fit index; GFI: goodness-of-fit index; AGFI: adjusted goodness-of-fit index; RMSEA: root mean square of approximation.

*$p<.001$

The RMSEA value of .046 indicated that the one-factor model of the SDL-scale is applicable for the two samples of employees. The χ^2 value

for low- and high-qualified employees was 403.314 with 154 degrees of freedom and fit indices were acceptable.

Having established the good fit of this model, the invariance of parameters across groups was tested by placing equality constraints. Constraints were specified in AMOS through a labelling mechanism whereby each parameter to be held equal across groups was given a label (Byrne, 2001). In testing for the invariance of this constrained model, its χ^2 value of 418.702 (*df*= 167) was compared with that for the initial model in which no equality constraints were imposed. This comparison yielded a χ^2 difference value of 15.388 with 13 degrees of freedom, which was not statistically significant (*p*= .284). The invariance of the SDL one-factor model was thus established across low-qualified and high-qualified employees.

The one-factor structure was also reproduced in a multiple CFA for the SDC-scale. An adequate fit was observed between the hypothesized model and the observed data (χ^2= 430.675, *df*= 154). The RMSEA of .044 and fit indices above .90 indicated that the one factor solution represents an acceptable approximation.

Next, a test of invariance was conducted and yielded a χ^2 value of 449.273 with 167 degrees of freedom. Comparison with the initial model yielded a χ^2 difference value of 18.598 with 13 degrees of freedom which was not statistically significant (*p*= .136). As a consequence, invariance of the SDC one-factor model across low-qualified and high-qualified employees was established.

The SDL and SDC-scale proved to be valid instruments for measuring self-directedness in learning and career processes in different samples of employees.

DISCUSSION AND CONCLUSIONS

The purpose of this study was to develop an instrument based on a theoretical framework specific for self-directedness in learning processes and for self-directedness in career processes and focused on it's applicability to the context of low-qualified employees. Second, we wanted to examine reliability and validity of these instruments. After an initial item reduction, a fourteen-item SDL-scale and SDC-scale was identified both measuring one factor. Further investigation of the suggested structure on independent employee samples confirmed the structure stability of the one-component-model. This uni-dimensional structure did not respond to our initial theoretical base although a homogeneous construct was suggested because of the dynamic nature of the process of self-directedness. Self-directedness is a construct with interrelated parts. It is a dynamic, interactive and regulatory network of beliefs, attitudes, intentions and behaviour which reflects an individual's ongoing function in creating constant adaptation to the environment and is expressed in behaviour towards goal setting, planning, implementation and evaluation of the learning/career process. In reality, these different components can hardly be distinguished. Further empirical evidence is needed to fully confirm the uni-dimensional nature of adult beliefs, attitudes, intentions and behaviour towards self-directedness in learning processes and self-directedness in career processes. For future studies, Crocker and Algina (1986); Nunnally and Bernstein (1994) advice to repeat several steps of the instrument development process.

In the development of scales which are primarily meant for low-qualified adults, it is advisable not to construct reverse-scoring items although this strategy is often advised in the development of Likert scales. In previous studies using Guglielmino's self-directed learning readiness scale problems were detected as well during administration (Sisco as cited in Brockett, 1985) or when interpreting component structures (Field, 1989). In our study problems occurred when interpreting the component structures.

The SDL-scale and SDC-scale have proven to be reliable and valid. Analysis of *discriminant* validity confirmed the positive and moderate relation between proactive personality and self-directedness in learning and career processes. Analysis of *convergent* validity indicated positive significant correlation between self-reports of self-directedness based on the SDL-scores and the SDC-scores and supervisor-ratings. However, the value of Pearson correlation coefficient - although positive- was not very high. This can be explained by (1) possible participants' systematic overestimation of themselves or (2) possible supervisors' systematic underestimation of their low-qualified employees (e.g. supervisors who punish active approaches). The results correspond with findings from four other studies conducted in a higher education setting (Barnes & Morris, 2000; Long & Agyekum, 1983; Long & Agyekum, 1984; Stockdale, 2003). In these studies the relationship evaluated between the instrument developed and professor ratings even failed to detect any significant relationships. However, Crook (as cited in Stockdale, 2003) found that peers were able to predict (in limited situations) self-directedness. Therefore, an interesting avenue for future validation

studies would be to obtain a sample of colleague ratings. Parallel to peer students, it is expected that colleagues possess more intimate knowledge as to the self-directed activities of their colleagues and they would be a better source for an independent rating (Stockdale, 2003). Anyway, positive findings in this study between the degree of an employee's self-reported self-directedness in learning and career processes and an independent rating of this same self-direction in learning and career processes by the interviewer indicates promising outcomes to establish convergent validity in future research.

A critical issue in instrument development is the chance to invoke social desirability in certain responses due to e.g. the wording of the scale items. This can be a source of measurement error. As Stockdale (2003) suggested, adding a fake-good scale would allow to check this source of measurement errors.

Results show that the concepts of self-directedness in learning processes and self-directedness in career processes are interrelated (r= .71). However, 50% of the variance was not explained by the interaction between the SDL-scale and the SDC-scale. Conceptually and empirically, self-directedness is a domain-specific construct. The results of additional factor analyses give support to the assumption that it is useful to distinguish between self-directedness in learning processes and self-directedness in career processes. One line of research that may be fruitful is to further explore the domain-specific nature of self-directedness and to examine other forms of self-directedness in working life. In this study a first attempt is made to study concepts which have-

until now- been studied into separate research fields (in adult education and organizational psychology) while in working life both forms of self-directedness coexist and are both essential to cope for oneself on the labour market. Therefore, self-directedness in learning processes and self-directedness in career processes should be studied in interrelationship.

Our purpose has been to increase the conceptual clarity in the field of self-directedness by presenting an integrative model that describes how self-directedness as a characteristic adaptation develops. The approach of differentiating between characteristic adaptation, actual behaviour, the environment and personality traits should be useful for future research. Moreover, the model was an attempt to integrate the process-oriented approach and personal characteristic approach to self-directedness. Both conceptualizations were distinguished by various authors. On basis of this conceptual model, the SDL and SDC-scales were constructed. In the development of both scales, further research should ascertain whether a person's perception of high *self-efficacy* (perceived proficiency) for self-directedness may be relevant. It is suggested that this construct might be of importance for self-directedness. This was not explicitly examined in our study. In further exploring the concept of 'self-efficacy', Garrison (1997) advises to explore the literature on self-regulated learning while referring to the work of Bandura (1977) and Zimmerman (1989). Especially in understanding how low-qualified employees perceive and engage in self-directed learning and career processes, the concept of 'self-efficacy' might be valuable and therefore deserves more attention.

The model of self-directedness in learning and career processes operates within an individual's social environment. An investigation of the influences of this social environment may be fruitful and bring further insight into the interaction between individual and contextual factors in the process of self-directing (Stockdale, 2003).

In conclusion, we consider it to be a contribution to the field that both instruments have been developed with low-qualified workers in mind. During scale development care was taken that scale items were relevant for low-qualified employees. In the SDL-scale attention was paid to self-direction in informal learning contexts and the SDL-instrument was consistent with a collaborative constructivist view of learning. Both scales prove to be valid and contribute to the conceptualizations of self-directedness in learning/career processes. One of the strengths in the validation process is that the stability of the factor structure has been tested involving different samples (low and high-qualified employee samples). The instruments were only used in Dutch-speaking context (Flemish region of Belgium). Further research must examine whether the factor structure holds well across international contexts.

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Appendix A

The Component Loadings of the One-component Solution for the SDL-scale and the SDC-scale for the Low-qualified (n= 476) and High-qualified sample (n= 464, only loadings ≥ .400 are displayed)

SDL-scale	LQ-sample	HQ-sample	**SDC-scale**	LQ-sample	HQ--sample
Item 31	.642	.540	Item 15	.651	.715
Item 27	.538	.574	Item 12	.649	.617
Item 7	.590	.504	Item 13	.622	.582
Item 17	.562	.489	Item 2	.616	.594
Item 33	.575	.434	Item 8	.590	.630
Item 12	.540	.477	Item 14	.605	.540
Item 15	.527	.494	Item 16	.591	.575
Item 24	.530	.414	Item 24	.574	.571
Item 25	.483	.471	Item 27	.603	.494
Item 18	.442	.517	Item 6	.570	.528
Item 30	.529	.417	Item 3	.527	.519
Item 4	.482	.519	Item 19	.541	.481
Item 11	.492	.509	Item 28	.494	.536
Item 34	.514	.400	Item 10	.522	.486
Item 6	.466	.439	Item 5	.420	.557
Item 14	.449	.479	Item 29	.473	.482
			Item 26	.514	.407
			Item 4	.426	.526
			Item 20	.480	.409
Eigenvalue	5.77	5.47	Eigenvalue	6.99	6.80
Percentage of variance	18.61	17.65	Percentage of variance	22.54	21.94

Note: LQ: Low-qualified, HQ: High-qualified

Appendix B

The Component Loadings of the Three-component Solution including the SDC-scale, SDL-scale and sPPS-scale (N=408, sorted by size)

	Component I	Component II	Component III
SDC item 12	.771		
SDC item 15	.755		
SDC item 6	.753		
SDC item 13	.729		
SDC item 2	.716		
SDC item 29	.678		
SDC item 24	.668		
SDC item 27	.667		
SDC item 3	.659		
SDC item 19	.655		
SDC item 8	.654		
SDC item 10	.541		
SDC item 26	.467		
SDC item 5	.333		
SDL item 31		.653	
SDL item 30		.595	
SDL item 14		.594	
SDL item 11		.592	
SDL item 4		.585	
SDL item 34		.554	
SDL item 17		.551	
SDL item 24		.538	
SDL item 6		.518	
SDL item 7		.487	
SDL item 18		.469	
SDL item 27		.433	
SDL item 12		.415	
SDL item 25		.410	
sPPS item 2			-.727
sPPS item 10			-.667
sPPS item 9			-.652
sPPS item 8			-.629
sPPS item 3			-.573
sPPS item 1			-.559
sPPS item 4			-.455
Eigenvalues	9.30	2.46	1.84
Percentage of variance	26,57	33,58	38,84

Note: The scree plot clearly identified three components.

Chapter 3

Self-directedness in learning and career processes. A study among low and higher qualified employees. [4]

Abstract

In a knowledge economy self-directedness in learning and career processes is becoming increasingly a key competence to keep up with continuous changes in work and career. This competence guarantees and strengthens the employability of workers. However, self-directedness in learning and career processes is a rather elitist idea. HRD-research focusing on self-directedness has focused until now mainly on higher-qualified workers and managers. In the present study the concept is studied in both employees with low and higher qualification. A survey was set up involving 940 employees from 157 different organizations in the private and public sector. First, the relationship between self-directedness in learning processes and self-directedness in career processes was explored. Second, self-directedness in learning and career processes was compared of both low and higher qualified employees. Third, the influence of organizational and individual conditions as predictors of self-directedness in learning and career processes was studied, in order to explain differences and to develop a preliminary theoretical model.

INTRODUCTION

During the last decade the economical context of organizations, has remarkably changed (Buyens, Van Schelstraete, De Vos & Vandenbossche, 2000). The emergence of our knowledge economy influenced the types of labour, changed the predictability of careers and redefined the relationship between the worker and the organization (Keursten, 1998). The newly defined relationship is characterized by mutual attraction. Workers are not employees that are dependent on employers but rather entrepreneurs regarding their own talents. This

[4] Based on: Raemdonck, I., Thijssen, J., & Valcke, M. (2005). Self-directedness in learning and career processes. *Lifelong Learning in Europe*, *10* (2), 76-81.

ownership of one's own career and learning is accompanied by a higher degree of self-responsibility (Keursten). As a result, the need for self-directedness in learning processes and career processes is not only paramount from a theoretical, but also from a practical perspective.

However, self-directedness in learning and career processes seems to be a rather elitist idea. Available research mainly focuses on highly qualified workers and highly ranked managers (Claes & Ruiz-Quintanilla, 1998; Forrier & Sels, 2005; Long & Morris, 1995; Raemdonck, 2003). There is lack of research focusing on lower qualified workers. This is critical since especially this group is affected by the changes related to the knowledge economy (Fruytier & Klomps, 2000). Until now, there are limited results which report upon the extent in which low-qualified workers are self-directing their learning and career processes nor is it clear whether significant differences can be found or not between low- and high-qualified employees as to level of self-directedness. Moreover, quantitative research hardly paid attention towards the environmental factors that contribute to differences in self-directedness. Traditional approaches ignore the influence of the work context and do not recognize the interrelationship between the individual and contextual forces (Baskett, Dixon & Chuchmuch, 1994). This research tradition underestimated the idea that self-directedness can be supported by implementing certain organizational conditions. It is in the background of these shortcomings, that the present study was set up.

The study of the impact of influencing factors of self-direction in learning and career processes is challenging because of the high number of intervening variables. Many variables should be taken into account

even though it is impossible to allow for all of these variables. A review of the literature reveals that most of the workplace studies dealing with self-directedness focus on various characteristics of individuals including gender, age, qualification level and occupation (Guglielmino, Klatt & Guglielmino, 1995). Based on the results of several studies, mostly conducted inside North America and measured using Guglielmino's Self-directed Learning Readiness Scale (SDLRS), the effects of different individual factors on self-directedness in learning can be described: *Qualification level* tends to correlate positively with self-directedness in learning (Guglielmino & Roberts, 1992; Guglielmino, 1996) when participants are drawn from the workplace, non-formal educational settings, older adults or graduate school (Stockdale, 2003). However Durr, Guglielmino and Guglielmino (1996) found no significant differences in level of educational attainment in their study conducted among 600 employees. Studies examining the differences between *age* and self-directedness in learning show either significant positive relationship between increased age and SDLRS-scores or no significant differences (Stockdale, 2003). *Years of work experience* was found not to be a significant factor predicting self-direction in learning processes in a study among graduate students (Adenuga, 1991). It is not clear whether the same conclusion holds for workplace contexts. No *gender* differences have been found in most of the studies for self-direction in learning processes using Guglielmino's self-directed learning readiness scale. At last, a significant effect was found of the variable mobility aspiration. Employees who pursue the same career position over time are more self-directed in their learning processes

(Kuijpers, 2003) compared to employees who pursue mobility (vertical or horizontal) for their future career.

Effect studies of individual conditions on self-directedness in career processes show that self-directedness in career processes generally decreases with *age* (Kuijpers, 2003; Nabi, 2000) and increases with the *qualification level* (Lankhuijzen, 2002). In some of the studies *gender* was found a significant factor indicating that women tend to be better entrepreneurs of their own career development than men (MacDermid, Buck & Williams, 2001; Phillips & Imhoff, 1997). However, no gender differences were found in a study performed by Kuijpers (2003) on most of the career factors which were distinguished. By contrast, Kuijpers (2003) found *pursuit of personal skill development* and *mobility aspiration* important predictors for career factors. Employees who pursue development in their career and employees who pursue vertical mobility were more likely to self-direct their career processes.

Empirical evidence regarding the organizational determinants of self-directedness is limited until now. Most of the contributions remain in the realm of reflection and opinion (Foucher, 1995). Studies which have been set up in the field of self-directedness in learning processes, are mostly qualitative in nature involving experts in Human Resources. Baskett and Dixon (1992) and Baskett (1993) for example identified five work related contextual factors. These are: having freedom, control and choice; external challenges and pressures; being excited and stimulated; awareness of self and others; and learning with and from others. Foucher (1995) developed thirty-two propositions which were similar to conditions set out by Baskett and Dixon such as a supportive

environment in which employees enjoy autonomy, support for unplanned, non-sequential learning activities, receptivity to feedback and complexity and variety of the tasks performed. Based on the results from training-related surveys, Foucher mentioned as well the size of the organization and the economic sector it belongs to as two variables which impel particular attention. Confessore and Confessore (1993) and Confessore and Bonner (1996 as cited in Confessore and Kops, 1998) found on their turn a clear relationship between the actual number of self-directed learning processes undertaken and the employee's perception of the learning opportunities in the work environment.

There is also little known about organizational predictors of self-directedness in career processes (Nabi, 2000). In outlining a model for career motivation which was broadly defined as "a set of individual characteristics and associated career decisions and behaviours that reflect the person's career identity, insight into factors affecting his or her career, and resilience in the face of unfavourable career conditions", London (1983, p.620) distinguished three contextual work related domains which were relevant to the concept of career motivation. A first domain was 'the extent to which work attributes contribute to one's self-image' and included variables like job challenge, encouragement of professionalism and advancement opportunities. A second domain was the 'organizational support for career development' such as feedback processes and opportunity for change. The third work-related domain was named as the 'organizational strength and support' and was associated with encouragement of autonomy, support for learning, opportunity for risk taking and supervisor's control. Kohn and Schooler (1982), and Schooler and Mulatu (2004) conceptualized the construct

differently and considered ‘the complexity of the work’, ‘the closeness of supervision’ and ‘the degree of routinization’ as three job conditions that facilitate or inhibit the exercise of occupational self-direction. Based on data of a quantitative research among 1591 employees Kuijpers (2003) found that the *dynamics of the work environment* explained differences in level of career self-directedness among employees. Employees situated in a work environment with frequent changes in work tasks were more likely to self-direct their own career processes. Kuijpers (2003) and Nabi (2000) found as well indications that *career development support at work* (e.g. by providing learning opportunities, possibilities for networking) was significantly related to ‘career-enhancing strategies’. It seemed that employees who experience more support in their work to develop their career were more actively self-directing their career processes.

The aim of this study now is to extend findings of previous studies and to consider some unexplored relationships.

RESEARCH QUESTIONS

(1) Are self-directed learning processes and self-directed career processes from employees interrelated?

(2) Is there a difference in level of self-directedness in learning processes and in level of self-directedness in career processes between low-qualified and high qualified employees?

(3) What are the strongest organizational and individual predictors of self-directedness in learning processes and career processes?

METHOD

Determining the level of self-directedness.

To study self-directedness in learning processes and career processes, two scales have been developed to measure someone's characteristic adaptation to influence learning processes/career processes. The scales were developed on basis of literature (Ball, 1997; Brockett & Hiemstra, 1991; Claes & Ruiz-Quintanilla, 1998; Guglielmino 1977; Hiemstra, 2000; Knowles, 1975; Kuijpers, 2003; Lankhuijzen, 2002; Oddi, 1984; Stockdale, 2003) and existing instruments (Claes & Ruiz-Quintanilla, 1998; Guglielmino, 1977; Kuijpers, 2003; Lankhuijzen, 2002; Oddi, 1984; Stockdale, 2003; Straka, 1999; Straka, 2000). Attention was paid to the straightforward formulation of items and to include situations applicable to lower qualified workers. The scale for self-directedness in learning processes comprises 14 items (α= .76) and the scale for self-directedness towards career processes consists as well of 14 items (α= .79). Both scales reflect a uni-dimensional structure and a good reliability. Participants were asked on a 5-point scale (ranging from 1= strongly disagree to 5= strongly agree) to what extent each statement was applicable to them.

Identification of organizational and individual factors.

To identify factors that influence self-directedness, a variety of organizational conditions (indirect and direct organizational characteristics) have been operationalised on basis of a literature study. This study helped to determine the indirect organizational characteristics, such as *sector* (private and public) and *size* of the organization and the direct organizational characteristics such as job characteristics. To measure job characteristics, items were selected from the 'Job Diagnostic Survey' developed by Hackman and Oldham (1975). The sub-selection examines the extent to which the following characteristics have an influence on self-directedness in learning and career processes: *task variety* (degree to which the job requires a variety of different activities, or entails a number of different skills and talents), *autonomy* (degree to which the job provides substantial freedom and judgment of the employee in scheduling work and determining the procedures to be used), *feedback from others* (degree to which the employee receives clear information about his/her performance from his/her supervisor or co-workers), *task identity* (degree to which the job requires completion of a "whole" and identifiable piece of work) and *dealing with others* (degree to which the job requires the employee to work closely with other people). Extra items were added by the researchers, focusing on *opportunities to learn.* This dimension was defined as 'the degree to which the job provides opportunities to learn' (Kessels & Keursten, 2002).

Respondents were asked on a 7-point scale to reflect on the extent to which a statement was applicable to their job. The dimensions

'autonomy' and 'dealing with others' were excluded from the analyses because of a low reliability at the level of these dimensions (<.70).

Individual conditions indicate that, despite the potential impact of the context, it is still up to the employee to decide whether he/she wants to self-direct the learning process and the career process. Items again were selected from the 'Job Diagnostic Survey' by Hackman and Oldham (1975) to determine two dimensions: *pursuit of knowledge work* (degree to which the employee would like to have a job that is stimulating and challenging and gives opportunities for personal development) and *pursuit of a better remuneration* (degree to which the employee pursues a high salary and extra benefits). Two extra dimensions were added to the list of items: '*past career success*' (the extent to which the respondent looks back on his/her career as being a success) and '*mobility aspiration'* (preferred position to which one's ambition is directed). There were four possible answers for preferred position: 'higher level position', 'different job but same level', 'same job but task extension' and 'no job change'. Finally, items checking background variables were added to the instrument: '*age*', *'gender',* '*years of work experience'* and '*initial educational qualification level*'.

Sample and Procedure

A survey was conducted involving employees from 157 organizations in Flanders from the private and public sector. In each organization six employees were selected at random. Three lower-qualified and three higher-qualified employees were interviewed. 'Low-qualified' was

defined as a person without a diploma of initial secondary education. In total, 464 high-qualified employees and 476 low-qualified employees participated in this study.

Data-collection was carried out by university students in Educational Sciences, who received an extensive training and were expected to follow a detailed interview protocol. The interviews were set up with individual employees. Table 1 describes the sample:

Respondents were equally distributed as to qualification level, gender and sector. There were more participants employed in organizations of the category ’20 to 99 employees’. The respondents’ average age was about 38 years and the average number of work experience was 17 years and 6 months. Mean age and years of work experience of the low-qualified group was on average higher than the mean age and years of work experience of the higher-qualified group. In general, employees register high levels of self-directed in learning processes and career processes.

Respondents needed to have at least six months of work experience in order to be selected. Employees who didn’t receive their formal education in Belgium, were seen as low-qualified when they didn’t have more than ten years of formal education in their country of origin.

Table 1: *Sample Description*

	Total	Low-qualified	High-qualified
N	940	476	464
Sector in %			
Public	57%	56%	57%
Private	43%	44%	43%
Size in %			
1-19	11%	11%	11%
20-99	40%	40%	40%
100-199	16%	16%	16%
200-499	16%	16%	16%
500-999	8%	8%	8%
> 1000	8%	8%	8%
Gender in %			
Male	47%	47%	46.5%
Female	53%	53%	53.5%
Age			
M	38.39	40.16	36.54
SD	9.54	9.15	9.60
Median	39.00	41.00	36.00
Minimum	18.00	18.00	19.00
Maximum	60.00	60.00	58.00
Work experience			
M	17.60	20.53	14.57
SD	10.29	10.33	9.32
Median	18.00	20.00	14.00
Minimum	0.60	0.60	0.60
Maximum	45.00	45.00	42.00
Level of self-directedness in learning processes			
M	3.89	3.84	3.95
SD	.50	.57	.42
Median	3.93	3.86	3.93
Minimum	2.07	2.07	2.29
Maximum	5.00	5.00	5.00
Level of self-directedness in career processes			
M	3.94	3.93	3.96
SD	.54	.58	.48
Median	3.93	4.00	3.93
Minimum	1.29	1.29	1.79
Maximum	5.00	5.00	5.00

Data-screening and Analyses

Prior to analysis, all variables were examined for accuracy of data entry, missing values, outliers, normality, linearity and multicollinearity, according to the procedure described by Brace, Kemp and Snelgar (2003)., Tabachnick and Fidell (2001), and Tacq (1997). Outliers were traced by examining box plots and were deleted in case the deviation was larger than 3.29. Normality of the variables was assessed by examining skewness and kurtosis. In some cases, the requirements were not met. Nevertheless, for large sample Brace et al. (2003) and Tabachnick & Fidell (2001) recommend to conduct a multivariate regression. Multicollinearity was assessed through the subcommand 'collinearity diagnostics' in SPSS regression and linearity was diagnosed trough residuals scatterplots. Additionally, all analyses were performed using listwise deletion. 'Mobility aspiration', 'sector' and 'initial qualification level' were scored as dummy variables.

Several analyses procedures were used to answer our research questions. (1) Correlational analysis was performed to examine the relationship between self-directedness in learning processes and self-directedness in career processes. (2) Dependent and independent t-tests were used to analyze significant differences in the extent of self-directedness in learning and career processes between low-qualified and high-qualified employees. (3) Multiple regressions analyses, using stepwise method were applied to examine the best organizational and individual predictors of self-directedness in learning processes and self-

directedness in career processes. All statistical analyses were conducted with the statistical package SPSS Version 11.0.

RESULTS

Research question 1: The interrelation between self-directedness in learning processes and self-directedness in career processes.

A moderate positive relation was found between 'self-directedness in learning processes' and 'self-directedness in career processes' (r= .55, p <.01, 2-tailed) explaining 30% (corrected r^2) of the variance. This moderate positive relation between the variables was confirmed when the correlation was conducted for the lower-qualified and higher-qualified employees separately. In the low-qualified sample, the percentage of variance explained increased to 31% (r= .56, p <.01, 2-tailed). High scores on self-directedness in learning processes go with high scores on self-directedness in career processes and vice versa (see Figure 1). Self-directedness in learning processes and self-directedness in the career processes are thus interrelated.

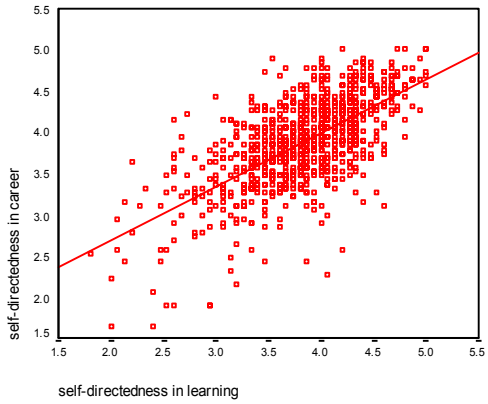

Figure 1 Scatterplot for the variables 'self-directedness in learning processes' and 'self-directedness in career processes'

Research question 2: Comparison low-qualified and high-qualified group for level of self-directedness in learning and career processes.

Respondents exposed on average a higher degree of self-directedness in their career processes than in their self-directedness in learning processes (t= -4,562, df=883, p<.001, 2-tailed) although differences were small.

Especially low-qualified employees reflect a higher self-directedness score in their career processes as compared to learning processes (t= -4.958, df= 440, p=.001, 2-tailed). No such differences are reflected in the scores of the high-qualified workers.

The scores of the high-qualified group were significantly higher than the scores of the low-qualified workers group as to self-directedness in learning processes (t= -2,360, df= 889, p <.05, 2-tailed). No significant

differences were found between both groups as to self-directedness in career processes.

Research question 3: Influence of organizational and individual factors on self-directedness in learning and career processes

As mentioned earlier, we expect that organizational factors stimulate or hinder the extent to which employees are self-directing their learning and career processes. Next to organizational factors, individual differences between employees are expected to determine the degree of self-directedness in learning processes and in career processes. Figure 2 depicts the variables involved in the multivariate regressions predicting self-directedness in learning and career processes.

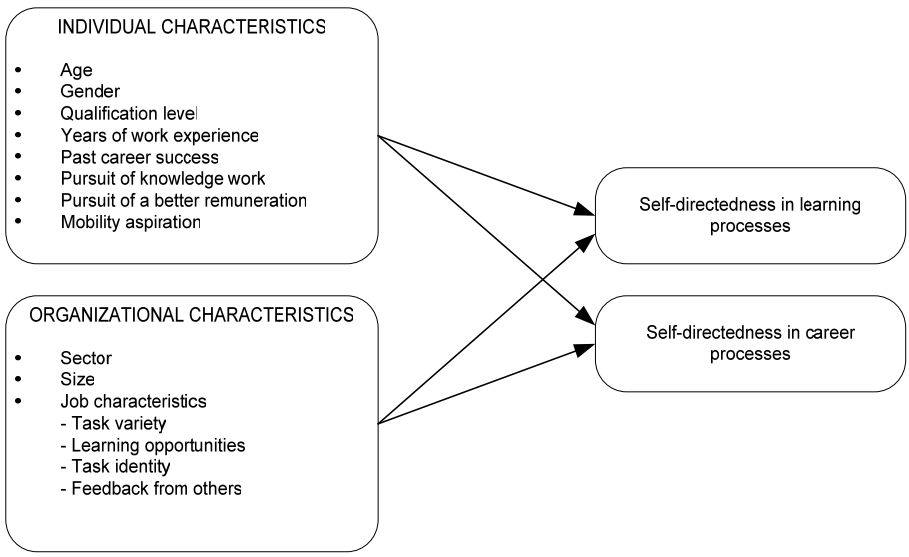

Figure 2: Individual and organizational variables involved in the multiple regressions

Table 2 provides the results of the multivariate regression (stepwise method) predicting self-directedness in learning processes. As the table illustrates, 'pursuit of knowledge work' predicts in a significant way self-directedness in learning processes (β= 342). Other individual characteristics such as 'age' positively predict self-directedness in learning processes indicating that older employees are more intended to self-direct their learning. Likewise, it appears that employees who perceive their past career as successful reflect a significantly higher score on self-directedness in learning. Mobility aspiration is another influential predictor of self-directedness in learning: Employees pursuing a higher job position demonstrate higher levels of self-directedness in learning processes compared to the reference category striving for 'different job at the same level'. Contrary, employees pursuing no job changes or mobility demonstrate lower level of self-directedness in learning processes compared to the reference category striving for 'different job at the same level'.

Organizational characteristics play as well a role. The job characteristics 'task identity' and 'getting opportunities to learn', contribute in a significant way to self-directedness in learning (both $p< .05$). These organizational characteristics seem to have the most influence on self-directedness in learning processes. The results do not indicate that other organizational characteristics have a significant influence.

The final model containing six predictor variables accounts for 18% of the variance in self-directedness in learning processes.

Table 2

Multiple regression analysis (stepwise) with 'self-directedness in learning processes' as dependent variable

Predictor Variable		Beta	*p*
Pursuit of knowledge work		.342	p <.001
Age		.151	p<.001
Past career success		.083	p=.01
Task Identity		.070	p<.05
Opportunities to learn		.069	p<.05
Mobility aspiration[a]:			
	Higher job level	.075	p<.05
	Same job but task extension		
	No job change	-.068	p<.05
F-value final model		F (7, 844) = 27.46, p<.001	
Total R^2 =.185			
Total adjusted R^2 =.179			

Note. Only the significant predictors are presented in this table

[a] 'Different job at same level' was randomly chosen as the reference category

The importance of pursuing knowledge work is also demonstrated in the multivariate regression analysis with self-directedness in career processes as dependent variable (β=.278, see Table 3). Employees who pursue meaningful and challenging work are more self-directed in their career processes. Mobility aspiration is again a significant predictor. Employees who aspire higher job levels are more likely to be self-directed in their career process.

The set of organizational characteristics was as well significant in predicting the dependent variable. Individuals who perceive more variety in their tasks or perceive opportunities to learn, are more self-directed in their career processes than employees experiencing less task

variety and less learning opportunities. Finally, the size of the organization in which the respondent is employed negatively predicts self-directedness in career processes. Increased organizational size predicts less career self-directedness.

The significant model explained 11% of the variance in self-directedness in career processes.

Table 3

Multiple regression analysis (stepwise) with 'self-directedness in career processes' as dependent variable

Predictor Variable		Beta	*p*
Pursuit of knowledge work		.278	$p < .001$
Size		-.094	$p < .01$
Mobility aspiration[a]:			
	Higher job level	.086	$p < .01$
	Same job but task extension		
	No job change		
Opportunities to learn		.078	$p < .05$
Task Variety		.065	$p = .05$
F-value final model		F (5, 848) = 27.38, $p < .001$	
Total $R^2 = .114$			
Total adjusted $R^2 = .110$			

Note. Only the significant predictors are presented in this table

[a] 'Different job at same level' was randomly chosen as the reference category

DISCUSSION AND CONCLUSION

In this contribution, we studied (1) the relationship between self-directedness in learning processes and self-directedness in career

processes, (2) differences in level of self-directedness in learning and career processes between low- and high-qualified employees and (3) the organizational and individual predictors of self-directedness in learning and career processes.

Results show a positive relationship between self-directedness in learning processes and self-directedness in career processes. A high level of self-directedness in learning processes goes with a high level of self-directedness in career processes and reversely. On average respondents exposed a higher degree of self-directedness in career processes than in learning processes. This was especially true for the low-qualified adult group although differences were actually quit small.

In general, the results of our analyses reveal that the self-directedness scores - both in learning and career processes - were rather high. A possible explanation for these high scores is that in job contexts employees are used to manage their own tasks. During work, one is confronted with concrete problems which one has to solve and most often one is forced to monitor the work process by oneself. Possibly, employees take this responsibility as well when it concerns learning and career processes since they expect to do so. A second explanation for these high scores can be related to our research methodology. Data have been gathered through a self-reporting strategy. Although the instruments used in this study are very reliable, one can still raise questions about difference between reported levels of self-directedness and the degree of self-directedness in reality. The methodology can be affected by social desirable answers (Rubin & Rabbie, 2001).

The high-qualified employees' scores reflect somewhat higher scores as compared to the low-qualified group; but the differences are only significant for self-directedness in learning processes and not for self-directedness in career processes (t-test). Moreover, in multivariate analyses the influence of qualification level does not count for self-directedness in learning and career processes. This is an important finding in view of the limited number of empirical studies set up involving low-qualified employees. Different explanations can be put forward to explain the relatively low influence of qualification level. A first explanation is related to possible limited reflective skills of low-qualified employees. They might tend to overestimate themselves or refuse to report low scores. Again this might result in socially desirable answer patterns. A second explanation is related to our research sample. We asked the manager of the companies to select at random three low-qualified and three high-qualified employees. Although the criterion to differentiate between low- and high-qualified employees is an objective one; the selection process might have been marred by non-controlled variables, such as selection of low-qualified but highly experienced employees, employees they consider to be very self-directed, etc. This can result in an overestimation of the level of self-directedness in learning and career processes in the sample as compared to the population.

A third and last possible explanation is that the criterion to distinguish between low- and high-qualified employees is of lesser importance. Our research results reveal that factors such as, 'pursuit of knowledge work', 'getting opportunities to learn' and 'mobility aspiration' might be better

independent variables to make distinctions between employees in view of studying self-directedness in learning and career processes (see also Kessels & Keursten, 2002).

Our results also point at the importance of creating possibilities for employees to carry out various tasks (factor 'task variety') or stimulate the completion of a whole en identifiable piece of work (factor 'task identity'). 'Getting opportunities to learn' could clearly be identified as an influential factor on both self-directedness in learning and career processes. This is in line with findings from Confessore and Bonner (1997) who found a clear relationship between the employee's perception of the learning opportunities in the work environment and the actual number of self-directed learning processes undertaken.

The results show that the individual factor 'pursuing knowledge work' (degree to which employee pursues a stimulating and challenging job) was the most important predictor for both types of self-directedness. An empirical study by Kuijpers (2003) revealed a similar conclusion.

Despite we are able to detect some patterns in these results, we have to be careful. Next to the factors considered in this research, other individual and contextual factors can have an impact and result in significant differences in self-directedness. Further research is advisable from this perspective.

In this study we wanted to move beyond the single sided focus on high-qualified employees in the research area of self-directedness in learning and career processes. In the present study, a heterogeneous sample of employees was involved in a survey. In addition, a large number of

employees could be studied. Both methodological features have proven to be helpful to obtain significant results. In future research it is advisable to extend the present research methodology. Next to self-reported indices, we suggest to gather data from other sources for example colleagues, chiefs, subordinates in order to have multiple assessments of someone's level of self-directedness in learning and career processes.

A second suggestion is related to the timeline in the design of study. In the present study, data has been collected at one point in time. Studying the causal relation between levels of self-directedness and actual learning and career decisions and outcomes necessitate a longitudinal study. At present, such a studied has been set up to replicate the current findings and to add to the study a longitudinal perspective.

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Chapter 4

Predictors of self-directedness in learning and career processes for low-qualified employees: The role of demographic, personal and organizational factors.

Abstract

This study examines the extent to which demographic, personal and organizational variables predict the level of self-directedness in learning and career processes of low-qualified employees. Multiple regression techniques were applied to examine which variables are significant predictors of perceived self-directedness in learning and career processes. Results obtained from a sample of 408 low-qualified employees suggested that specific demographic, personal and organizational factors explained significant variance in self-directedness in learning processes and self-directedness in career processes. Most striking was the key role of proactive personality on both types of self-directedness. Age, pursuit of knowledge work, mobility aspiration, the sector, staff policy and job characteristics were other significant predictors of the dependent variables.

Keywords: *predictors, self-directedness, low-qualified employees, self-directed learning, self-directed career planning, proactive personality*

INTRODUCTION

Nowadays, self-directedness in learning and career processes is a key competence given the rapid rate of change, new technological opportunities, greater international competition, and increased flexibility in careers (Fay & Frese, 2001). However, in reality employees differ strongly to the extent in which they perform this key competence. Prior qualification level is often stated as an important predictor of level of self-directedness although this hypothesis is hardly based on empirical evidence. Uhland (1996) for example examined the learning strategies of

low-literate adults. Results based on data from focus groups, interviews and a questionnaire revealed that these low-literate adults actively engage in real-life learning situations, and that active engagement in real-life learning can mitigate the negative effects of past schooling. Furthermore, past schooling did not appear to induce the selection or rejection of self-directed learning strategies. In addition, previous research of Raemdonck, Thijssen & Valcke (2005) demonstrated that qualification level was not a significant factor in predicting level of self-direction in learning and career processes. Accordingly, differences among employees might be explained by other factors than educational qualification background. Even with a similar educational qualification background, there must be other reasons why some low-qualified workers succeed in self-directing their learning and career processes and other low-qualified workers do not. What factors lead some low-qualified workers to be more self-directed in their learning and career processes than other low-qualified employees? Broadening the knowledge and insight into this matter might be useful for a number of reasons. First, research in the field of self-directed learning processes 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 research available that systematically traces the extent to which individual and organizational factors play a role in the level of self-directedness in learning and career processes. Nor is it clear which category of variables has to be considered as most critical for future research. Developing a deeper insight into this issue is to be considered as an essential, preliminary condition for direct future research. Onstenk

(1993), for example, stated on the base of his exploratory study among lower-qualified employees (> 35 years), that individual factors were of less importance than the contextual factors. However, his statement was rather based on general indicators and not on large scale comparative empirical research (Thijssen, 1992, 1996).

Second, earlier research on this subject has mainly focused on a higher-qualified workers group. Brookfield (1984; 1985) assessed 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 can and do engage in self-directed learning" and that "the evidence of self-directed learning among the hard-to reach is quite strong". However, factors that are predictors for levels of self-directedness and their relative weight, might differ for certain groups of employees (see Raemdonck et al., 2005).

Accordingly, the present study presents and tests a comprehensive model of self-directedness in learning and career processes. The development of this model is based upon literature and includes a wider range of theoretically relevant variables than those being examined thus far in previous studies. We expect this will result in a more comprehensive and accurate model to understand differences in levels of self-directedness in learning and career processes among low-qualified employees.

RESEARCH OBJECTIVES

The following research questions were put forward:

Research question 1: How are demographic, personal and organizational variables inter-related?
Research question 2: What are the strongest predictors of self-directedness in learning processes and self-directedness in career processes?
Research question 3: Are there significant interaction effects between organizational and individual variables that are associated with higher levels of self-directedness in learning and career processes?

THEORETICAL OUTLINE: TOWARDS A CONCEPTUAL MODEL OF SELF-DIRECTEDNESS IN LEARNING AND CAREER PROCESSES

We define 'self-directedness in learning processes' as *a characteristic adaptation to influence work-related learning processes in order to cope for oneself on the labour market*. Parallel to this definition we define 'self-directedness in career processes' as *a characteristic adaptation to influence career processes in order to cope for oneself on the labour market.* Research from Raemdonck et al. (2005) demonstrated that both concepts are interrelated. The findings are in line with Brockett and Hiemstra (1991) who embrace the view that the concept of self-direction in adult learning should not be limited to the term self-directed learning. To expand the concept, they recommended that the term 'self-directed

learning' is seen as only one form of a broader concept (i.e. self-directedness). The term 'self-directedness in learning' can provide the span needed to get a fuller understanding of the concept (Owen, 2002). Accordingly, we will use the terms 'self-directedness in learning processes' and 'self-directedness in career processes'.

Different variables can influence self-directedness in learning and career processes. Next to individual factors, organizational factors are important, such as *direct* organizational factors that is, factors related to the employees workplace and *indirect* organizational factors that is, characteristics of the organization in global (size, sector). Figure 1 displays the hypothetical model of self-directedness in learning and career processes which was developed on the base of a review of the literature. We hypothesize that several variable clusters (i.e. demography, personal factors, organization) predict self-directedness in learning and career processes. Inspired by Judge et al. (1995) we distinguish five clusters of predictors that influence self-directedness in learning and career processes. We discuss consecutively each cluster of predictors.

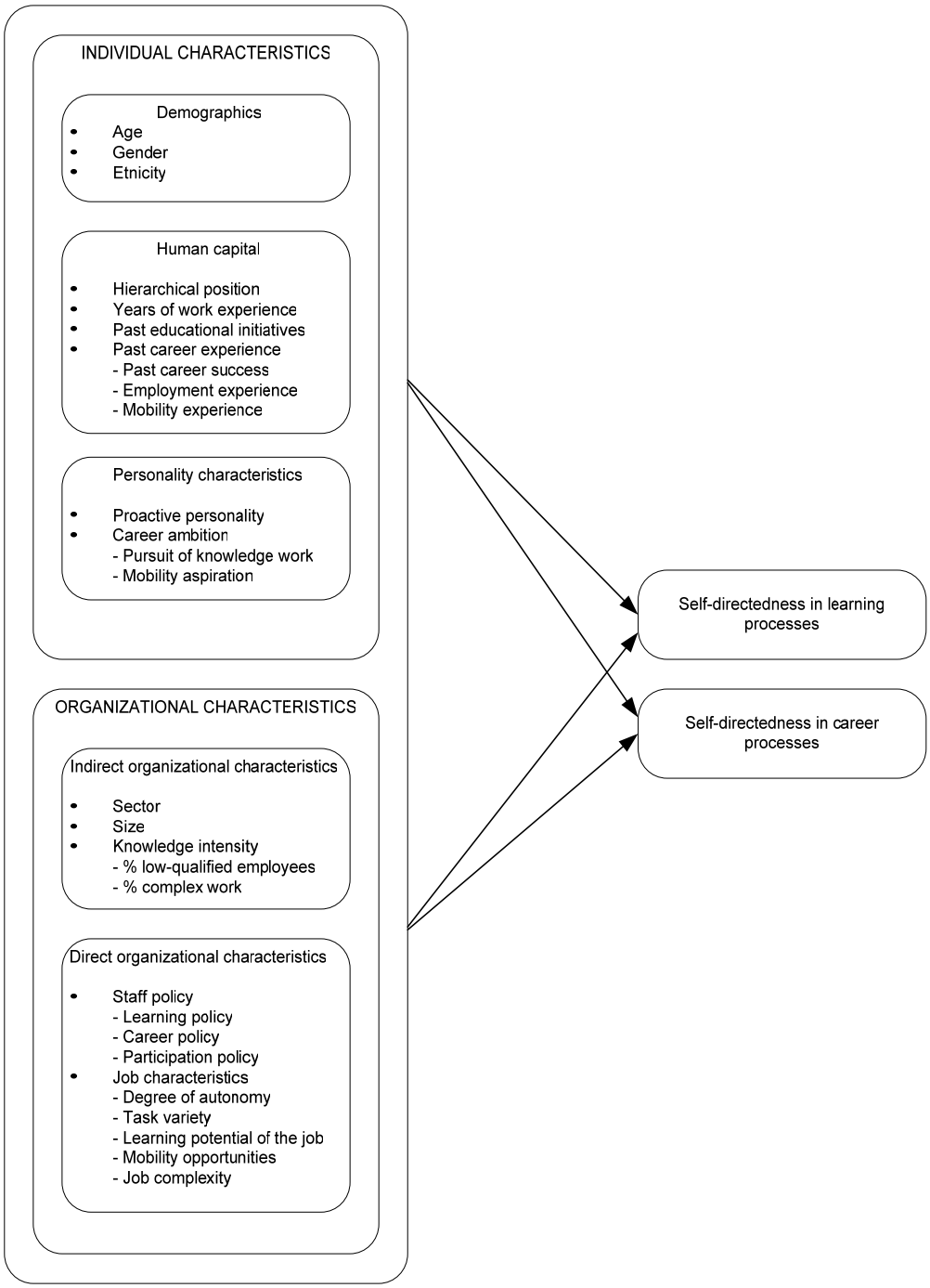

Figure 1: Conceptual model of self-directedness in learning and career processes

Demographic variables.

According to Pfeffer (as cited in Judge, 1995) demographic variables influence many behavioural patterns, including self-directedness in processes of learning and career. Therefore, demographics need to be taken into consideration when examining the predictors of self-directedness in learning and career processes (Judge et al., 1995). Age is a typical example. Schooler, Mulatu and Oates (2004) for example state that it is possible that older adults may be more adversely affected than younger employees due to the larger intellectual demands associated with a high level of self-directedness. Yet, studies examining the differences between *age* and self-directedness in *learning* processes 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). Impact studies of individual conditions on self-directedness in *career* processes show that self-directedness in career processes generally decreases with *age* (Baruch & Tal, 1997; Kuijpers, 2003; Mannheim,; Nabi, 2000). It is expected that young employees are more actively self-directed in their career processes than older employees since they are at the start of their career and can still accomplish a lot of career goals. Older workers are often less active in their career development (Rhebergen & Wognum, 1996). Accordingly, we expect that age will have a positive influence on self-directedness in learning processes and a negative effect on self-directedness in career processes.

Another demographic variable is gender. Using Guglielmino's self-directed learning readiness scale, no *gender* differences have been found

for self-direction in *learning* processes by Stockdale (2003). In some of the studies focusing on self-directedness in *career* processes, *gender* was identified as a significant factor indicating that women tend to be better entrepreneurs of their own career development than men (MacDermid, Lee, Buck & Williams, 2001; Phillips & Imhoff, 1997) or that men were better at career planning (Mannheim, Baruch & Tal, 1997) and networking (Claes & Ruiz-Quintanilla, 1998). However, no gender differences were found in a study performed by Kuijpers (2003) on most of the career factors which were distinguished.

Next, *ethnicity* and *culture* have been found to be significant predictors of self-directedness in learning processes. Long and Agyekum (1983) and Reio (2004) found a significant relation between self-directed learning readiness and ethnicity and Lee and Lindner (2005) found evidence of significant relationship between self-directed learning readiness and nationality. Long and Morris (1996) however, ascertained no significant difference between self-directed learning readiness and ethnicity in a study conducted among students of a master's non-traditional higher education program. We expect ethnicity will have a differential impact on self-directedness in learning and career processes, though available results are inconclusive.

Human Capital variables

Human capital[5] is 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". Next to formal qualification level which is controlled in the present study, possible human capital variables are occupational level, years of work experience, past educational initiatives and past career experiences.

The degree of initiative expected from individuals varies according to one's *occupation and hierarchical position*. Self-directedness in learning processes, as measured by Guglielmino's Self-directed Learning Readiness Scale, was found to be positively correlated with occupation (Owen, 2002). Stockdale (2003) for example summarizes a number of studies in which particular groups like entrepreneurs, managers and female executives showed significant higher levels of self-directedness in learning processes compared to members of the general population. Findings from Gardner (1989 as cited in Bromfield-Day, 2000) showed that job responsibilities were related to self-directed learning readiness. Lankhuijzen (2002) on her turn found no differences in planning of learning activities between employees in higher management positions and employees in lower management positions. In a study among young office technologist and machine operators from six countries, Claes and

[5]The term 'human capital' has a rich history in economic science (see Van Loo, 2005). The human capital theory was developed by Becker in 1962 (see Becker, 1962, 1964). Its basic idea is that there is an assumed equilibrium between the investments in expertise that people acquire through different means such as education, training and work experience (the input) and the returns to expertise in terms of labour productivity or income (the output). Note that the concept as applied by Judge et al. (1995) only refers to the input-side.

Ruiz-Quintanilla (1998) found that proactive skill development behaviour was hindered among respondents belonging to the machine operator group as compared to the office technology group. The authors also found that the variable occupational group does not affect the proactive career planning and networking behaviour.

Other than 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 on tasks when they acquired a level of experience. As Knowles (1980) asserts, work experience can become a source for learning. Consequently, it is possible that a higher degree of self-directedness in learning processes occurs. However, in a study among graduate students, years of work experience was not found to be a significant predictor of self-directedness in learning processes (Adenuga, 1991). It is not clear whether the same conclusion holds for workplace contexts nor is it clear how work experience influences career self-directedness.

Next, self-directedness can be affected by one's *participation in educational activities in the past*. Employees who have participated in the past on their own initiative at training and courses can be more oriented towards self-directedness than employees who showed no initiative to participate in formal learning activities. Research of self-directed learning as measured with the Oddi Continuing Learning Inventory, indicate a positive relationship with participation in educational activities (Oddi, 1986). Research of self-directed learning as measured with Guglielmino's Self-directed Learning Readiness Scale noted positive correlations with the number of learning projects, the

number of self-planned projects and the number of hours devoted to self-initiated learning activities (Brockett & Hiemstra,1991; Bryan & Schulz, 1995). In studying career factors, Kuijpers (2003) found that employees who participated more in off-the-job and on-the-job training paid significantly more attention to career control. Therefore, it is hypothesized that past educational initiatives are positively related to self-directedness in learning processes and self-directedness in career processes.

Past career experience is another aspect of human capital. This indicator is operationalised as perceived past career success, and employment and mobility experiences. Prior career experiences and the way they are perceived, can affect the willingness to self-direct learning and career processes. Employees who are positive about their past career tend to think about their career as something they are able to influence and manage themselves. Negative experiences with past career can lead to conceptions of a career as determined by external variables. It is suggested that people who perceive their past career as a success will be more willing to self-direct their learning and career than those who perceive their past career as a disappointment. Thus, we expect that employees who are satisfied with the course of their past career are more self-directed in their learning and career processes than employees who are dissatisfied with the course of their past career.

Employment experiences (most of the time employed or periods of unemployment) and mobility experiences (number of prior internal and external job moves) can also influence a person's willingness to self-directed learning and career processes. The skills of employees who

have been employed by one single organization during most of their career might be very job and company-specific. This can decrease their inter-organizational mobility opportunities (Landau, Shamir & Arthur, 1992), increasing their willingness to self-direct their learning in order to stay employed. However, Slocum, Cron, Hensen and Rowlings (1985) argumented that the impact of being employed for years in the same job position might be twofold: employees may perceive that they have reached a career plateau. This can either lead to a greater desire to direct their own career, or to a level of adjustment or passivity with regard to their career and willingness to steer the own learning process. Results from a longitudinal study in six countries involving over a thousand young employees of two occupational groups – office technology and machine operators - explored the impact of prior experience on proactive career behaviours (Claes & Ruiz-Quintanilla, 1998). Employment experience and mobility experience significantly explained variance in proactive career behaviour. Employment experience positively influenced proactive skill development behaviour and consultation behaviour while periods of unemployment negatively influenced proactive skill development behaviour and career planning behaviour. The authors found as well a positive effect of mobility experience upon all aspects of proactive career behaviour. Promotion experience consistently affected proactive career behavioural components, except networking. External mobility without change in hierarchical position did not influence proactive career behaviour. Thus, we expect that employment experiences increase self-directedness in learning and career processes, that unemployment experiences decrease self-

directedness in learning and career processes, and that mobility experiences increase self-directedness in learning and career processes.

Personality characteristics

Personality characteristics are likely to be influential in predicting self-directedness in learning and career processes. 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, Kraimer & Crant, 2001). It is considered as one of the key antecedents of proactive behaviour (Crant, 2000). Seibert, Kraimer & Crant (2001) examined in a group of university alumni the effect of proactive personality on career initiative. They identified a positive impact. As proactive personality points at someone who actively shapes the situations in which they find themselves, we expect proactive personality to predict the level of self-directedness in learning and career processes. Moreover, self-directedness reflects a characteristic adaptation that results from the environment and personal traits (e.g. proactive personality). This leads us to put forward the following hypothesis: Proactive personality is positively related to self-directedness in learning processes and career processes

Other than proactive personality, we also expect *career ambition* to predict self-directedness. Two variables can be put under this umbrella concept: pursuit of knowledge work (intrinsic career striving) and mobility aspiration. In the literature, knowledge work is often associated with autonomous, learning-oriented, self-directed work that requires a

great deal of dealing with changes, 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-directedness than employees who have no preference for knowledge work. An empirical study of Kuijpers (2003) gives support to this assumption: *pursuit of personal skill development* was found to be an important predictor of career related variables. She concluded that employees who pursue development in their career were more likely to self-direct their career processes. Therefore, pursuit of knowledge work is expected to influence positively self-directedness in learning and career processes.

Kuijpers (2003) found *mobility aspiration* to be an important predictor for learning and career factors. Her findings show that employees who pursue the same career position over time are more self-directed in their *learning* processes compared to employees who pursue mobility (vertical or horizontal) for their future career (Kuijpers, 2003). When related to career self-directedness, she could conclude that employees who pursue vertical mobility are more likely to self-direct their career. A possible explanation for these findings is that employees who do not pursue mobility are more oriented towards learning and take more initiatives for steering their learning while employees who pursue vertical mobility invest more time in self-presentation, initiating career planning activities and the planning of one's own working process. Based on these results, we expect that pursuit of mobility negatively influences self-directedness in learning processes and positively influences self-directedness in career processes.

Organizational factors

Of particular interest for this study is the organizational context in which the employee operates and the relative importance of these variables to predict self-directedness in learning and career processes. A distinction is made between indirect organizational characteristics (such as economical sector, company size and knowledge intensity), and direct organizational characteristics (such as staff policy and job characteristics).

Indirect organizational characteristics

Based on the results of training related surveys, Foucher (1995) considers the economical *sector* of the company as a variable that impels particular attention. Kops (1997) compared the self-directed learning efforts of middle-level managers from the public and private sector and concluded that managers from the private sector are more active, self-directed learners. Especially in job-related learning efforts (i.e. learning needed to perform the specific requirements of the job) a larger amount of self-directedness in learning processes did occur. Two explanations have been put forward (Kops, 1997). Because of downsizing, the job content of middle-level managers in the private sector has changed. Due to the fact that less support staff is available, managers have to perform more technical tasks. A second explanation is related to the nature of the private sector as more entrepreneurial; resulting in managers performing more technical tasks in order to get the job done. In addition, Kops (1997) also mentions the type of business as one of the variables affecting self-directed learning efforts.

As the employment rate and the growth of employment opportunities differ, depending on the type of sector we expect 'sector' to influence the individual's self-directedness in career processes although at present little empirical evidence is available from previous research to ground this hypothesis.

Based on the results of training related surveys Foucher (1995) also identified the *size* of the organization as a critical variable affecting self-directedness in learning processes. He states that small businesses most often stress on-the-job training, whereas larger organizations focus on a larger collection to address training needs. By virtue of their size, small companies have proportionally less funding allocated to service their organization's training needs (Long & Morris, 1995). Foucher expects that this factor might affect people's self-directedness in learning. Less support for planned learning activities in small organizations does not mean that the employees will take more initiative for self-directing their learning processes (Kuijpers, 2003). As the size of the organization mostly determines the extent to which facilities for career development are available (i.e., career counselling, competence management, alignment of career trajectories), we also expect 'size' to be a factor influencing self-directedness in career processes. We expect that employees in larger organizations display higher levels of self-directedness in learning and career processes than employees in small organizations.

A final structural organizational characteristic is *knowledge intensity*. Schooler et al. (2004) state that doing intellectually more demanding work increases people's intellectual functioning and self-directed orientation. According to their theory, the more diverse occupational

stimuli, the more decisions need to be taken and the more considerations are required to make these decisions. Secondly they state that the more ill defined and contradictory the contingencies, the more complex the environment. Depending on the extent that such environments reward initiative and independence, they bring about an intrinsic preference for self-directedness instead of an externally directed orientation. Simple occupational environments are less likely to provide opportunities to make extra efforts, invoking high levels of cognitive processing. Consequently, this may lead to a decrease in intellectual involvement and self-directed orientation due to the low level of occupational challenges (Schooler et al., 2004). The above theory of Schooler, Mulatu and Oates was confirmed using a study based on data from third-wave interviews. The results give support to the hypothesis that dealing with cognitively demanding, complex knowledge work increases the value placed on self-direction and autonomy.

Next to the degree of complex knowledge work, knowledge intensity can also be operationalised by referring to the qualification levels of the workforce (Marx, Ramioul & Sels, 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 practises within the organization (Foucher, 1995). It is expected that self-directedness in learning processes is more likely to occur in organizations with a high proportion of highly qualified employees. It is yet not clear whether low-qualified workers profit to a higher extent from working in a job context with a high percentage of high-qualified workers as compared to job

contexts where the majority is low-qualified. We hypothesize that knowledge intensity will influence positively self-directedness in learning processes and in career processes.

Direct organizational characteristics

Many characteristics of an employee's work environment are likely to influence self-directedness in learning and career processes. These include staff policy and job characteristics.

Staff Policy. There is a lack of research on organizational staff policies that stimulate self-directedness in learning and career processes. Only preliminary research findings are available. A first set of studies focused on the impact of a *career policy* in a company. In a longitudinal study among graduates during the first ten years of their career, Sturges, Guest, Conway and Mackenzie (2002) revealed that neglect of organizational career support does not enhance career self-management. Career self-management included 'visibility activity' and 'networking'. Formal organizational career support activities such as training and development were associated with 'visibility activity'. Informal organizational career support activities such as mentoring and giving help in establishing contacts, were positively associated with networking. On the base of these research results, we expect that a stimulating career policy positively influences both self-directedness in learning and career processes.

A second aspect is the organizational *learning policy*. In exploring a model for self-directedness in learning processes, Foucher (1995) stated that organizations whose culture supports learning, and where many

training opportunities are presented to employees, will invoke a higher level of self-directedness in learning processes. 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 training policy sets a climate that is favourable to the emergence of actual self-directed learning practises. However, closer examination of training policies brought the authors to the conclusion that in reality self-direction had been considered only in a partial and indirect way. For instance, actual strategies to support self-directedness in learning processes were absent (Foucher & Brézot). Nevertheless, the application of general principles such as the promotion of self-responsibility was found to be supportive for a self-directed learning climate. Results from quantitative studies point out that self-directedness in learning processes as measured by the Oddi Continuing Learning Inventory and the Guglielmino Self-directed Learning Readiness Scale has found to be positively correlated with learning climate (Jude-York, 1993). The learning policy is expected to influence as well self-directedness in career processes as career development through learning is considered to be an integral part of career self-directedness.

A third and last aspect of an organizational staff policy is *participation policy*. 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-directedness in learning processes. The same conclusion was presented by Kops (1997) who built on results

from semi-structured interviews with middle-level managers from the private and public sector. Other studies examining the influence of participative management style on self-directedness (Bromfield-Day, 2000) and studies examining the influence of participation policy on personal responsibilities of employees (Beer, Spector, Lawrence, Mills & Walton, 1984) underpin the assumption that self-directedness in learning and career processes can be stimulated by a strong participation policy.

Job characteristics. Jobs differ from each in a variety of ways. The nature of tasks performed in a job is e.g., most likely to affect the degree of self-directedness of employees. Relevant dimensions in this context are: degree of autonomy, complexity, task variation and growth potential. According to Lahn (2000) it is reasonable to assume that high ratings of these job characteristics (more autonomy, more complex tasks, more task variation and a higher growth potential) will contribute to the development of metacognitive skills and exposure of self-directed learning. This hypothesis has been supported in a limited number of studies (Frese, 1987). The *degree of autonomy* offered on the job, varies and may affect the degree of initiative available for employees. Close supervision inhibits the execution of self-directed behaviour (Kohn & Schooler, 1982). However, when a worker is not closely supervised, this does not automatically imply that he/she is free to take initiatives, is able to develop independent thoughts and judgement. What counts is the worker's subjective appraisal of his freedom to disagree with the supervisor and his freedom to make his own judgements (Kohn & Schooler, 1982). Therefore, we expect that degree of autonomy

positively influences self-directedness in learning processes and self-directedness in career processes.

Task variety is another aspect that might positively influence self-directedness. 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 the learning activities (Foucher, 1995). A high level of routine limits the exertion of self-direction while a high level of variability in tasks facilitates or even requires self-direction (Kohn & Schooler, 1982). Task variety can result in the acquisition of a wide range of work and learning experiences which is beneficial for one's career development.

Next, the *learning potential of the job* is another job related characteristic. It is expected that self-directedness in learning processes is observed to a higher extent in more supportive learning environments. Although learners do initiate their own learning irrespective of the conditions that exist in an organization, efforts made by the organization to create learning opportunities in the design of jobs can positively influence self-directed learning (Confessore & Kops, 1998). 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 work environment. We also expect that a high learning potential of the job creates more opportunities for employees to influence their personal career development. If the organization increases the learning potential of jobs, work and learning experiences are obtained which can empower the employees to self-direct their careers. Thus, learning opportunities on

the job positively influence self-directedness in learning processes and career processes.

Another characteristic is called the job *mobility opportunities.* Organizations that develop an internal labour market tend to offer a wider range of learning opportunities, both planned or unplanned (Foucher , 1995). However, 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). Therefore, we expect that a negative perception of the mobility opportunities offered by once position can negatively influence the level of self-directedness in learning processes. The same counts for self-directedness in career processes. The subjective perception of career perspectives of once position can be important for career self-directedness. Research from Claes and Ruiz-Quintanilla (1998) illustrates that hierarchical position (being promoted) had a positive impact on employees' proactive career planning behaviour. The same variable influenced as well the proactive skill development behaviour of employees. Consequently, we state that low perceived mobility opportunities offered by the job position negatively influences self-directedness in learning and career processes.

A final job characteristic that is expected to influence low-qualified employees' self-directedness 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 'job complexity' to be the main job determinant of self-directedness. As Foucher (1995) states, the more complex the tasks to be performed, the more employees will be in a position to make choices about their

learning goals and the content of the learning activities. Possibly this factor can also enlarge the extent to which employees are able to make individual career choices and to give direction to his/her own career path. Thus, job complexity positively influences self-directedness in learning and career processes.

METHOD

Sample and Procedure

Interviews were organised, involving 408 low-qualified employees from 35 companies located in Flanders. These companies were selected from the energy sector, the chemical industry and the food and nourishment industry. The selection of the organizations was based on the BELFIRST-database. All organizations with ≥ 20 employees and NACE-BEL code 15, 24, 40 and 41 were contacted. In each organization, at least 10 low-qualified employees were selected at random. 'Low-qualified' was operationalised as a person with no diploma of initial secondary education. The data was collected by the researcher through interviews with individual employees. Prior to the interview, each participant signed an informed consent form.

The ratio to select organizations from the chemical, nourishment and energy sector was based on two motives: (1) presence of low-qualified employees and (2) the level of investment in formal training. Both aspects are essential in order to assure variance within the organizational conditions and to be able to study the potential impact on the level of

self-directedness. The selection of the specific sectors was also based on empirical data from the "Continual Vocational Training Survey 2" (Buyens & Wouters, 2002), results from the "Panel Survey of Organizations" (Delarue et al., 2003) and figures from "The Social Balance 2002" (Heuse, Stinglhamber & Delhez, 2003).

The organizations who participated at the study were in relatively stable economic position. At the time of data-collection, employees were not confronted with downsizing actions.

Table 1 summarizes descriptives of the sample.

Table 1: *Sample Description (N: 408)*

Sector in %	
Chemical Industry	53,4 %
Nourishment Industry	34,3%
Energy Sector	2,3%
Size	
M	244
SD	197,17
Median	181
Minimum	20
Maximum	808
Gender in %	
Male	35%
Female	65%
Age	
M	38,38
SD	9,69
Median	38,00
Minimum	19,00
Maximum	63,00
Years of work experience	
M	19,81
SD	10,41
Median	20,00
Minimum	0,00
Maximum	44,00
Ethnicity	
Belgian	94,8%
Immigrant	5,2%

Small organizations and organizations from the food and nourishment industry were underrepresented compared to the population characteristics. The average age of respondents was about 38 years and the average years of work experience was 19 years and 8 months. A majority of participants was male (65%) and of Belgian nationality (94,8%). Respondents needed to have at least six months of work experience in the company in order to be retained in the sample. Employees who didn't receive their formal education in Belgium, were labelled as low-qualified when they didn't attend more than ten years of formal education in their country of origin.

Research instruments

Self-directedness in learning and career processes. Two scales have been developed to measure someone's characteristic adaptation to influence learning processes/ career processes. The scales were developed on the basis of a conceptual model as derived from the literature (Ball, 1997; Brockett & Hiemstra, 1991; Claes & Ruiz-Quintanilla, 1998; Guglielmino 1977; Hiemstra, 2000; Knowles, 1975; Kuijpers, 2003; Lankhuijzen, 2002; Oddi, 1984; Stockdale, 2003) and existing instruments (Claes & Ruiz-Quintanilla, 1998; Guglielmino, 1977; Kuijpers, 2003; Lankhuijzen, 2002; Oddi, 1984; Stockdale, 2003; Straka, 1999; Straka, 2000). Attention was paid to the straightforward formulation of items and to include situations applicable to lower qualified workers. The scale for self-directedness in learning processes (SDL-scale) and the scale for self-directedness towards career processes

(SDC-scale) consist both of 14 items. Participants were asked - on a 5-point scale (ranging from 1= strongly disagree to 5= strongly agree) - to rate to what extent each statement was applicable to them. For example: 'Last year, I learned a lot of new things for my job on my own initiative.' (SDL-scale) and 'I keep myself informed on new possibilities to develop my career.' (SDC-scale). Both scales reflect a uni-dimensional structure and a high reliability.

Proactive personality. Proactive personality (Bateman & Crant, 1993) is measured using the short version of the proactive personality scale (sPPS – 10 items) as used in the study by Seibert, Kraimer, and Crant (1999). A Dutch version of the scale was developed and validated by Pringels and Claes (2001). Participants were asked on a 5-point scale (ranging from 1= strongly disagree to 5= strongly agree) to what extent each statement was applicable to them. Example: 'No matter what the odds, if I believe in something I will make it happen'.

Career ambition. Career ambition was operationalised as the pursuit of knowledge work and mobility aspiration. Pursuit of knowledge work was measured using a 6-item scale developed by Pollet et al. (2000, and based on items from Hackman & Oldham). The participants were asked to indicate on a 5-point scale (from 1= presence is of less importance to 5= presence is very important) to what extent certain job characteristics are important to them. An example is: 'To what extent you think that learning a lot of new things in your work is important to you?'.

Mobility aspiration was defined by Kuijpers (2003) as the preferred position to which one's ambition is directed. The participants were asked to indicate their preferred position in their future career. There were four

possible answers: ‘higher level position’, ‘different job but same level’, ‘same position but broadening my tasks’ and ‘no change’. A dummy variable was created for mobility aspiration with ‘no change’ randomly chosen as referent for the remaining three other future positions.

Staff policy. Participation policy, learning policy and career policy were measured using items developed by Van den Brande (2002). The participants assess on a 5-point scale (ranging from 1= strongly disagree to 5= strongly agree) to what extent the statements are applicable to them. An exemplary item for each of the scales is: ‘If I call attention to a problem, we look together for a solution’ (participatory policy, 6 items), ‘In this organization I have the possibility to confer with my superior on my possible learning needs’ (learning policy, 4 items) and ‘In this organization, you can easily grow from a lower to a higher job level’ (career policy, 4 items). In order to provide multiple sources for one measure, the same items were as well presented to the Human Resources Manager.

Job characteristics. To measure job characteristics, items were selected from the ‘Job Diagnostic Survey’ developed by Hackman and Oldham (1975). Based on previous research outcomes (Raemdonck et al., 2005), the following job characteristics were selected: ‘task variety’ (degree to which the job requires a variety of different activities, or entails a number of different skills and talents) and ‘autonomy’ (degree to which the job provides substantial freedom and judgment of the employee in scheduling work and determining the procedures to be used). Extra items

were added by the researchers, focusing on 'opportunities to learn' (the degree to which the job provides opportunities to learn) and 'task complexity' (the degree to which the job requires to deal with complex tasks). Respondents were asked to reflect on the extent to which a statement was applicable to their job. The choice for ratings based on self-perception is supported by a variety of authors. Based on the Hawthorne-studies and on a constructivist point of view, Straka (1999) opts that the 'perceived' rather than the 'objective' work conditions contribute to the practise of self-directed learning. Frese et al. (1996) refer to the work of Semmer who demonstrated that self-report ratings of blue-collar workers and independent observer ratings were strongly correlated for autonomy at work and work complexity (r= .58 and r= .67 respectively). Moreover, referring to the work of Zapf (1989), Frese et al. claim that there is evidence that workers report job characteristics in a rather objective way.

Human capital variables. The participants are asked to reflect on their perceptions about their past career. 'Past career success' is assessed on a single item 5-point scale ranging from 1= very discontented to 5= very contented. Next, 'employment and mobility experience' is measured by asking the participants if they were mainly employed or unemployed in their career (from 1= always employed to 5= mostly unemployed) and a question about the number of internal and external job moves over the past five years. 'Hierarchical position' is measured by asking the participant whether they have an executive function or not. In order to measure 'past educational initiatives' the participants are asked whether they participated – on their own initiative - in courses or obtained

certificates that are relevant for their work or career. A dummy variable was used with 0 for ‘no’ and 1 for ‘yes’.

Other variables. ‘Size’ is defined as the total number of employees in the company. ‘Knowledge intensity’ is 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 distribution of the workforce according to qualification level. Sector and gender were coded as dummies. ‘Nourishment and food industry’ was randomly chosen as the reference base for analysing the other two sectors.

DATA-ANALYSES

Data Screening

Prior to analysis, all variables were examined for accuracy of data entry, missing values, outliers, normality, and multicollinearity, according to the procedure described by Cohen (2001), Neter et al. (1996), and Tabachnick and Fidell (2001). Missing data were estimated using the expectation maximization method (see Schafer & Olsen, 1998). Cases with standardized scores exceeding 3.29 ($p<.001$, two-tailed test) were considered as univariate outliers. These cases were replaced by a score that was one unit smaller or larger than the next most extreme score in the distribution. Mahalanobis distance calculation revealed no multivariate outliers. The dichotomous variables ‘employment

experience' and 'ethnicity' were not included in the analysis due to uneven splits (i.e. 90-10 split) between the two categories. It is advised to delete such variables as the correlation coefficients between these variables and others are truncated and the score in the category 10% of the cases are more influential than those in the category with 90% of the cases (Tabachnick & Fidell, 2001).

Normality of the variables was assessed by examining skewness and kurtosis. The variables 'pursuit of knowledge work' was negatively skewed and 'size' and 'mobility experience' was positively skewed. Data transformations were carried out to improve normality: NEWX= SQRT *(K-X)* for the moderate negative skewness of 'pursuit of knowledge work', NEWX= SQRT*(X)* for the moderate positive skewness of 'size' and LG10(*X*) for substantial positive skewness of 'mobility experience'. When interpreting these reflected variables, the direction of the interpretation needs to be reversed.

Linearity was diagnosed trough residuals scatterplots. The residuals were rectangularly distributed with a concentration of scores along the center. Predicted scores and the errors of prediction were related in a linear way. The assumption of homoscedasticity was as well fulfilled as the standard deviation of errors of prediction were relatively constant for all predicted scores. Multicollinearity was assessed through the subcommand 'collinearity diagnostics' in SPSS regression (Brace, Kemp & Snelgar, 2003). As 'years of work experience' and 'age' were strongly correlated (r= .939), the variable 'work experience' was removed from the analysis.

Scale construction

Based on the results of exploratory factor analyses, confirmatory factor analyses were conducted. Several criteria were used to evaluate and readjust the models, including evidence of correlated measurement errors (residuals) due to content overlap, the regression coefficient of each item, and the consistency with the theoretical framework. In line with the recommendations of Bollen and Long (1993), Byrne (2001) and Kline (2005) model fit was assessed using several fit indices: χ^2, the Root Mean Square Error of Approximation (RMSEA), the Goodness-of-Fit-Index (GFI), the Adjusted Goodness-of-Fit Index (AGFI) and the Comparative Fit Index (CFI). A cutoff value close to .06 for RMSEA was put forward to define a relatively good fit (Hu & Bentler, 1999). Browne and Cudeck (1992, 1993) suggest that values in the .05 to .08 range indicate acceptable fit. GFI, AGFI and CFI should be above .90 to indicate adequate fit (Medsker, Williams, & Holahan, 1994). If there is a good model fit, the chi-square value should not be significant as χ^2 is highly sensitive to sample size.

The results of the confirmatory factor analyses are shown in Table 2. As one can observe 'learning and career policy'- items were part of one factor. The same counted for the 'opportunities to learn'-items and the 'mobility opportunities offered by the job'- items which we labelled as the 'growth potential of the job'. Staff policy as measured by the HRM-department failed to produce any significant factors.

Based on the results of the CFA, summated rating scales were constructed.

Table 2 *Results of the confirmatory factor analyses and reliability coefficients (N= 408)*

Variables	χ^2 (df, p-value)	CFI	GFI	AGFI	RMSEA	α
Self-directedness in learning	125.8 (77, *p*<.001)	.95	.95	.94	.041	.81
Self-directedness in career	207.2 (77, *p*< .001)	.93	.93	.90	.066	.88
Proactive personality	45.2 (14, *p*<.001)	.93	.97	.93	.076	.74
Pursuit of knowledge work	10.5 (5, *p*=.061)	.98	.99	.97	.052	.72
Participatory staff policy	3.5 (2, *p*= .175)	.99	1.00	.98	.043	.64
Learning and career policy	28.2 (14, *p*= .014)	.98	.98	.96	.050	.78
Autonomy	1.9 (2, *p*=.386)	1.00	1.00	.99	.000	.72
Task variety	5.5 (2, *p*= .063)	.99	.99	.97	.066	.73
Growth potential	5.5 (2, *p*=.064)	.99	.99	.97	.066	.71
Task complexity	5.3 (2, *p*= .070)	.98	.99	.97	.064	.60

Note. Model fit indices, CFI= Comparative Fit Index, GFI= Goodness-of-Fit-Index , AGFI= Adjusted Goodness-of-fit index, RMSEA= Root-Mean Square Error of Approximation.

Analyses

Correlational analysis (research question 1) and multivariate regression (research question 2 and 3) were applied. In order to examine the second and the third research question, a stepwise method was first applied. This method is typically used to develop as subset of independent variables that is meaningful in predicting the dependent variable, and useful in eliminating those independent variables that do not provide additional prediction to the independent variables already in the equation (Tabachnick & Fidell, 2001). At the second stage, the significant predictor variables identified were entered in another regression model. Because the literature suggest that in a workplace context one should account for the *interaction* between the individual and organizational

factors in self-directing processes, it is important to consider interaction effects (Baskett et al., 1994, Judge et al., 1995). Therefore, a hierarchical multiple regression analysis was carried out for self-directedness in learning processes and for self-directedness in career processes (forced entry). Before the regression analyses were run, cross-product terms of centered independent variables were computed in order to test the significance of the interaction terms (e.g. Aiken & West, 1991; Cohen et al., 2003; Jaccard & Turrusi, 2003). Only main effects and relevant two-way interaction effects between organizational and individual factors were tested. In the first step, main effects were entered. The second step included the two-way interaction terms. We only report the results of the hierarchical multiple regression analyses.

RESULTS

Research question 1: Interrelations

Means, standard deviations and bivariate correlations were calculated (see Table 3). The correlations suggested interesting relationships between the independent variables. Proactive personality, pursuit of knowledge work and past educational initiative were positively related to the staff policy and job characteristics variables. These three individual characteristics were positively correlated. The same applies to staff policy and job characteristics.

A positive correlation was observed between executive function and the personality characteristics, staff policy and job characteristics. The

percentage of low-qualified workers was negatively related to percentage of complex work, task variety and degree of autonomy. Age was negatively related to pursuit of knowledge work and mobility aspiration (i.e. higher position and other job at the same level) but positively related to mobility experience, perceived staff policy and job characteristics. The correlations between the sector variables and also the mobility aspiration variables were due to dummy coding.

There were sufficient correlations between the independent variables and the dependent variables 'self-directedness in learning processes' and 'self-directedness in career processes' to examine their predictive value through multiple regression analysis.

Table 3

Descriptive Statistics and Intercorrelations between the Research Variables (N= 408).

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. Age	38.28	9.66	-	.12*	.12*	.15**	16**	-.33**	.08	-17**	-.24**	-.13**	.03
2. Gender	-	-	.12*	-	.04	.18**	.11*	-.17**	.07	.04	.08	-.07	-.00
3. Executive function/not	-	-	.12*	.04	-	.19**	.08	.04	.16**	-.25	.01	-.03	.08
4. Past Educational Initiatives	-	-	.15**	.18**	.19**	-	.06	-.03	.15**	-.22**	.11*	.02	.00
5. Past career experience	4.03	.90	.16**	.11*	.08	.06	-	-.13**	.10*	-.14**	-.12*	-.21**	.06
6. Mobility experience[a]	.20	.23	-.33**	-.17**	.04	-.03	-.13**	-	-.02	.043	.08	.07	.00
7. Proactive Personality	30.05	4.84	.08	.08	.16**	.15**	.10*	-.02	-	-.44**	.15**	-.01	.09
8. Pursuit of Knowledge Work[a]	2.31	.71	-.17**	.04	-.25**	-.22**	-.14	.04	-.44**	-	-.20**	.05	-.09
9. Mob. Asp: higher position/not	-	-	-.24**	.08	.01	.12*	-.12*	.08	.15**	-.20**	-	-.19**	-.34**
10. Mob Asp: same level other job	-	-	-.13**	-.07	-.03	.02	-21**	.07	-.01	.06	-.19**	-	-.21**
11. Mob Asp: same job, task extension	-	-	.03	-.00	.07	.00	.06	.00	.09	-.09	-.34**	-.21**	-
12. Sector: Chemical Industry	-	-	.02	.04	.10*	-.05	.05	.02	.08	-.10*	-.03	-.01	.17**
13. Sector: Energy	-	-	.27**	.15**	.07	.16**	.17**	-.14**	.03	-.10*	-.02	-.08	.02
14. Size[a]	14.58	5.00	.15**	.07	-.02	.05	-.04	-.17**	-.01	-.00	-.03	-.11*	.12*
15. % low-qualified workers	44	16.63	.04	-.03	-04	.00	.07	-.04	-.11*	.09	.02	.04	-.11*
16. % complex work	14.75	9.31	.19**	.20**	.02	.16**	.04	-.03	-.01	-12*	-.04	-.11*	.06
17. Learning and career policy	21.95	6.13	.20**	.24**	.17**	.15**	.22**	-.00	.27**	-.29**	-.05	-.11*	.14**
18. Participation policy	13.50	3.54	.20**	.07	.25**	.21**	.28**	.04	.29**	-.35**	-.07	-.07	.13**
19. Task Variety	15.05	3.77	.23**	.11*	.21**	.22**	.29**	-.01	.20**	-.29**	-.06	-.17**	.16**
20. Autonomy	14.13	3.90	.18**	.21**	.18**	.18**	.24**	-.06	.32**	-.34**	-.03	-.07	.11*
21. Task complexity	12.96	3.87	.13**	.17**	.30**	.30**	.18**	.03	.20**	-.26**	-.01	-.08	.18**
22. Growth potential	12.14	3.98	.08	.23**	.15**	.20**	.30**	.03	.18**	-.22**	.02	-.11*	.15**
23. Self-directedness in learning	58.68	10.40	.04	.04	.21**	.27**	.14**	.07	.50**	-.45**	.10*	-.09	.20**
24. Self-directedness in career	48.90	12.78	-.11	-.01	.18**	.13**	.02	.09	.47**	-.40**	21**	-.01	.18**

Note. *p<.05; **p<.01.

[a] Reflected variable. Reverse the direction of the interpretation.

(Table 3 continued)

Variable	12	13	14	15	16	17	18	19	20	21	22	23	24
1. Age	.02	.27**	.15**	.04	.19**	.20**	.20**	.23**	.18**	13**	.08	.04	-.11*
2. Gender	.04	.15**	.07-	.03	.20**	.24**	.07	.11*	.21**	.17**	.23**	.04	-.01
3. Executive function/not	.10*	.07	-.02	-.04	.02	.17**	.25**	.21**	.18**	.30**	.15**	.21**	.18**
4. Past Educational Initiatives	-.05	.16**	.05	.00	.16**	.15**	.21**	.22**	.18**	.30**	.20**	.27**	.13**
5. Past career experience	.05	.17**	-.04	.07	.04	.22**	.28**	.28**	.24**	.18**	.30**	.14**	.02
6. Mobility experience[a]	.02	-.14**	-.17**	-.04	-.03	-.00	.04	-.01	-.06	.03	.03	.07	.09
7. Proactive Personality	.08	.03	-.01	-.11*	-.01	.27**	.29**	.20**	.32**	.20**	.18**	.50**	.47**
8. Pursuit of Knowledge Work[a]	-.10*	-.10*	-.00	.09	-.12*	-.29**	-.35**	-.29**	-.34**	-.26**	-.22**	-.45**	-.40**
9. Mob. Asp: higher position/not	-.03	-.02	-.03	.02	-.04	-.05	-.07	-.06	-.03	-.01	.02	.10*	.21**
10. Mob Asp: same level other job	-.01	-.08	-.11*	.04	-.11*	-.11*	-.07	-.17**	-.07	-.08	-.11*	-.09	-.01
11. Mob Asp: same job, task extension	.17**	.02	.12*	-.11*	.06	.14**	.13**	.16**	.11*	.18**	.16**	.20**	.18**
12. Sector: Chemical Industry	-	-.40**	.13**	-.13*	.04	.20**	.06	.11*	.07	.15**	.03	.20**	.28**
13. Sector: Energy	-.40**	-	.04	-.04	.31**	.18**	.10*	.18**	.22**	.21**	.21**	.01	-.09
14. Size[a]	.13**	.04	-	-.03	.12*	.13*	.00	.09	-.02	.04	.00	.05	.03
15. % low-qualified workers	-.13*	-.04	-.03	-	-.29**	-.16**	-.06	-.15**	-.16**	-.06	-.10*	-.16**	-.11*
16. % complex work	.04	.31**	.12*	-.29**	-	.13**	-.01	.16**	.15**	.24**	.16**	.06	-.04
17. Learning and career policy	.20**	.18**	.13*	-.16**	.13**	-	.58**	.29**	.39**	.30**	.58**	.37**	.27**
18. Participation policy	.06	.10*	.00	-.06	-.01	.58**	-	.36**	.37**	.27**	.40**	.39**	.23**
19. Task Variety	.11*	.18**	.09	-.15**	.16**	.29**	.36**	-	.44**	.54**	.46**	.38**	.21**
20. Autonomy	.07	.22**	-.02	-.16**	.15**	.39**	.37**	.44**	-	.33**	.34**	.35**	.27**
21. Task complexity	.15**	.21**	.04	-.06	.24**	.30**	.27**	.54**	.33**	-	.41**	.36**	.20**
22. Growth potential	.03	.21**	.00	-10*	.15**	.58**	.40**	.46**	.34**	.41**	-	.36**	.22**
23. Self-directedness in learning	.20**	.01	.05	-.16**	.06	.37**	.39**	.38**	.35**	.36**	.36**	-	.66**
24. Self-directedness in career	.28**	-.09	.03	-.11	-.04	.27**	23**	.21**	.27**	.20**	.22**	.66**	-

Note. *p<.05; **p<.01.

[a] Reflected variable. Reverse the direction of the interpretation.

Research question 2 and research question 3: Strongest predictors and interaction effects.

Table 4 provides the results of the hierarchical regression analysis predicting *self-directedness in learning processes*. Each of the main effects added significantly to the explanation of the variance in self-directedness in learning processes (40%). As the table illustrates, variables from each set of predictors (demographic, personality, human capital, indirect and direct organizational variables) are responsible for explaining level of self-directedness in learning processes. The demographic variable 'age' predicts self-directedness in learning processes. This indicates that older workers are less intended to self-direct their learning. For the human capital variables, employees who have taken the initiative to participate in the past at educational activities demonstrate higher levels of self-directedness in learning processes. The set of personality variables were all significant in predicting the dependent variable except for mobility aspiration. Most striking is the role of proactive personality ($\beta = .304$). Employees with a high proactive personality and who are striving for knowledge work, are more likely to be self-directed in their learning process. Moreover, working in the chemical industry is associated with higher levels of self-directedness in learning processes.

Finally, individuals who perceive more variety or growth potential in their jobs or perceive a stimulating participatory staff policy, are more self-directed in their learning processes than employees experiencing less task variety, less growth potential and a less supportive policy.

The interaction terms between organizational and individual variables did not generate additional variance in self-directedness in learning (ΔR^2= .016, ΔF= .966, p=.477). More importantly, adding the interaction terms to the regression leads to a small decrease in the adjusted R^2.

Table 4

Hierarchical Multiple Regression with 'Self-directedness in Learning Processes' as Dependent variable (N= 408)

Variables	Beta	R^2	Adj. R^2	ΔR^2
Block 1: Main effects				
Age	-.099*	.409	.397	.409***
Past educational initiative	.116**			
Proactive personality	.304***			
Pursuit of knowledge work[a]	-.163***			
Sector: Chemical Industry/not	.096*			
Participation policy	.184**			
Task Variety	.141**			
Growth potential	.114*			
Block 2: Interactions				
Participation policy x Age	-.065	.426	.396	.016
Participation policy x Past educational initiative	-.050			
Participation policy x Proactive personality	-.031			
Participation policy x Pursuit of knowledge work	.011			
Task variety x Age	-.023			
Task variety x Past educational initiative	-.001			
Task variety x Proactive personality	.060			
Task variety x Pursuit of knowledge work	.073			
Growth potential x Age	.057			
Growth potential x Past educational initiative	-.012			
Growth potential x Proactive personality	-.096			
Growth potential x Pursuit of knowledge work	-.022			

Note. *p<.05, **p<.01, *** p<.001

Only the significant main effects are presented in block 1

[a] Reflected variable. Reverse the direction of the interpretation.

The key role of proactive personality is also demonstrated in the hierarchical regression predicting *self-directedness in career processes* (β= .309, see Table 5). Other personality characteristics such as pursuit of knowledge work and mobility aspiration are positively related to career self-directedness. Employees striving for knowledge work or striving for a higher job level or striving for task extension in the present job were more likely to be self-directed in their career. Moreover, working in the chemical industry explained again a significant positive amount in the level of self-directedness in career processes.

Growth potential, as a direct organizational variable, was a positive factor to predict career self-directedness. Higher perceived learning and mobility opportunities from the job is thus associated with higher levels of self-direction in career processes. However, the predictive value was somewhat weaker as compared to the predictive value of the personality characteristics. At last, the demographic variable 'age' significantly influenced the level of self-directedness in career processes, indicating older adults to be less active in self-directing their career than younger adults. Increased age predicts less career self-directedness.

The 'main effects' block accounted for most of the variance in self-directedness in career processes (38,5%). Again, no significant interactions were found between the organizational and individual variables on self-directedness in career processes (ΔR^2= .006, ΔF= .827, *p*=.531).

Table 5

Hierarchical Multiple Regression with self-directedness in career processes as dependent variable (N= 408)

Variables	Beta	R^2	Adj. R^2	ΔR^2
Block 1: Main effects				
Age	-.150***	.385	.374	.385***
Proactive personality	.309***			
Pursuit of knowledge work[a]	-.209***			
Mobility aspiration: Higher job position	.141**			
Mobility aspiration: Same job but task extension	.134**			
Sector: Chemical Industry/not	.208***			
Growth potential	.060			
Block 2: Interactions				
Growth potential x Age	.015	.392	.373	.006
Growth potential x Past educational initiative	.026			
Growth potential x Mobility aspiration: Task extension	.050			
Growth potential x Mobility aspiration: Higher job	.040			
Growth potential x Proactive personality	-.064			
Growth potential x Pursuit of knowledge work	.036			

Note. **p*<.05, ***p*<.01,*** *p*<.001

Only the significant main effects are presented in block 1.

[a] Reflected variable. Reverse the direction of the interpretation.

We can conclude that only the organizational and individual main effects and not their interactions predict self-directedness in learning and self-directedness in career processes.

DISCUSSION

Research findings

This study examined the role of individual and organizational characteristics in predicting self-directedness in learning and career processes in a large sample of low-qualified workers. The results of our analyses show that different categories of variables are indeed relevant.

A clear empirical link between proactive personality and self-directedness in learning and career processes has been established. Employees with a proactive personality will show more self-directedness in learning and career processes. This connection between proactive personality and domain-specific proactive behaviour was previously suggested and confirmed by Bateman and Crant (1993), Crant (2000) and, Claes and De Witte (2002). Our study enabled to test this relation among a specific group of employees that has hardly been studied thus far. Therefore, the findings are potentially relevant to generalize conclusions to a wider range of employees.

The other personality characteristics, such as pursuit of knowledge work and mobility aspiration, also predicted in a significant way self-directedness in learning processes and self-directedness in career processes. Employees who have a strong preference to carry out knowledge work are more self-directed in their learning and career processes. Employees who pursue vertical mobility in the future and employees who pursue the same career position but try to extend their task responsibilities are more self-directed toward their career than employees who want no change in their career. This group was also

more inclined towards self-directing their learning processes (p=.059). These findings, which were drawn on basis of a Scheffé-test, are not in line with Kuijpers (2003) who mainly found significant differences between employees who wanted no changes in the future and employees who pursued vertical mobility, indicating that the latter group was less self-directed in their learning processes.

Other predictors, such as age, past educational initiative, sector, staff policy and job characteristics were found to be relevant. A higher age predicts less self-directedness in learning and career processes. Past educational initiative is positively related to self-directedness in learning processes. The economic sector of the company plays a role, but the underlying rationale for this impact is difficult to specify. 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 remarkably higher as compared to the nourishment and food industry where significant lower levels of self-directedness were observed (again based on the post-hoc Scheffé-test results). Significant differences in level of self-directedness between the chemical industry and energy sector were only found in relation to career self-directedness. For self-directedness in learning processes no significant differences were ascertained between both sectors.

Next, presence of a stimulating participatory staff policy was favourable to self-directedness in learning processes. In organizations whose policy supports active participation, employees are more intended to demonstrate higher levels of self-directedness in learning processes. At

last, and as expected, some job characteristics significantly predict self-directedness in learning and career processes. Task variety is an important variable in the prediction of learning self-directedness and growth potential seemed to be a less pronounced but still significant predictor of both self-directedness in learning and career processes. The more task variety, the more employees are in a position to be self-directed in their learning and the more growth potential of the job, the more employees are inclined to self-direct their learning and career processes.

The interaction terms between individual and organizational factors did not generate additional explained variance. This finding is not in line with the assumptions presented in the literature (see e.g., Baskett et al., 1994; Judge et al., 1995). Our findings do confirm that successful self-directedness in learning and career processes is based on both the individual and the organizations characteristics. These factors however operate more or less independently from each other in the prediction of self-directedness.

Contrary to our expectations, ‘degree of autonomy’ and ‘job complexity’ were no significant predictors for self-directedness. Yet, 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 because this combination provides contextual challenges and opportunities for successful learning. Therefore, it might be interesting in future research to examine whether there is a two-way interaction between job

complexity and degree of autonomy when predicting self-directedness in learning processes.

The following variables were not helpful to explain variance in self-directedness: gender, executive function or not, past career success, mobility experience, size and knowledge intensity of the organization and a stimulating learning and career policy

Implications for humane resource practise

The results have a number of implications for human resources practise that go beyond the Flemish context. Firstly, since the main effects account for the largest proportion in the variance of self-directedness, some promising and immediate effects can be expected from the implementation of specific organizational measures. This finding is encouraging for human resources practitioners.

The impact of task variety and a stimulating participation policy on self-directedness in learning does not depend on the level of proactive personality or the degree to which the employees strives for knowledge work or differs for employees who have taken past educational initiatives or not. Nor does the impact of growth potential on self-directedness in learning and career processes differs between people with different levels of individual characteristics. As a result, we expect that employees will profit from working in a stimulating environment that offers task variety, growth potential and in which a participatory staff policy has been implemented.

Secondly, a very striking finding is the role of the variable proactive personality. The findings suggest that higher level of self-directedness in

learning and career processes 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 practises to stimulate self-directed behaviour for those employees who do not have a proactive personality (see Claes & De Witte, 2002).

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

Limitations and future directions

Some limitations of the present study should be considered. A first limitation is the cross-sectional design which forces us to be careful when drawing conclusions about causal relationships. The results do not allow to state e.g., that self-directedness in learning and career processes will change due to indirect and direct organizational characteristics. Second, causal relationships might also exist between the independent variables (e.g. age might predict mobility aspiration but not reversely). These relationships were not investigated. Third, the study did not allow examining the relationship between self-directedness in learning and career processes and outcomes such as employability. Longitudinal

research is needed to examine this issue in the near future. Fourth, the present study builds on perceptions and self-reported ratings. Attempts were made to achieve triangulation by building on the collection of data from multiple sources (employees and member of the human resource department), but the factor analysis failed to reveal any meaningful factors. Independent ratings, building on observations from researchers might be a future alternative. Fifth, some of the predictor variables (mobility aspiration, past career success, past educational initiative) were measured with a single item in the scales. The quality of these items could not be determined (Judge et al., 1995). Sixth, 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. Finally, although the amount of variance explained was satisfactory, there are still other variables that were not included in the study e.g. individual variables such as self-efficacy, desire for control, perceived mastery, production ownership and organizational variables like internal mobility opportunities, support from the immediate supervisor, influence of working in self-directed teams and shift work. Factors outside the job context might also be considered as relevant predictors, such as family composition, the support from family and labour market mechanisms. In the present, we were not able to examine the influence of 'ethnicity' as the representation of migrants in our sample was too small. The energy and the chemical industry are sectors with a relatively low percentage of migrants. This requires us to continue the study about self-directedness in leaning and career processes, by building on the present findings and considering the weaknesses reported above.

CONCLUSIONS

Concluding, the present study shows that different clusters of variables help to predict self-directedness in learning and career processes. Self-directedness in learning and career processes is clearly a function of demographic, human capital and personality characteristics and a number of direct and indirect organizational characteristics. However, the personality variables accounted for a larger amount of the variance in self-directedness in learning and career processes as compared to variables from other clusters. Most striking is the key role of proactive personality. In addition, the interaction terms between individual and organizational factors did not generate supplementary explained variance in self-directedness in learning and career processes.

This study was innovative because of the inclusion of both individual and organizational variables in the study and because of the involvement of low-qualified employees. Future research can benefit from the theoretical model presented in this article and the empirical base to ground this elaborated model of self-directedness.

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Chapter 5

Is self-directedness in learning and career processes related to the employability of low-qualified employees?

A model linking self-directedness in learning and career processes and employability.

Abstract

Employability has become a critical asset of employees to survive in a knowledge-driven economy. Large segments of the working population have been confronted with skills obsolescence (Rocco & Thijssen, 2006; Thijssen & Walter, 2006) and increased job insecurity. In this context, self-directedness in learning and career processes are key competences to stay employable. However, there is hardly empirical evidence demonstrating a positive causal effect of self-directedness on employability. In a longitudinal study, self-directedness in learning processes and self-directedness in career processes were examined as predictors of future employability in a sample of low-qualified employees. The results demonstrate that self-directedness in learning processes predicts future learning initiatives and future turnover realization, and that self-directedness in career processes predicts the future realization of mobility aspirations and future turnover realization. Age, pursuit of knowledge related work, past learning initiatives, task variety, growth potential of the job, economic sector and mobility opportunities within the labour market were identified as other significant predictors of the criterion variables.

Keywords: *employability, job tenure, learning initiatives, career success, self-directed learning, self-directed career planning, predictors, low-qualified employees.*

INTRODUCTION

Businesses, organizations and the larger socio-economic environment have always determined the context in which employment and career opportunities evolve over time (Prince, 2003). One remarkable change is

that the traditional idea of lifetime employment has drastically lost its ground as organizations are being restructured and/or downsized. This has affected the characteristics of the employment relationship, such as a reduced commitment by both the organizations and their employees (Prince, 2003). The changes affect the complete workforce, including both employees with higher and lower qualifications. Individuals are expected to be more self-directed in their career and approach to lifelong learning (Jackson, 1996), and this is view of remaining employable (Ellinger, 2004). Self-directedness in learning processes and self-directedness in career processes become in this context critical survival tools.

The present study centres on employability as the key notion. Self-directedness in learning processes and self-directedness in career processes are considered as determinants of employability (Raemdonck, Thijssen & Valcke, 2005). It is assumed that both positively determine the level of employability (Marx, Ramioul & Sels, 2004). There is a lack of empirical research to ground the former assumption. It is not clear whether employees who are highly self-directed are more capable to maintain their job or are realizing to a higher extent their job mobility aspirations or are more capable to realize their future learning projects, as compared to people who are less self-directed. Available studies have especially centred upon the relationship between self-directedness and job performance (see e.g. Durr, 1992; Durr, Guglielmino, L.M. & Guglielmino, P.J., 1994; Guglielmino, P.J., Guglielmino, L.M. & Long, 1987; Jude-York, 1993; Noe, 1996; Roberts, 1986; Yu, 1998) or on objective and subjective career success (see e.g. King, 2004; Seibert, Kraimer & Crant, 1999,2001; Van Loo, 2005). In addition, the present

study concentrates on low-qualified employees (defined in this study as having no formal diploma of initial secondary education). Thus far, most studies focused on higher qualified employees (Brookfield 1984, 1985; Caffarella & O'Donnell, 1987; Claes & Ruiz-Quintanilla, 1998; Forrier & Sels, 2005; Long & Morris, 1995; Raemdonck, 2003).

Before discussing the research questions and the empirical study, we first present the conceptual base and a research model that guided the research.

THEORETICAL BASE: LINKING SELF-DIRECTEDNESS IN LEARNING AND CAREER PROCESSES AND EMPLOYABILITY

Analysis of the literature points at a large number of variables and processes that play an interrelated role in this context. Figure 1 summarizes this complex interplay that is expected to describe and explain the impact on the future employability of low-qualified employees. A number of individual and organizational variables influence self-directedness in learning and career processes. Self-directedness, in combination with job mobility opportunities within the labour market are expected to predict future employability of this group of employees. A number of indicators are presented to operationalise future employability. In the next paragraphs, we discuss in more detail this theoretical model. A discussion of the available theoretical and empirical base will be helpful to define more concrete research questions.

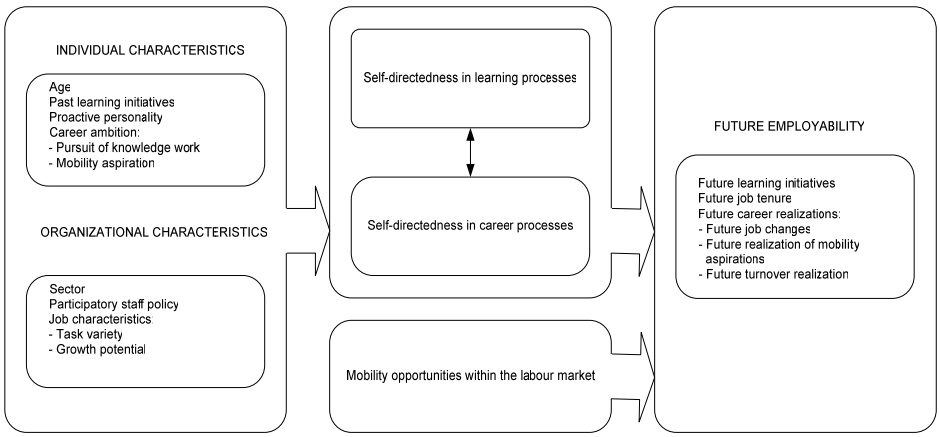

Figure 1: Theoretical model describing variables related to self-directedness in learning and career processes

Modelling predictors of self-directedness in learning and career processes.

We define 'self-directedness in learning processes' as *a characteristic adaptation to influence work-related learning processes in order to cope for oneself on the labour market*. Parallel to this definition we define 'self-directedness in career processes' as *a characteristic adaptation to influence career processes in order to cope for oneself on the labour market.* Earlier research demonstrated that both concepts are clearly and strongly interrelated (Raemdonck, Thijssen & Valcke, 2005).

In subsequent research, predictors of self-directedness in learning and career processes have been identified (Raemdonck et al, 2006). A number of both individual and organizational variables could be identified as significant predictors of self-directedness. At the level of the individual employee, it was clear that the following characteristics of employees are positively related to a higher level of perceived self-

directedness: a lower age level, past involvement in learning initiatives, a proactive personality and clear aspirations as to job mobility and tracking a more knowledge-based job. In comparison, the following organizational characteristics of the job context have a positive impact on the level of perceived self-directedness: the economic sector, the extent to which a participatory staff policy has been established and job qualities that are linked to task variety and the potential to grow in the job.

Despite the available empirical evidence, the question remains unanswered whether and/or to what extent this complex set of variables also helps to predict future employability. Therefore, in the present study we integrate this set of variables in a larger hypothetical model that links the variables to criterion variables related to employability.

Self-directedness in learning processes, self-directedness in career processes and mobility opportunities within the labour market as predictors of future employability.

Based on Hillage and Pollard (1998) and Brown, Hesketh and Williams (2003) employability is defined as the *relative chances of gaining initial employment, maintaining employment and obtaining new employment if required*. As can be derived from Figure 1, we stress the fact that employability cannot be defined solely in terms of individual characteristics (i.e. the individual's capability), since it might also be influenced by economic determinants (De Grip, van Loo, & Sanders, 2004; Houston, 2005; McQuaid & Lindsay, 2005). In this respect, Brown et al. (2003) distinguish between an absolute and relative

dimension in determining employability. The absolute dimension refers to the individual and the question whether he or she masters the appropriate skills, knowledge and is committed to realize a level of employability. The relative dimension pertains to the influence of labour market mechanisms by pointing at the laws of supply and demand within the job market. We define the latter as 'job mobility opportunities within the labour market'. In our study, we apply an understanding of employability that is holistic, and so focus on both determinants. We exclude the aspect of gaining an initial employment position as we deal with individuals who already passed this initial stage.

Employability is a complex concept. Inspired by Pollet et al. (2000) and Landau, Shamir and Arthur (1992) three components are identified: (1) An employable person is a person who takes learning initiatives, (2) is able to remain employed (job tenure), and (3) is able to obtain new employment after being unemployed or as the result of active career planning (career realizations). We consider these three components as operational success indicators of employability. The third indicator will be assessed in three different ways (see research design section). Our study aims at examining whether different levels of self-directedness in learning and career processes and different levels of perceived mobility opportunities within the labour market predict future learning initiatives, predict future job tenure and future career realizations. In the next paragraphs we discuss these three indicators in more detail and present hypothetical relationships that will be tested in the study.

Self-directedness in learning processes, self-directedness in career processes and mobility opportunities within the labour market as predictors of future learning initiatives.

In earlier research, self-directedness in learning processes has been found to be positively correlated with continuous and self-directed learning initiatives (Jude-York, 1993), success in continuing education courses (Savoie, 1979), conducting learning projects (Hassan, 1982) and future enrolment and engagement in self-directed learning courses (Conn, 2000). Van Loo (2005) found a positive impact of training-related self-management on participation in training to combat skills obsolescence and to enhance career opportunities. Accordingly, we expect that a higher level of self-directedness in learning processes will have a positive influence on employee's future learning initiatives.

Noe (1996) examined the relationship between the career self-management process and participation in developmental activities in a sample of employees from a state agency. Overall, limited support was found for the relationship between career management and employee's developmental behaviour on basis of ratings by the employee's manager. Therefore, we expect self-directedness in career processes not to be a significant predictor of taking up future learning initiatives.

Based on Brown et al. (2003) who state that mobility opportunities for low-qualified employees depend on whether there are other more qualified or experienced people looking for the same kind of jobs, it is expected that low-qualified employees start taking future learning initiatives when low mobility opportunities are perceived. Therefore, we expect that low perceived mobility opportunities within the labour market positively influence future learning initiatives.

Self-directedness in learning processes and self-directedness in career processes as predictors of future job tenure.

A study carried out by Van Loo (2005), involving a sample of administration employees, shows that an investment in their general training for skills obsolescence, raised the probability to remain employed. However, Van Loo found no significant effects of career related self-management initiative on job tenure. In a qualitative study among senior training managers, HRD directors and vice-presidents, Short and Opengart (2001, 2002) found that employees who explicitly choose to remain with the same organization were focused on maintaining their employability through learning and development initiatives. We therefore expect that self-directedness in learning processes will positively predict future job tenure. We do not expect self-directedness in career processes to guarantee future job tenure.

No influence is expected from mobility opportunities within the labour market on future job tenure.

Self-directedness in learning processes, self-directedness in career processes and mobility opportunities within the labour market as predictors of future career realizations.

Research findings from Kohn and Schooler (1982), based on a longitudinal analysis of data from a sample of men employed in civilian occupations, demonstrate that a self-directed orientation leads - over time - to vertical job changes. Van Loo (2005) found a significant positive impact of career related self-management initiatives on workers' external labour market potential, reinforcing the probability of finding

another suitable job. Surprisingly, no significant impact was detected from an investment in general skills training to counter skills obsolescence on the employee's external labour market potential. This is a rather unexpected finding since general training initiatives are expected to be valuable assets to foster career opportunities outside the present job context. On the other hand, general training initiatives that focused on career advancement impacted employee's external labour market potential in a positive way.

Building on the available empirical evidence, we expect that self-directedness in career processes will have a positive impact on future career realizations. In contrast, we expect that self-directedness in learning processes will not have a positive influence on future career realizations.

Following Brown et al. (2003) who state that mobility opportunities for low-qualified employees depend on whether there are other more qualified or experienced people looking for the same kind of jobs, it is expected that low-qualified employees are more able to realize their career plans when they perceive high mobility opportunities for themselves. Therefore, we expect that highly perceived mobility opportunities within the labour market positively influences future career realizations.

Employability of low-qualified employees

Little is known about the consequences of the upcoming knowledge economy for the actual employability status of low-qualified employees, nor do we know whether low-qualified employees are successfully

maintaining their future employability level (see e.g., Pot, 1998). Previous empirical research does not provide us with a clear-cut answer to the question whether low-qualified employees are successful in taking learning initiatives, in maintaining their employment and in realizing their career plans. Limited empirical evidence is available that is helpful to describe the development of future employability of low-qualified employees.

Research findings of Nicaise and Bollens (1995), based on data from a sample of employed and unemployed subjects, demonstrated that higher qualification levels were associated with higher extents of formal learning initiatives. The same results were found by Forrier and Sels (2003) in a sample of temporary and permanent employees. Low-qualified employees were less maintaining their employability through future learning initiatives.

On basis of a study by Pollet et al (2000) among 226 low-qualified employees in the service sector, some indications can be found toward future job tenure and future career realizations of low-qualified employees. Pollet et al. found that in organizations where 75% of the employees are low-qualified the percentage of low-qualified employees increased over time and, in organizations with less than 25% low-qualified employees the percentage of low-qualified employees decreased. It can be suggested that over time, low-qualified employees are more able to maintain their employment and to realize new employment opportunities in the 'low-qualified companies'. In the 'higher qualified companies' future job tenure and career realizations can be less guaranteed. The percentage inflow of low-qualified employees was smaller than the percentage of outflow. In 'low-qualified

companies' the opposite trend was observed. Moreover, higher levels of growth potential in the job were associated with higher ratings of perceived career realization opportunities. At last, a relatively small percentage (17,4%) of the low-qualified employees showed turnover intentions. No further research is available of their actual turnover behaviour.

In this study some further exploratory research will be conducted towards low-qualified employees' future employability status.

RESEARCH DESIGN

Research questions

Building on the theoretical model, the following research questions are put forward:

(1) How successful are low-qualified employees in their employability?

(2) Are self-directedness in learning processes and self-directedness in career processes, and mobility opportunities within the labour market significant predictors of future employability?

Research sample

Low-qualified employees were involved in the present study. The participants were employed in 35 companies, representing the energy sector, the chemical industry and the food and nourishment industry. The organizations were all located in the Flemish part of Belgium.

Employees were selected upon their initial qualification level. Only participants without a formal diploma of secondary education were taken into consideration. The selection of respondents with these particular qualifications is based on a clear shortcoming in the available literature and research related to self-directedness in learning and career processes (see Brookfield 1984, 1985; Caffarella & O'Donnell, 1987; Claes & Ruiz-Quintanilla, 1998; Forrier & Sels, 2005; Long & Morris, 1995; Raemdonck, 2003).

Despite the lower initial qualification background, participants carried out a wide variety of tasks, with varying levels of responsibilities; such as production-level operator, team leader, clerical worker, middle-level manager etc.

The researcher selected at random participants from the list of respondents that met the basic criterion within a specific company.

Research procedure

The research procedure was set up in two phases. A "time 1" phase at the start of the study and a "time 2" phase, one year after the first phase.

Four hundred and eight low-qualified employees were first interviewed in 2004-2005. During work time the questionnaires were administered individually. The questionnaire was read aloud to the employees to overcome problems with reading comprehension. One year after the first trial, a follow-up study was conducted to collect information about the employability indicators. Of the three hundred forty-eight employees who gave permission to be contacted again, two hundred eighty-four (82%) employees were interviewed about the different indicators related

to employability. Two hundred fifty-six employees working with a permanent contract were still working under the same conditions at time 2. Five employees were now working under a temporary contract. Seven employees having a temporary contract at time 1 were offered a permanent contract at time 2 and six of the temporary contract workers at time 1 were still working under the same conditions at time 2. Eight individuals were retired at time 2. Three respondents decided to brake of the interview. No further information is available about their employability status.

A systematic drop-out analysis was carried out to study potential bias influencing non-participation in the follow-up study. Inspired by Schooler, Mulatu and Oates (2004), a series of logistic regression analyses were performed in order to determine if the time 2-sample differed from the time 1-sample. Individual characteristics, organizational characteristics, perceived mobility opportunities within the labour market and factor scores for level of self-directedness in learning, and level of self-directedness in career processes were used to predict whether there were differences (1) between the subjects who were willing to cooperate for the follow-up study and those who were not willing to cooperate and (2) between the interviewed and subjects who wanted to cooperate but due to circumstances could not be contacted.

Five significant predictors were identified whether or not subjects were willing to cooperate in the follow-up study: lower scores on self-directedness in learning and career processes, participants with a lower level of pursuit of knowledge work, those with lower levels of perceived task variety and employees working in the food and nourishment

industry were less likely to have been found in the time 2-sample. We will pay special attention to the outcomes of this analysis in the discussion section.

No significant predictors could be detected that predict whether subjects were willing to be interviewed and were being interviewed or could not be interviewed due to circumstances.

The complete procedure was reviewed by an ethical advisory committee. Respondents gave their informed consent to participate in the study.

Research instruments

At time 1

Determination of individual characteristics. In order to measure *past learning initiatives,* the participants were asked whether they participated at their own initiative in courses or received certificates which could be relevant to their work or career. A dummy variable was used in the analyses, with 0 for 'no' and 1 for 'yes'. *Proactive personality* (Bateman & Crant, 1993) is measured using the short version of the proactive personality scale (sPPS – 10 items) as used in a study by Seibert, Kraimer, and Crant (1999). The Dutch version of the scale was developed and validated by Pringels and Claes (2001). Participants were asked on a 5-point scale (ranging from 1= strongly disagree to 5= strongly agree) to what extent each statement was applicable to them. An exemplary item is: 'No matter what the odds, if I believe in something I will make it happen'. *Career ambition* was operationalized as pursuit of knowledge work and mobility aspiration.

Pursuit of knowledge work was measured using a 6-item scale developed by Pollet et al. (2000, based on items from Hackman & Oldham). The participants were asked to indicate on a 5-point scale (from 1= presence is of less importance to 5= presence is very important) to what extent certain job characteristics are important to them. An example is: 'To what extent you think that learning a lot of new things in your work is important to you?' *Mobility aspiration* was defined by Kuijpers (2003) as the preferred position to which one's ambition is directed. The participants were asked to indicate their preferred position for their future career. There were four possible answers: 'higher level position', 'different job but same level', 'same position but broadening my tasks' and 'no change'.

Determination of organizational characteristics. The *sector* was noted down as it was one of the key stratification variables. Next, perceived *participatory staff policy* of the company was measured by using items from the scale developed by Van den Brande (2002). The participants indicated on a 5-point scale (ranging from 1= strongly disagree to 5= strongly agree) to what extent the statements were applicable to them. Example items: 'Whenever I observe a problem, a solution is searched for with my help.', 'In this organization, I get the opportunity to make suggestions for improving the work organization' and 'I am asked for my opinion whenever decisions may have consequences for me.

To measure the job characteristic *task variety* (degree to which the job requires a variety of different activities, or entails a number of different skills and talents) items were borrowed from the 'Job Diagnostic Survey' developed by Hackman and Oldham (1975). Items for *growth*

potential in the job (degree to which the job provides learning and mobility opportunities) were developed by the authors. Respondents were asked to reflect on the extent to which a statement was applicable to their job.

Self-directedness in learning and career processes. Two scales have been developed to measure someone's characteristic adaptation to influence learning processes/ career processes. The scales were developed on the base of the literature (Ball, 1997; Brockett & Hiemstra, 1991; Claes & Ruiz-Quintanilla, 1998; Guglielmino 1977; Hiemstra, 2000; Knowles, 1975; Kuijpers, 2003; Lankhuijzen, 2002; Oddi, 1984; Stockdale, 2003) and partly on items taken from existing instruments (Claes & Ruiz-Quintanilla, 1998; Guglielmino, 1977; Kuijpers, 2003; Lankhuijzen, 2002; Oddi, 1984; Stockdale, 2003; Straka, 1999; Straka, 2000). Attention was paid to the straightforward formulation of items and to include situations applicable to low-qualified employees. The scale for self-directedness in learning processes (SDL-scale) and the scale for self-directedness towards career processes (SDC-scale) consist both of 14 items. Participants were asked on a 5-point scale (ranging from 1= strongly disagree to 5= strongly agree) to what extent each statement was applicable to them. An exemplary item is: 'Last year, I learned a lot of new things for my job on my own initiative.' (SDL-scale) and 'I keep myself informed on new possibilities to develop my career.' (SDC-scale). Both scales reflect a uni-dimensional structure and a high reliability.

Mobility opportunities within the labour market. Mobility opportunities within the labour market was assessed on a single item 3-point scale ranging from 1= few mobility opportunities to 3= many mobility opportunities. The participants were asked to reflect on their perception of their mobility opportunities within the labour market at time 1.

At time 2

Employability.

Employability status was assessed one year after the first trial via objective measures. *Future learning initiatives*, as a first indicator of future employability, was measured asking the participants whether in the past year they participated at their own initiative in training or courses which could be relevant to their work or career. If they participated, they were asked to state the course(s)/the training. Respondents who were not involved in learning initiatives were coded 0 and respondents who had taken learning initiatives were coded 1. The second indicator *future job tenure* was measured asking respondents whether they were still working in the same organization or not and whether leavers left voluntary or not. Respondents were coded A for stayers, B for voluntary leavers and C for forced leavers. Finally, the third indicator *future career realizations* was assessed in three different ways. First, the respondents were asked whether there were any job changes at time 2 with A for 'no future job changes', B for 'future lateral job changes (i.e. same job but task extension, internal or external job move at same level as time 1) and C for 'future vertical job changes'(internal or external increase in job position). Second, job

position at time 2 was compared to respondent's mobility aspiration at time 1. A 'future realization of mobility aspirations' was coded A, 'no future realization of mobility aspirations' was coded B and 'no mobility aspirations and realization' was coded C. Third, turnover intention at time 1 was compared to turnover behaviour at time 2. 'Turnover intentions but no actual turnover behaviour' was coded A, 'turnover intentions and turnover behaviour' was coded B and no initial turnover intentions was coded C.

DATA-ANALYSIS APPROACH

Data screening

Prior to the analyses, all variables were examined for accuracy of data entry, missing values, outliers and multicollinearity, according to the procedure described by Cohen (2001), Moore et al. (2006), Neter et al. (1996) and Tabachnick and Fidell (2006). Cases with standardized scores exceeding 3.29 (p<.001, two-tailed test) were considered as univariate outliers. These cases were replaced by a score that was one unit smaller or larger than the next most extreme score in the distribution. Additionally, all analyses are performed using listwise deletion. As logistic regression is sensitive to multicollinearity between predictor variables (see Peng, Lee & Ingersoll, 2002) separate analyses were performed for self-directedness in learning processes and self-directedness in career processes. In each of the analyses 'mobility opportunities within the labour market' was a second predictor variable.

Next, expected cell frequencies of the discrete variables, including the outcome variables were evaluated. Building on the criterion of Tabachnick and Fidell (2006) discrete independent variables were removed from the analysis to reduce the number of cells when conditions were not met (too few cases relative to the number of predictor variables, and inadequacy of expected cell frequency).

Scale construction

Based on the results of exploratory factor analyses, confirmatory factor analyses were conducted. Several criteria were used to evaluate and readjust the models, including evidence of correlated measurement errors (residuals) due to content overlap, the regression coefficient of each item, and the consistency with the theoretical framework. In line with the recommendations of Bollen and Long (1993), Byrne (2001) and Kline (2005) model fit was assessed using several fit indices: χ^2, the Root Mean Square Error of Approximation (RMSEA), the Goodness-of-Fit-Index (GFI), the Adjusted Goodness-of-Fit Index (AGFI) and the Comparative Fit Index (CFI). A cutoff value close to .06 for RMSEA was put forward to define a relatively good fit (Hu & Bentler, 1999). This is in line with the recommendations of Browne and Cudeck (1992, 1993) that suggest that values between .05 to .08 indicate an acceptable fit. GFI, AGFI and CFI should be above .90 to indicate adequate fit (Medsker, Williams, & Holahan, 1994). A good model fit is also reflected in significant chi-square values; though χ^2 is highly sensitive to large sample sizes. The results of the confirmatory factor analyses are

shown in Table 1. The scales reflected a good model fit and high reliability.

Based on the results of the CFA, sum scores were constructed for each of the scales.

Table 1

Results of the confirmatory factor analyses and reliability coefficients (N= 408)

Variables	χ^2 (*df*, *p*-value)	CFI	GFI	AGFI	RMSEA	α
Self-directedness in learning	212.8 (104, *p*=.001)	.90	.93	.90	.052	.81
Self-directedness in career	207.2 (77, *p*= .001)	.93	.93	.90	.066	.88
Proactive personality	45.2 (14, *p*=.001)	.93	.97	.93	.076	.74
Pursuit of knowledge work	10.5 (5, *p*=.061)	.98	.99	.97	.052	.72
Participatory staff policy	3.5 (2, *p*= .175)	.99	1.00	.98	.043	.64
Task variety	5.5 (2, *p*= .063)	.99	.99	.97	.066	.73
Growth potential	5.5 (2, *p*=.064)	.99	.99	.97	.066	.71

Note. Model fit indices, CFI= Comparative Fit Index, GFI= Goodness-of-Fit-Index , AGFI= Adjusted Goodness-of-fit index, RMSEA= Root-Mean Square Error of Approximation.

Analyses

First, descriptive statistics were retrieved to assess the employability of employees one year after the first trial (research question 1). Next, correlational analysis and binary and multinomial logistic regression analyses (research question 2) were conducted to examine the extent to which self-directedness in learning and career processes and mobility opportunities within the labour market explain variance in employability (comprising employee's future learning initiatives, future job tenure and future career realizations). The effect of level of self-directedness in learning and career processes (as absolute dimension) and mobility

opportunities within the labour market (as relative dimension) was examined on different criterion variables measuring one general latent construct 'employability', when controlled for other variables (the predictors of self-directedness in learning and career processes). Because of low cell frequencies (see table 2), the analyses with future job tenure as dependent variable were unreliable even after deletion of a number of variables and were thus not reported.

Reporting and interpreting of the logistic regression results was based on Agresti (1996), Brace et al. (2003), Moore et al. (2006), and Peng et al. (2002).

RESULTS

Research question 1: How successful are low-qualified employees in their employability?

Eighty employees out of two hundred eighty four participated - on their own initiative - in learning activities during the year following the first trial (see Table 2). Reasons given for not initiating learning activities were related to lack of time, no learning needs, increased age, shift work and a lack of motivation. It was concluded that most of the employees were not successful in initiating future learning activities.

Only five employees were unemployed at time 2. Seven employees left voluntary and eight employees were dismissed. Five forced leavers got a new job in less than three months and half of the employees who left the organization were employed in another sector. The majority of the

employees did not leave the organization. Most of the low-qualified employees were thus successful in their future job tenure.

Sixty one employees showed turnover intentions at time 1 but only seven of them eventually left (voluntary or not) between time 1 and time 2. None of the seven employees were employed in the energy sector and eleven employees with turnover intentions could not be reached. Most of the employees were still employed in the same job at time 2 (n=170). Eighty four employees got lateral job changes (task extension or lateral job move) and fourteen of them passed a vertical job change. Next, the employee's mobility aspiration was compared to ones job position at time 2. One hundred fifty nine employees realized no match between their mobility aspiration and their job position at time 2, and forty three employees were able to realize a match. Sixty eight had no initial mobility aspirations and no actual job changes. On the base of these results there were indications that most of the low-qualified employees are less successful in their future career realizations as the majority realizes no future (vertical) job changes, realizes no mobility aspirations in the future and has no initial turnover intentions.

Table 2: *Descriptives Future Employability (N: 284)*

Future learning initiatives in %	
No future learning initiatives	71,3%
Future learning initiatives	28,7%
Future job tenure in %	
Future job tenure: Stayers	94,7%
Future job tenure: Voluntary leavers	2,5%
No future job tenure: Forced leavers	2,8%
Future career realizations in %	
- Future job changes:	
No future job changes	63,4%
Future lateral job changes	31,3%
Future vertical job changes	5,2%
- Future realization of mobility aspirations:	
No mobility aspirations and realization	25,2%
No future realization of mobility aspirations	58,9%
Future realization of mobility aspirations	15,9%
- Future turnover realization:	
No turnover intentions	80,4%
Turnover intentions but no future turnover behaviour	16,4%
Turnover intentions and future turnover behaviour	3,2%

Research question 2: Are self-directedness in learning processes and self-directedness in career processes, and mobility opportunities within the labour market significant predictors of future employability?

Means, standard deviations and bivariate correlations were calculated (see table Appendix 1).

Self-directedness in learning processes, self-directedness in career processes and perceived mobility opportunities within the labour market were positively and significantly related to future learning initiatives and future job changes. Moreover, self-directedness in learning processes was positively related to future job changes and self-directedness in career processes was negatively related to future realization of mobility

aspirations and future turnover realization. However, control variables were also significantly related to the different indicators of employability. A positive correlation was observed between past learning initiatives, the job characteristics and future learning initiatives. All of the individual characteristics were related to future job changes and age, mobility aspiration and proactive personality to future realization of ones mobility aspirations. Finally, age, mobility aspiration and the organizational variables except for economic sector were significantly related to future turnover realization.

There were sufficient significant correlations between the predictive variables and the criterion variables 'future learning initiatives', 'future job changes', 'future realization of mobility aspirations' and 'future turnover realization' to examine their predictive value through logistic regression analysis.

A series of logistic regressions were used to examine the predictive value of self-directedness in learning processes, self-directedness in career processes and mobility opportunities within the labour market on the different indicators of future employability. First, analyses were performed with future learning initiatives as criterion variable. Second, future career realizations was selected as criterion variable with successively future job changes, future realization of mobility aspirations and future turnover realization taken as subcriterion variable. As mentioned previously, two models are tested per (sub)criterion variable. A first model comprises self-directedness in learning processes and mobility opportunities within the labour market as predictor variables, and the predictors of self-directedness as control variables. A

second model comprises self-directedness in career processes and mobility opportunities within the labour market as predictor variables, and the predictors of self-directedness as control variables. A total of 284 cases were analysed.

Predicting future learning initiatives

The model with self-directedness in learning processes and mobility opportunities within the labour market as predictor variables was significantly reliable (χ^2= 62.79, *df* = 14, *p* <.0005). This model accounted for between 24,4% and 34,1% of the variance in future learning initiatives, with 88% of the non educational initiators successfully predicted and 52,8% of the educational initiators. Overall 76,9% of the prediction was accurate. Table 3 summarizes the coefficients and Wald statistics. The table indicates that level of self-directedness in learning processes reliably predicted future learning initiatives. The value of the coefficient reveals that each unit increase in level of self-directedness in learning processes is associated with an increase in the odds of future learning initiatives by a factor of 1,12. Perceived mobility opportunities within the labour market and past learning initiatives were as well predictors of future learning initiatives indicating that each unit increase in perceived mobility opportunities score is associated with an increase in the odds of future learning initiatives by a factor of 1,88, and that the ratio of the odds that past learning initiatives lead to future learning initiatives is 4,22 time greater than the odds for no past learning initiatives.

Table 3

Binary Logistic Regressions with 'SDL-scale' and 'Mobility Opportunities' as Predictor Variables and 'Future Learning Initiatives' as Criterion Variable (N= 284).

Predictor	*β*	*SE*	Wald χ^2	*p*	*Odds Ratio*
Self-directedness in learning processes	.114	.029	14.963	$p<.0005$	1.121
Mobility opportunities labour market	.632	.276	5.225	$p<.05$	1.881
Past learning initiatives	1.439	.353	16.613	$p<.0005$	4.216
Constant	-5.368	1.843	8.481	$p<.01$	.005

Note. Only the significant control variables are presented in this table

Model Chi-Square= 62.792, p =.000, -2 Log likelihood=.219.299. Goodness-of fit test= 6.831, p= .555, Nagelkerke R^2= .341, Cox and Snell R^2= .244

Similar significant results were found for the model with self-directedness in career processes and mobility opportunities within the labour market as predictor variables (χ^2= 43.68, df = 14, $p<.0005$). Nevertheless, level of self-directedness in career processes was not a significant predictor of future learning initiatives (see Table 4). The odds of future learning initiatives did not increase with increasing level of self-directedness in career processes. In contrast, perceived mobility opportunities within the labour market and past learning initiatives lead to changes in the odds ratio of future learning initiatives (1.71 and 4.37 respectively). The model explained between 17,2% and 24,2% of the variance in future learning initiatives and is helpful to classify 44,4% correctly of those who initiated future learning activities and 86,9% of those who did not initiate future learning activities. Overall 73,7% of predictions were accurate.

Table 4

Binary Logistic Regressions with 'SDC-scale' and 'Mobility Opportunities' as Predictor Variables and 'Future Learning Initiatives' as Criterion Variable (N= 284)

Predictor	*β*	*SE*	Wald χ^2	*p*	*Odds Ratio*
Self-directedness in career processes	.003	.016	.046	*p*=.831	1.003
Mobility opportunities labour market	.539	.249	4.694	*p*<.05	1.714
Past learning initiatives	1.475	.336	19.209	*p*<.0005	4.370
Constant	-3.308	1.636	4.087	*p*<.05	.037

Note. Only the significant control variables are presented in this table

Model Chi-Square= 43.678, *p* =.000, -2 Log likelihood=.243.713. Goodness-of fit test= 3.052, *p*= .931, Nagelkerke R^2= .242, Cox and Snell R^2= .172

Predicting future career realizations: future job changes, future realization of mobility aspirations and future turnover realization

Multinomial regressions were conducted with successively future job changes, future realization of ones mobility aspiration and future turnover realization as subcriterion variable.

Predicting future job changes.

The model with self-directedness in learning processes and mobility opportunities within the labour market as predictor variables, was significantly reliable (χ^2= 54.57, *df* = 20, *p*<.0005). This model explained between 20,1% and 24,9% of the variance in future job changes. 'Future lateral job changes' and 'future vertical job changes' were compared to the reference category, 'no future job changes' (see Table 5). Self-directedness in learning processes and mobility opportunities within the labour market did not significantly contribute to the prediction of 'future

lateral job changes' and 'future vertical job changes'. Working in the chemical and food & nourishment industry was less likely to predict future lateral job changes compared to no future job changes. The odds of future lateral job changes for working in the energy sector were 4.24 times higher than for working in the chemical industry and 3.83 times higher than for working in the food & nourishment industry.

Task variety predicted positively future lateral job changes in comparison to the category of 'no future job changes' indicating that each unit increase in task variety is associated with an increase in the odds of future lateral job changes by a factor of 1,17. Growth potential predicted negatively future lateral job changes in comparison to the category of 'no future job changes' indicating that each unit increase in growth potential is associated with an decrease in the odds of future lateral job changes by a factor of 0,91.

The probability that a participant realizes future lateral or vertical job changes, compared to the category of no future job changes, was significantly predicted by age. An increase of 1 year in age was associated with a decrease in the odds of future lateral and vertical job changes and this by a factor of 0,96 and 0,87 respectively.

Table 5

Multinomial Logistic Regression with 'SDL-scale' and 'Mobility Opportunities' as the Predictor Variables and 'Future Job Changes' as Criterion Variable (N= 284)

Predictor	*β*	*SE*	Wald χ^2	*p*	*Odds Ratio*
FUTURE LATERAL JOB CHANGES[a]					
Self-directedness in learning processes	.011	.021	.266	*p*=.61	1.011
Mobility opportunities labour market	.063	.247	.065	*p*=.80	1.065
Age	-.041	.019	4.779	*p*<.05	.960
Sector[b]					
Chemical Industry	-1.444	.445	10.557	*p*=.001	.236
Food & Nourishment Industry	-1.304	.497	7.295	p<.01	.261
Task variety	.154	.055	7.790	*p*<.01	1.167
Growth potential	-.100	.044	5.103	*p*<.05	.905
Intercept	-1.152	1.477	.608	*p*=.44	
FUTURE VERTICAL JOB CHANGES					
Self-directedness in learning processes	.042	.049	.720	*p*=.40	1.042
Mobility opportunities labour market	.943	.630	2.244	*p*=.13	2.568
Age	-.143	.045	10.234	*p*=.001	.867
Intercept	-5.258	3.648	2.077	*p*=.15	

Note. Only the significant control variables are presented in this table

[a] 'No future job changes' is randomly chosen as the reference category

b 'Energy sector' is randomly chosen as the reference category

Model Chi-Square= 54.569, *p* =.001, -2 Log likelihood=.347.602. Goodness-of fit test= 446.838, *p*= .708, Nagelkerke R^2= .249, Cox and Snell R^2= .201

The model with self-directedness in career processes and mobility opportunities within the labour market included as the predictor variables was significantly reliable (χ^2= 56.05, *df* = 20, *p*<.0005). This model explained between 20,1% and 24,9% of the variance in future job changes. The results in Table 6 were identical to the results reported in

relation to the results in Table 5. Self-directedness in career processes and mobility opportunities within the labour market did not significantly contribute to the prediction of 'future lateral job changes' and 'future vertical job changes'.

Table 6

Multinomial Logistic Regression with 'SDC-scale' and 'Mobility Opportunities' as the Predictor Variables and 'Future Job Changes' as Criterion Variable (N= 284)

Predictor		*β*	*SE*	Wald χ^2	*p*	*Odds Ratio*
FUTURE LATERAL JOB CHANGES[a]						
Self-directedness in career processes		-.004	.014	.082	*p*=.76	.996
Mobility opportunities labour market		.078	.244	.102	*p*=.75	1.081
Age		-.042	.019	5.116	*p*<.05	.959
Sector[b]	Chemical Industry	-1.213	.435	7.775	*p*<.01	.297
	Food & Nourishment Industry	-1.088	.483	5.066	*p*<.05	.337
Task variety		.174	.054	10.577	*p*=.001	1.191
Growth potential		-.103	.043	5.748	*p*<.05	.902
Intercept		-1.537	1.451	1.123	*p*=.29	
FUTURE VERTICAL JOB CHANGES						
Self-directedness in career processes		.016	.034	.215	*p*=.64	1.016
Mobility opportunities labour market		.943	.609	2.398	*p*=.12	2.568
Age		-.133	.043	9.781	*p*<.01	.875
Intercept		-5.330	3.565	2.236	*p*=.14	

Note. Only the significant control variables are presented in this table

[a] 'No future job changes' is randomly chosen as the reference category

b 'Energy sector' is randomly chosen as the reference category

Model Chi-Square= 56.047, *p* <.001, -2 Log likelihood=.354.111. Goodness-of fit test= 458.375, *p*= .733, Nagelkerke R^2= .249, Cox and Snell R^2= .201

Predicting future realization of mobility aspirations

The model with self-directedness in learning processes and mobility opportunities within the labour market as predictor variables, explained between 19,7% and 23,1% of the variance in 'future realization of mobility aspirations'. The model was significantly reliable (χ^2= 48.60, *df* = 22, *p*=.001). 'Future realization of mobility aspirations' and 'no future realization of mobility aspirations', were compared to the reference category 'no mobility aspirations and realization' (see Table 7). Applying a .05 criterion of statistical significance, self-directedness in learning processes and mobility opportunities within the labour market did not significantly predict 'future realization of mobility aspirations' and 'no future realization of mobility aspirations'. Age, working in the food & nourishment industry and proactive personality had significant partial effects in explaining 'no future realization of mobility aspirations' compared to the category of 'no mobility aspirations and realization' and age, food & nourishment industry and pursuit of knowledge work had significant partial effects in explaining 'future realization of mobility aspirations' compared to 'no mobility aspirations and realization'. Table 7 shows that increased age and working in the food & nourishment industry both negatively predict the (not) realization of mobility aspiration compared to employees having no mobility aspirations at all. Inverted odds ratios indicate that the odds of not realizing mobility aspirations for employees working in the energy sector were 5,62 times higher than for employees working in the food and nourishment industry and the odds of realizing mobility aspirations for employees working in the energy sector were 5,38 higher than for employees working in the food and nourishment industry, both

compared to having ‘no mobility aspirations and realization’. No significant differences were found between employees working in the energy sector and employees working in the chemical industry in the odds of realizing and not realizing mobility aspirations compared to not having any mobility aspiration and realization. Moreover, the coefficient indicates that an increase of one year of age is associated with a decrease in the odds of not realizing mobility aspirations by a factor of 0,95 and in the odds of realizing mobility aspirations by a factor of 0,92, compared to having no mobility aspirations at all. At last, each unit increase in pursuit of knowledge work score is associated with an increase in the odds of realizing mobility aspirations one year later by a factor of 1,20 while each unit increase in proactive personality score is associated with a small increase in the odds of not realizing mobility aspiration one year later by a factor of 1,09, both compared to our reference category ‘no mobility aspirations and realization’

Table 7

Multinomial Logistic Regression with 'SDL-scale' and 'Mobility Opportunities' as Predictor Variables and 'Future Realization of Mobility Aspirations' as Criterion Variable (N= 284)

Predictor		*β*	*SE*	Wald χ^2	*p*	*Odds Ratio*
NO FUTURE REALIZATION OF MOBILITY ASPIRATIONS[a]						
Self-directedness in learning processes		-.023	.025	.888	*p*=.35	.977
Mobility opportunities labour market		.285	.274	1.079	*p*=.30	1.330
Age		-.058	.021	7.573	*p*<.01	.944
Proactive personality		.087	.044	3.933	*p*<.05	1.091
Sector[b]	Chemical Industry					
	Food & Nourishment Industry	-1.545	.620	6.214	*p*<.01	.213
Intercept		1.574	1.630	.932	*p*=.33	
FUTURE REALIZATION OF MOBILITY ASPIRATIONS						
Self-directedness in learning processes		.032	.035	.844	*p*=.36	1.033
Mobility opportunities labour market		-.004	.372	.000	*p*=.99	.996
Age		-.089	.029	9.709	*p*<.01	.915
Pursuit of knowledge work		.183	.093	3.886	*p*<.05	1.201
Sector[b]	Chemical Industry					
	Food & Nourishment Industry	-1.681	.807	4.337	*p*<.05	.186
Intercept		-4.082	2.481	2.708	*p*=.10	

Note. Only the significant control variables are presented in this table

[a] 'No mobility aspirations and realization' is randomly chosen as the reference category; [b] 'Energy sector' is randomly chosen as the reference category

Model Chi-Square= 48.599, *p* =.001, -2 Log likelihood=.377.517. Goodness-of fit test= 442.219, *p*= .199, Nagelkerke R^2= .231, Cox and Snell R^2= .197

The model with self-directedness in career processes and mobility opportunities within the labour market as the predictor variables, explained between 21,5% and 25,2% of the variance in 'future realization of mobility aspirations' (Table 8). The model was significantly reliable (χ^2= 55,26, *df* = 22, *p*<.0005). Self-directedness in

career processes had significant partial effects when applying a .05 criterion of statistical significance. When all other predictors are held constant, the odds of the ratio of realizing mobility aspirations increases with 1.05 given a unit change in level of self-directedness in career processes. Although significant, the effect of self-directedness in career processes was smaller than that of the significant control variables (age, economic sector, pursuit of knowledge work, growth potential of the job). Perceived mobility opportunities within the labour market, as the second predictor variable, did not significant predict future realization of mobility aspirations.

Table 8

Multinomial Logistic Regression with SDC-scale and 'Mobility Opportunities' as Predictor Variables and 'Future Realization Mobility Aspirations' as Criterion Variable (N= 284)

Predictor		*β*	*SE*	Wald χ^2	*p*	*Odds Ratio*
NO FUTURE REALIZATION OF MOBILITY ASPIRATIONS [a]						
Self-directedness in career processes		.026	.016	2.787	*p*=.09	1.027
Mobility opportunities labour market		.347	.263	1.739	*p*=.19	1.415
Age		-.059	.021	8.167	*p*<.01	.942
Sector [b]	Chemical Industry					
	Food & Nourishment Industry	-1.507	.608	6.152	*p*=.01	.222
Growth potential		-.129	.055	5.494	*p*=.01	.879
Intercept		.635	1.604	.157	*p*=.69	
FUTURE REALIZATION OF MOBILITY ASPIRATIONS						
Self-directedness in career processes		.046	.023	4.085	*p*<.05	1.048
Mobility opportunities labour market		.074	.362	.042	*p*=.84	1.077
Age		-.082	.028	8.665	*p*<.01	.921
Pursuit of knowledge work		.172	.091	3.567	*p*=.05	1.188
Sector [b]	Chemical Industry					
	Food & Nourishment Industry	-1.627	.787	4.272	*p*<.05	.197
Intercept		-4.242	2.390	3.150	*p*=.08	

Note. Only the significant control variables are presented in this table

[a] 'No mobility aspirations and realization' is randomly chosen as the reference category, [b] 'Energy sector' is randomly chosen as the reference category

Model Chi-Square= 55.262, *p* =.000, -2 Log likelihood=.383.770. Goodness-of fit test= 466.449, *p*= .122, Nagelkerke R^2= .252, Cox and Snell R^2= .215

Predicting future turnover realization

As shown in Table 9 a test of the model with self-directedness in learning processes and mobility opportunities within the labour market as predictor variables, versus a model with intercept only was statistically significant, χ^2= 67,29, *df* = 18, *p*<.0005 predicting between

25,7% and 36,6% of the variance in future turnover realization. 'No turnover intentions' and 'turnover intention and future turnover behaviour' were compared to the reference category 'turnover intention but no future turnover behaviour'. Self-directedness in learning processes significantly predicted the criterion variable indicating that each unit increase in level of self-directedness in learning processes was associated with an increase in the odds of 'no turnover intentions' by a factor 1.06 compared to the category 'turnover intentions but no turnover behaviour'. Perceived mobility opportunities within the labour market did not significantly contribute to 'no turnover intentions' and 'turnover intention and future turnover behaviour'. Instead, age, past learning initiatives significantly predicted future turnover realization. An increase of 1 year of age was associated with an increase in the odds of 'no turnover intentions' by a factor of 1.07 and with a decrease in the odds of 'turnover intentions and future turnover behaviour' by a factor of 0.71, both compared to the group of employees initially having turnover intentions but not demonstrating no final turnover behaviour. Finally, the ratio of the odds that past learning initiatives leads to initial turnover intention but no future turnover behaviour is 2.36 times greater than the odds for no past learning initiatives when compared to the category of employees with no initial turnover intentions.

Table 9

Multinomial Logistic Regression with 'SDL-scale' and 'Mobility Opportunities' as Predictor Variables and 'Future Turnover Realization' as Criterion Variable (N= 284)

Predictor	*β*	*SE*	Wald χ^2	*p*	*Odds Ratio*
NO TURNOVER INTENTIONS [a]					
Self-directedness in learning processes	.062	.028	5.091	$p<.05$	1.064
Mobility opportunities labour market	.043	.300	.021	$p=.89$	1.044
Age	.069	.023	8.752	$p<.01$	1.072
Past learning initiatives	-.857	.421	4.156	$p<.05$	.424
Intercept	-2.603	1.651	2.485	$p=.12$	
TURNOVER INTENTION AND FUTURE TURNOVER BEHAVIOUR					
Self-directedness in learning processes	.116	.075	2.391	$p=.12$	1.123
Mobility opportunities labour market	.211	.811	.067	$p=.80$	1.234
Age	-.340	.157	4.686	$p<.05$	.711
Intercept	-3.857	4.874	.626	$p=.43$	

Note. Only the significant control variables are presented in this table.

Tabachnick & Fidell (2006,) recommend to delete discrete variables when cell frequencies are problematic. In order to reduce the number of cells 'mobility aspiration' and 'sector' were removed from the analysis.

[a] 'Turnover intention but no future turnover behaviour' is chosen as the reference category

Model Chi-Square= 67.294, p =.000, -2 Log likelihood=207.140. Goodness-of fit test= 355.835, p= .988, Nagelkerke R^2= .366, Cox and Snell R^2= .257

The model presented in Table 10, including self-directedness in career processes and mobility opportunities within the labour market as predictor variables, was significantly reliable (χ^2= 72.06, df = 18, $p<.0005$) and accounted for between 26,5% and 37,5 % of the variance in future turnover realization. Mobility opportunities within the labour market did not significantly predict future turnover realization. Self-directedness in career processes significantly predicted the criterion variable indicating that each unit decrease in level of self-directedness in

career processes was associated with an increase in the odds of 'no turnover intentions' by a factor 0.96 compared to the category 'turnover intentions but no turnover behaviour'. Employees demonstrating lower levels of self-directedness in career processes were thus more likely belonging to the category of having no initial turnover intentions instead of the category of having initial turnover intentions but showing no turnover behaviour. Although significant, the effect of self-directedness in career processes was smaller than that of the significant control variables such as age, task variety and pursuit of knowledge work.

Like in the previous model, an increase of 1 year of age was associated with an increase in the odds of 'no turnover intentions' by a factor of 1.07 and with a decrease in the inverted odds of 'turnover intentions and future turnover behaviour' by a factor of 0.70, both compared to the group of employees initially having turnover intentions but not demonstrating no final turnover behaviour. Next, task variety in the job lead to decreased turnover intentions. An increase of one unit in task variety was associated with an increase in the odds of having no turnover intentions by a factor of 1.13 compared to 'turnover intentions but no turnover behaviour'. At last, striving for knowledge work significantly predicted actual turnover behaviour after turnover intentions were assessed at time 1. An increase of one unit in pursuit of knowledge work was associated with an increase in the odds of 'turnover intention and future turnover behaviour' by a factor of 1.46 when compared to 'turnover intention but no turnover behaviour'.

Table 10

Multinomial Logistic Regression with 'SDC-scale' and 'Mobility Opportunities' as Predictor Variables and 'Future Turnover Realization' as Criterion Variable (N= 284)

Predictor	*β*	*SE*	Wald χ^2	*p*	*Odds Ratio*
NO TURNOVER INTENTIONS [a]					
Self-directedness in career processes	- .043	.021	4.301	*p*<.05	.958
Mobility opportunities labour market	.128	.289	.197	*p*=.66	1.137
Age	.069	.024	8.370	*p*<.01	1.071
Task variety	.122	.057	4.655	*p*=.05	1.130
Intercept	-1.776	1.597	1.238	*p*=.27	
TURNOVER INTENTION AND FUTURE TURNOVER BEHAVIOUR					
Self-directedness in career processes	-.015	.050	.092	*p*=.76	.985
Mobility opportunities labour market	.464	.734	.400	*p*=.53	1.591
Age	-.359	.146	6.033	*p*<.05	.698
Pursuit of knowledge work	.380	.201	3.578	*p*=.05	1.462
Intercept	-3.410	5.010	.463	*p*=.50	

Note. Only the significant control variables are presented in this table

Tabachnick & Fidell (2006) recommend to delete discrete variables when cell frequencies are problematic. In order to reduce the number of cells 'mobility aspiration' and 'sector were removed from the analysis.

[a] ''Turnover intention but no future turnover behaviour'' is randomly chosen as the reference category

Model Chi-Square= 72.055, *p* =.000, -2 Log likelihood=214.843. Goodness-of fit test= 298.585, *p*= 1.000, Nagelkerke R^2= .375, Cox and Snell R^2= .265

DISCUSSION

Research findings

How successful are low-qualified employees in their employability?

On the base of the research finding presented in this study it was concluded that most of the low-qualified employees are (1) less successful in their future learning initiatives, (2) are successful in their

future job tenure and (3) are less successful in their future (vertical) job changes, their future realization of mobility aspirations and their turnover realization.

28,7% of our respondent participated in formal learning initiatives during the year following the first trial. This indicates that most of the low-qualified employees are still less intended to engage in future learning activities. This finding is comparable to what Verhaar and Smulders (1999) found in a sample of low-qualified workers employed in the Dutch agriculture sector. They ascertained that formal learning initiatives were not automatically related to future employability. Their results emphasized the importance of informal learning, which according to many of them was actually sufficient to invest in their employability. Formal learning initiatives were not adopted as an employability strategy. This suggests that employee's attitude towards learning does not change as a consequence of the knowledge-driven economy or that all segments within the workforce haven't been impacted by this knowledge-driven economy. The latter trend is evaluated diversely (see Marx, Ramioul & Sels, 2004). Some researchers claim that the knowledge-driven economy only affected workers already engaged in complex and knowledge intensive work. Most researchers claim that the growth of the knowledge-driven economy was even detrimental to low-qualified work as the demand for higher-qualified work increased significantly (Delarue et al, 2003). There are indications that low-qualified employees are employed in more complex tasks than their initial qualification level might presume. Especially among older, and more experienced workers, the employees' initial qualification level

cannot be considered as equal to their actual qualification level (Delarue et al., 2003). Work experience and past training can lead to the ability to perform more complex tasks, despite initial formal lower qualifications. Another explanation is that employees do not yet have this new attitude towards learning. Mostly they are aware of the necessity but do not yet feel the threat of a decreased employability status and thus take no initiatives towards future learning activities. The circumstances, rather then the preplanning by the individual is the directing force leading the decision of taking future learning initiatives or not (see Spear & Mocker, 1984).

Overall, participants' employability status remained relatively stable as most of them were still employed in the same organization. Turnover behaviour was small. This finding is contrasting to research findings from the Panel Survey for Organizations in Flanders (Delarue et al, 2003) were the energy sector, the chemical and food & nourishment industry are characterized by a relatively high percentage of in- and outflow. The majority of our participants, especially in the chemical industry and energy sector claimed that they were not intended to move as they were well-paid in comparison to the payment in other sectors. Vertical mobility was as well limited. Especially for industrial blue-collar workers, a job as team leader is often the highest level which can be reached. A transfer to a white-collar job is rather an exception to the rule. It is most likely that there is a different psychological contract with respect to upward mobility towards low-qualified employees (Prince, 2003). It should be examined whether the violation of this aspect of the psychological contract may be less of an issue in a low-qualified sample

or if lateral mobility has been noted as a valuable alternative to vertical mobility or no mobility is expected at all (see Prince, 2003). The latter is as well plausible as 38% of the participant had no mobility aspirations at the first trial and 27% strived for task extension without job change. Prince (2003) found that employees respond to task extension opportunities with increased organizational attachment and not with external job change. According to Prince, the explanation of this finding is based on a calculative form of commitment: Employability security replaced traditional employment security as a key element in the employment relationship. As employees realize the fact that organizations cannot guarantee employment security, they develop a calculative, resume-building orientation and ask question like: how does this job or task improve my personal skill portfolio and improve my ability for career enhancement? According to Prince (2003) task extensions can provide the basis for believing that employability security will improve in the future. These workers are more inclined to respond to this evolution with more attachment toward their employer and expose no turnover behaviour. Moreover, for low-qualified employees, external employment opportunities will depend as well on whether there are other more qualified or experienced people applying for the same kind of jobs (Brown et al, 2003).

Are self-directedness in learning processes and self-directedness in career processes, and mobility opportunities within the labour market significant predictors of future employability?

The research provided evidence to support claims of a link between self-directedness in learning and career processes and future employability.

As hypothesized self-directedness in learning processes significantly predicted future learning initiatives and self-directedness in career processes did not significantly predicted future learning initiatives. Self-directedness in career processes had significant positive effects on an employee's future realization of ones mobility aspiration compared to not having any mobility aspiration and realization. Significant negative effects of self-directedness in career processes were found on not having turnover intentions whereas self-directedness in learning processes had a positive effect. Having no turnover intentions was thus associated with lower levels of self-directedness in career processes and higher level of self-directedness in learning processes. Self-directedness in learning processes did not reliably affect the other aspects of future career realization. These findings were again in line with our hypotheses. Contrary to the results of the zero-order correlations, self-directedness in learning processes did not reliably predict future job changes. Future job tenure could not be examined.

The research provided evidence that the perceived mobility opportunities within the labour market significantly affected future learning initiatives. Contrary to what was hypothesized, people start taking learning initiatives when the labour market is positively perceived. Negative perceptions of the labour market do not lead to future learning initiatives. Possibly, low-qualified employees tend to react rather passively towards decreased mobility opportunities (why taking learning initiatives if our chances on the labour market are small?) while they tend to react actively to increased mobility opportunities within the labour market. No link was found between mobility opportunities within

the labour market and future career realizations. This suggests that job changes, mobility aspirations and turnover behaviour are realized irrespective of the perceived availability of mobility opportunities within the labour market.

Our results suggest that employability can not solely be attributed to an individual's level of self-directedness in learning and career processes (absolute dimension) or the availability of mobility opportunities within the labour market (relative dimension). Some other variables which operated as control variables were even more powerful in the prediction of future employability. Increased age negatively predicted future turnover behaviour and (lateral and vertical) job changes and positively predicted not having any mobility aspirations and realizations. The results suggest that older employees may be more passive towards their employability. Often they have been employed by one organization for most of their lives. Moreover, past learning initiatives led to future learning initiatives and no turnover intentions. Employees who already initiated learning activities in the past are more likely to initiate learning activities in the future. This implies also that low-qualified employees who did not take learning initiatives in the past are not intended to take learning initiatives in the future. Past learning initiatives from employees eliminated as well turnover intentions. A possible explanation is that past learning initiative is related to job satisfaction which in turn prevents people from having any turnover intentions. Surprisingly, past learning initiatives did not increase an employee's chances for job changes. Other mechanisms play a role behind lateral and upward mobility.

The recent liberalization of the energy market in 2002 can be a possible explanation why working in the energy sector positively predicted future lateral job changes. Organizations felt obliged to restructure. Consequently, jobs drastically changed for large segments of the workforce. This process is still continuing. Another finding was that working in the food & nourishment industry was associated with having no mobility aspirations and realizations. People working in the energy sector and the chemical industry are more likely to have mobility aspirations. Are people in the food & nourishment industry less ambitious towards their career?

A last factor which is most notably is an individual's pursuit of knowledge work. The more individuals strive to carry out meaningful and challenging work the more they are able to realize their mobility aspirations in the future compared to people having no mobility aspirations and realizations at all. Moreover, these employees are to a larger extent translating their turnover intentions into actions compared to people who did not demonstrate actual turnover behaviour after having initial turnover intentions. Contrary, people who perceive a lot of variety in their jobs are less intended to have even turnover intentions.

Surprisingly, proactive personality was not found to be a significant predictor of future employability except for the small positive effect that was found of proactive personality on no realization of mobility aspirations one year later. Previous research from Raemdonck et al. (2005) shows that proactive personality is a key predictor of self-directedness in both learning and career processes. While there is a clear link between self-directedness in learning and career processes and future employability, no such link is found between proactive

personality and future employability. A possible explanation can be found in the context-specific character of concepts like self-directedness in learning and career processes while proactive personality is a broader construct.

Implications for practises and policy-makers

Which attitudes, knowledge and skills are required to increase individuals' employability? What support is needed and what is the role of HRD in stimulating organizations and individuals in facing this challenge (Opengart & Short, 2002)? The present research suggests specific actions that can create conditions leading to increased employability. From the individual's perspective, being self-directed in learning and career processes, actively engaging in learning initiatives and seeking for knowledge intensive work are specific actions one can take to enhance the likelihood of a successful employability status. Organizations and learning and career counsellors could use the results of this study to design employability programs.

More emphasis should be placed on the importance of the sector in which persons are employed. Our results suggest that level of employability varies according to the economic sector. Moreover, redesigning jobs in a way that they offer more task variety increases the chance of lateral job changes or enhances task extensions.

An adequate employability policy can not be outlined without knowing the mechanisms and causes behind it. This study made a first attempt

and suggested a framework for the analysis of employability. Our findings lead to a series of suggestions for policy on how to increase the employability situation of low-qualified employees. Low-qualified employees do not often have the power to enhance their employability at the expense of other groups because of their low formal qualifications (Brown, 2003). According to Brown (2003) employability policies need to be based on the assumption that the individual's capital and nation's competitiveness have come to depend on the knowledge and skills of the workforce. The results provide empirical support to suggest that it would be worthwhile to stimulate learning initiative. A powerful learning policy needs to be a key strategic tool for all employee groups including low-qualified and older workers, considering the impact of past learning initiatives (see Rocco & Thijssen, 2006). Low-qualified employees do not always have the bargaining power which is needed to get access to learning. Often, they experience fewer freedoms around the when, where and how of learning (Opengart & Short, 2002).

Limitations and directions for future research

The present study has several limitations. Employability is a complex concept. Often its definition largely depends upon the research group that is under study. There are different standards for employability depending on whether a researcher deals with unemployed people or people who have adequate work or people who have not (see Pollet et al., 2000). Our study focused on future learning initiatives, future job tenure and future career realizations of employees. However, one should bear in mind that the variables that contribute to one definition of

employability are not necessarily the same as those that contribute to another definition of employability (see Judge et al, 1995).

Second, the predictor variables are measured as perceptions. In itself this is not a major issue, but the fact that self-directedness in learning and career processes are also perceptions might introduce spurious effects in the model, e.g. when employees tend to be more self-directed, while at the same time they rate their mobility opportunities on the labour market higher (see Van Loo, 2005).

Third, although it is reasonable to conclude that the data indicate causal relationships, a one-year time interval is relatively small to examine differences in employability. Albeit, Pollet et al. (2000) claim that even a longitudinal study cannot offer decisive answers related to the predictors of employability. Who is a highly employable person? For people who initiate job moves themselves, a high level of employability is quiet obvious. But what if employees have been employed by one organization for most of their lives? They can have low levels of employability without ever experience any employment related problems.

Fourth, more advanced statistical techniques such as structural equation modelling should be adopted in order to test the overall model. This technique could not be applied due to the characteristics of our data (e.g. the different indicators of employability). When data is categorical, structural equation modelling is not recommended (see Chou & Bentler, 1995).

Fifth, sample differences were found between those employees who were willing to cooperate for the follow-up study and those who were not willing to cooperate. This can cause potential bias.

Sixth, a broader learning perspective could be applied in this study. The present study only examined future learning initiatives within formal contexts. It is useful to examine the extent of future informal learning initiatives. Further research could explore the causal links between self-directedness in learning and career processes and future informal learning initiatives.

Seventh, according to Brown et al. (2003), issues of employability are also connected to the question of social identity. “Employees tend to limit the range of jobs they apply for to the kind of jobs they feel (correctly of not) they have a chance of getting or to what they think is appropriate.” It would be interesting to examine this question of social identity among low-qualified employees in order to know which kind of jobs they feel having a chance and which kind of jobs they find appropriate for themselves. Unlike their few formal initial qualifications do they consider complex knowledge-intensive jobs and do they think these jobs are appropriate for someone with low qualifications? A first attempt was made by including pursuit of knowledge work into the model.

Eight, a more in-depth analysis is needed of the labour market mechanisms which are related to the employability of low-qualified

employees. In our attempt to apply a more holistic approach to employability, the factor 'mobility opportunities within the labour market' was explored but only rudimentary. Our main variables of interest were self-directedness in learning processes and self-directedness in career processes. Future research could adopt a more extended operationalisation of these labour market mechanisms. Possible factors are: the level of competition for jobs, remoteness of local labour markets in relation to centres of industry/employment, level and nature of labour demand within the national economy, the attitudes of employers towards low-qualified employees etc.

CONCLUSIONS

The main contribution of this research is a model showing that self-directedness in learning and career processes relates to different indicators of future employability, and this model contributes to the developing literature on employability outcomes in several ways. First, there is little research examining the predictors of a successful employability status. The present study provides longitudinal evidence that self-directedness should be included as a variable in models for employability outcomes. Second, this study considers both the absolute and relative dimension of employability by focusing on level of self-directedness in learning and career processes, and the availability of mobility opportunities within the labour market. We found that self-directedness in learning processes and self-directedness in career processes are positively associated with specific indicators of

employability. Highly self-directed employees are more initiating future learning activities, are more succeeding in realizing mobility aspirations compared to employees having no mobility aspirations and realizations, and realize to a higher extent turnover behaviour compared to employees who have turnover intentions but do not show turnover behaviour. Future research must examine whether self-directedness in learning and career processes consistently predict future employability. Employability remains a complex phenomenon and, due to the importance of the topic, is deserving of further research that would extend the results presented.

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Appendix 1

Descriptive Statistics and Intercorrelations between the Research Variables (N= 284).

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	-	.12*		.17**	.31**		.18**	.25**						
2. Past learning Initiatives	.12*	-	.13*	.22**	-.13*		.13*	.21**	.16**	.26**	.12*		.32**	
3. Proactive Personality		.14*	-	.45**	-.20**		.24**	.18**	.17**	.47**	.47**	.24**		
4. Pursuit of Knowledge Work	.17**	.22**	.45**	-	-24**		.23**	.23**	.16**	.39**	.37**			
5. Mobility Aspiration	.31**	-.13*	-.20**	-.24**	-					-.12*	-.27**			
6. Sector						-				-.13*	-.18**			
7. Participatory staff policy	.20**	.19*	.25**	.31**			-	.40**	.39**	.34**	.18**	.14*	.17*	
8. Task Variety	.25**	.21**	.18**	.23**			.32**	-	.46**	.37**	.20**	.15*	.16**	
9. Growth potential		.16**	.16**	.16**			.60**	.46**	-	.33**	.21**	.21**	.15*	
10. Self-directedness learning		.26**	.47**	.39**	-.12*	-.13*	.29**	.37**	.33**	-	.66**	.15*	.31**	
11. Self-directedness career		.12*	.47**	.37**	-.27**	-.18**	.20**	.20**	.21**	.66**	-			
12. Mobility opportunities labour market			.24**				.13*	.15*	.21**	.15*		-	.17**	
13. Future learning initiatives		.32**						.16**	.15*	.31**	.17**	.17**	-	
14. Future job tenure						-.17**								-
15. Future job changes	-.15*	.16*	.14*	.13*	-.16*			.15*		.14*			.20**	.18**
16. Future realization of mobility aspirations	.14*		-.16**		.56**						-.19**			
17. Future turnover realization	.28**				.37**		.16*	.21**	.15*		-.13*			
M	39.10	-	30.28	20.39	-	-	22.27	15.40	12.09	59.38	49.80	2.20	-	-
SD	9.36	-	4.97	3.35	-	-	5.99	3.76	4.05	10.56	12.64	.69	-	-

Note. *p<.05; **p<.01.

(*Appendix 1 continued)*

Variable	15	16	17
1. Age	-.15*	.14*	.28**
2. Past learning Initiatives	.16*		
3. Proactive Personality	.14*	-.17**	
4. Pursuit of Knowledge Work	.13*		
5. Mobility Aspiration	-.16*	.56**	.37**
6. Sector			
7. Participatory staff policy			.18**
8. Task Variety	.15*		.21**
9. Growth potential			.15*
10. Self-directedness learning	.14*	-.19**	-.13*
11. Self-directedness career			-.13*
12. Mobility opportunities within the labour market			
13. Future learning initiatives	.20**		
14. Future job tenure	.18**		
15. Future job changes	-	-.13*	
16. Future realization of mobility aspirations	-.13*	-	.21**
17. Future turnover realization		.21**	-
M	-	-	-
SD	-	-	-

Note. *p<.05; **p<.01.

Chapter 6

General conclusion

Abstract

The main purpose of this dissertation has been to develop and empirically test a model for self-directedness in learning and career processes. On the base of a literature review, four objectives were put forward: First, we aimed at developing an instrument to determine the level of self-directedness in learning and career processes of low-qualified employees. Second, we wanted to identify the individual and organizational predictors of self-directedness in learning and career processes. Third, we explored the relationship between self-directedness in learning processes and self-directedness in career processes. Fourth, we aimed at exploring the relationship between self-directedness in learning and career processes and employability outcomes. In this final chapter, we bring together and discuss the empirical findings of the studies reported in the different chapters. Next, limitations and implications of this research project are outlined.

INTRODUCTION

The main goal of this dissertation has been to develop and empirically test a model describing the relationship between a clear set of variables and the two central variables in this study 'self-directedness in learning processes' and 'self-directedness in career processes'. The central problem statement focused on the question: What are the interrelations between individual and organizational variables, self-directedness in learning processes and self-directedness in career processes, and employability outcomes?

The studies reported in the individual chapters build on quantitative research involving a large sample of low-qualified employees.

This dissertation started with an evaluation of the state of the art of the studies related to self-directedness in learning and career processes (chapter 1). This review captured a number of limitations in previous research studies. This enabled us to make an informed choice about the research group to involve in the studies and the nature of the theoretical model and research instruments to be developed. Four objectives directed this activity: (1) development an instrument to measure self-directedness in learning and career processes for low-qualified employees, (2) identification of predictors of self-directedness in learning processes and career processes, (3) exploration of the relationship between self-directedness in learning processes and self-directedness in career processes, and (4) an exploration of the relationship between self-directedness in learning and career processes, and employability outcomes. The purpose of this final chapter is to recapitulate and integrate our main findings in terms of these four objectives. Next limitations are discussed. The final part of this chapter outlines some theoretical implications, and implications for human resources developers and policy-makers. Finally, some directions for further research are presented.

OVERVIEW OF THE RESULTS

Objective 1: Measuring self-directedness in learning and career processes in a low-qualified employees sample

The purpose of the study in chapter 2 was to develop a reliable and valid instrument. On the base of a specific theoretical framework, an

instrument to determine a level of self-directedness in learning processes (SDL-scale) and a level of self-directedness in career processes (SDC-scale) have been developed. Particular attention was paid to guarantee that the instruments were suitable for low-qualified employees. The final SDL-instrument and the SDC-instrument both consist of 14-items that measure someone's characteristic adaptation to influence learning processes/career processes.

A study, involving 940 low-qualified and high-qualified employees, helped to underpin the uni-dimensional structure of both scales. A second study was conducted involving a sample of 408 low-qualified employees that confirmed the one-factor structure of both scales. Discriminant validity of the SDL-scale and the SDC-scale was established. The SDL-scale and the SDC-scale are significantly but moderately correlated with the Bateman and Grant's Proactive Personality Scale. Convergent validity was as well examined. The self-reporting SDL-score and SDC-score correlated significantly but relatively low with the supervisor ratings and relatively high with interviewer ratings. In a third study building on the exploratory dataset and applying structural equation modelling techniques, model fit was compared of the low-qualified and high qualified group separately and was found to be invariant across both samples. In each of the samples, both scales showed satisfactory internal consistency. Applying the SDL and SDC-scale, it was shown that self-directedness in learning and career processes exist among low-qualified employees.

Objective 2: Identifying the individual and organizational predictors of self-directedness in learning processes and career processes

Identification of predictors of self-directedness in learning and career processes was a challenging process because of the high number of potential intervening variables. A review of the literature demonstrates that earlier quantitative studies did hardly pay attention to e.g., environmental variables that influence the level of self-directedness in learning and/or career processes. Earlier research did hardly recognize that both individual and organizational forces can predict self-directedness in a workplace context. Observing the limitations of the available research, inspired the design of the research studies reported in chapter 3 and 4.

The identification and examination of the predictors of self-directedness in learning and career processes was addressed in both chapter 3 and chapter 4. Chapter 3 included a limited number of predictive variables whereas in chapter 4 a more comprehensive model was studied. The study reported in the latter chapter resulted in the identification of a complex set of variables that can be considered as important to predict self-directedness in learning and career processes. Chapter 3 involved a sample of both low-qualified and high-qualified employees whereas in chapter 4 only a sample of low-qualified employees was studied. The study reported in chapter 4 helped to corroborate findings of the study reported in chapter 3.

A field study in chapter 3 identified that the job characteristic 'learning opportunities' and the individual characteristics 'pursuit of knowledge work' and 'mobility aspiration' positively predicted both levels of self-directedness in learning and self-directedness in career processes. 'Task

variety' lead to more self-directedness in career processes and 'task identity' to more self-directedness in learning processes. Moreover, organizational size negatively predicted self-directedness in career processes. Increased age and a positive perception towards the past career reflected significantly higher score on self-directedness in processes of learning.

Other individual and organizational variables such as gender, pursuit of a better remuneration, getting feedback from others and the sector (public or private) did not significantly contribute to explaining self-directedness in learning processes and self-directedness in career processes. The most important finding of the study was that qualification level was of lesser importance than often presumed. Qualification level did not significantly contribute to the prediction of both forms of self-directedness. Our research revealed that factors such as 'pursuit of knowledge work' and 'getting learning opportunities' might be better variables to distinguish between employees in view of studying self-directedness in learning and career processes.

As stated earlier, the study in chapter 4 presented and explored a more comprehensive model allowing to understand differences in levels of self-directedness in learning and career processes among low-qualified employees. Individual characteristics such as demographic variables, human capital variables and personality characteristics, and indirect and direct organizational characteristics were examined. The analysis results showed that different categories of variables were relevant to predict self-directedness in learning and career processes. Most striking was the key role of proactive personality. Employees with a proactive

personality showed more self-directedness in learning and career processes. Also the other personality characteristics, pursuit of knowledge work and mobility aspiration predicted in a significant way self-directedness. These findings are consistent with the results of chapter 3.

Additional predictors such as age, sector, staff policy and job characteristics were found to be relevant. Increase in age predicted to a lesser extent self-directedness in learning and career processes. In the study reported in chapter 3, increase in age was not a significant predictor of self-directedness in career processes but was a positive predictor for self-directedness in learning.

The economic sector to which the professional organization belongs played a role. Higher levels of self-directedness were found in the chemical industry as compared to the food & nourishment industry. Significant differences between the chemical industry and energy sector were only found in relation to self-directedness in career processes whereas for self-directedness in learning processes no significant differences were ascertained between both sectors. The analysis in chapter 3 showed that type of sector, when operationalised as 'private sector' and 'public sector', was not a significant predictor of self-directedness.

Next, presence of a stimulating participatory staff policy predicted higher levels of self-directedness in learning. In professional organizations that adopted an active participation policy, employees reflected higher levels of self-directedness in learning.

Lastly, as expected, a number of job characteristics helped to predict in a significant way self-directedness in learning and career processes. Task

variety seemed to be a first important variable in this context. Growth potential (i.e. learning and mobility opportunities) was a significant but weaker predictor of both self-directedness in learning and career processes. These results were in line of the findings reported in chapter 3.

Contrary to the results in chapter 3, the study reported in chapter 4 did no longer demonstrate the predictive value of past career success and organizational size. Furthermore, the variables mobility experience, executive function or not, size and knowledge intensity of the organization and a stimulating learning and career policy were not helpful to explain variance in self-directedness.

Additional analyses revealed that the interaction between individual and organizational factors did not result in additional significant proportions of explained variance in self-directedness in learning and career processes. This finding is not completely in line with assumptions presented in the literature (see Baskett et al., 1994, Judge et al., 1995). But the findings do confirm that self-directedness in learning and career processes are based on both individual and organizational characteristics. These characteristics seem to represent independent predictors of self-directedness. In addition, self-directedness in learning and career processes are clearly a function of individual and organizational characteristics. However, it was found that personality variables accounted for a larger proportion of the variance in self-directedness in learning and career processes.

Objective 3: Exploring the relationship between self-directedness in learning processes and self-directedness in career processes.

Examination of the relationship between the scale for self-directedness in learning processes and the scale for self-directedness in career processes revealed – as expected - a moderate and positive correlation between both concepts (chapter 2 and chapter 3). A high score on self-directedness in learning processes is related to a high score on self-directedness in career processes and vice versa. Although interrelated, the results from factor analyses support the assumption that it remains relevant and necessary to distinguish between self-directedness in learning processes and self-directedness in career processes.

Objective 4: Linking self-directedness in learning and/or career processes to employability outcomes

The fourth objective was addressed in chapter 5. The relationship was explored between self-directedness in learning and career processes and employability outcomes that included future learning initiatives and future career realization success. Previous studies did generally look only at job performance, and objective (wages) and subjective (job satisfaction) career success as outcome variables.

Building on the results of the previous chapters, relevant predictors of self-directedness in learning and career processes were included as key variables in a theoretical framework, modelling the link between the individual and contextual predictors, the level of self-directedness in career and learning processes, and employability.

First, the employability situation of the participants was examined one year after their involvement in the first study that helped to determine their level of self-directedness in learning and career processes.
28,7% of our respondent participated voluntarily in learning activities during the year following the initial measurement of their level of self-directedness. But most of the low-qualified employees were hardly engaged in future learning activities. These findings are consistent with earlier research from Verhaar and Smulders (1999). Reasons for not initiating learning activities were mostly a lack of time, no learning needs, increased age, shift work and a lack of motivation.
Only five employees out of two hundred eighty four were unemployed at time 2. The majority of the employees did not leave the professional organization and was still employed in the same job at time 2.
Sixty one employees showed turnover intentions at time 1 but only seven of them eventually left (voluntary or not) between time 1 and time 2. One hundred fifty nine employees realized their mobility aspirations at time 2, and forty three employees were not able to realize their mobility aspirations. Sixty eight expressed no initial mobility aspirations and did not report actual job changes.

Second, the research provided evidence to support claims of a link between self-directedness in learning and career processes and future employability. Confirming our hypothesis, self-directedness in learning processes significantly predicted future learning initiatives. Self-directedness in career processes did not significantly predicted future learning initiatives. These findings are consistent with research of e.g. Conn (2000), Jude-York (1993), Noe (1996) and Van Loo (2005).

Similar to what was found by Van Loo (2005), self-directedness in career processes positively predicted employee's actual realization of mobility aspirations compared to the reference category 'not having any mobility aspirations' and negatively predicted 'no turnover intentions' compared to the reference category 'having turnover intentions but no future turnover behaviour'. Reversely, self-directedness in learning processes positively predicted 'no turnover intentions'. Self-directedness in learning processes did not reliably predict other aspects of future career realizations. These findings were again in line with our hypotheses. Contrary to the results of the zero-order correlations, self-directedness in learning processes did not significantly predict future job changes.

Our results also suggest that future employability cannot solely be attributed to an individual's level of self-directedness in learning and career processes. Some other variables were even more important to predict employability outcomes. Perceived mobility opportunities on the labour market significantly predict future learning initiatives. Moreover, increase in age negatively predicted future turnover realization, vertical and lateral job changes and positively predicted not having any mobility aspirations. Next, past learning initiatives positively predicted future learning initiatives and having no turnover intentions. Working in the energy sector positively predicted future lateral job changes. Another finding was that working in the food & nourishment industry was associated with having no mobility aspirations at all. A last factor which was most notably is an individual's pursuit of knowledge work. The more individuals strived to carry out meaningful and challenging work, the more they were able to realize their mobility aspirations in the future

compared to people having no mobility aspirations at all. Additionally, these employees were to a larger extent translating their turnover intentions into actions compared to people who did not demonstrate actual turnover behaviour after having initial turnover intentions.

In contrast, people who perceived a lot of variety in their job were less intended to reflect turnover intentions. But, they realize more lateral job changes.

Table 1 presents an overview of the results:

Table 1

Summary of results

Predictors	**Self-directedness** - Self-directedness in learning processes (SDL) - Self-directedness in career processes (SDC)	**Employability** - Future learning initiatives - Future job changes - Future realization of mobility aspirations - Future turnover realization
Demographics		(1) Future job changes
(1)Age	(1) SDL and SDC*	(1) Future realization of mobility aspirations
(2)Gender		(1)Future turnover realization
Human Capital		
(3)Hierarchical position		
(4)Past educational initiatives	(4) SDL	(4) Future learning initiatives
(5)Past career success	(5) SDL**	(4)Future turnover realization
(6)Employment experience		
(7)Mobility experience		
Personality characteristics		
(8)Proactive personality	(8) SDL and SDC	(8) Future realization of mobility aspirations
(9)Pursuit of knowledge work	(9) SDL and SDC	
(10)Pursuit of a better remuneration		(9) Future realizations of mobility aspirations
(11)Mobility aspiration	(11) SDL** and SDC	(9) Future turnover realization
Indirect organizational characteristics		
(12)Sector	(12) SDL* and SDC*	(12) Future job changes
(13)Size	(13) SDC **	(12) Future realization of mobility aspirations
(14)Knowledge intensity		
Direct organizational characteristics		
(15)Learning and career policy		
(16)Participation policy	(16) SDL	
(17)Degree of autonomy		(18) Future job changes
(18)Task variety	(18) SDL* and SDC**	(18) Future turnover realization
(19)Task identity	(19) SDL	(20) Future job changes
(20)Growth potential	(20) SDL and SDC	(20) Future realization of mobility aspirations
(21)Job complexity		
(22)Feedback		
(23)Self-directedness in learning processes		(23) Future learning initiatives
		(23) Future turnover realization
(24)Self-directedness in career processes		(24) Future realization of mobility aspirations
(25)Mobility opportunities within the labour market		(24) Future turnover realization
		(25) Future learning initiatives

Note. Only the significant results are presented in this table
* not significant in chapter 3 **not significant in chapter 4

LIMITATIONS

The results of the present dissertation must be considered in the light of a number of limitations.

First, data have been gathered through a self-reporting strategy. It is possible that self-reports do not reveal what employees actually do. Self-reporting could have a more limited interpretive power as suggested in our studies. Some attempts were made to achieve a basic triangulation at the level of data collection by also building on information acquired from other sources: (1) In chapter 2, data was collected via interviewer ratings and supervisor ratings. Examination of the correlations between the instruments developed and interviewer ratings revealed strong and positive relations. The correlations between the instruments developed and supervisor ratings were positively and significantly related but failed to detect strong relationships. Alternative approaches could have been adopted: colleague ratings, and the application of thinking-aloud protocols to assess levels of self-directedness in learning and career processes. (2) Staff policy was measured by questioning the employees and a member of the human resource department. Factor analysis of the data obtained from the latter failed to reveal meaningful factors. Independent ratings, building on observations might be an alternative methodology to be adopted in the future.

Second, we were not able to fully control the possibility of a Hawthorn effect i.e. changes in response behaviour caused by being selected for

participation in the research project, although participants were selected at random (see Olson et al., 2004). It should be noted however, that this kind of limitations is inherent to field research.

Third, some of the variables in chapter 3, chapter 4 and chapter 5 were measured with single item scales. These scales present problems to determine their reliability and validity (Judge et al., 1995).

A fourth limitation is related to the issue of causality. The studies in which we addressed the predictors of self-directedness in learning and career processes are based on a cross-sectional design. In our theoretical model, the individual and organizational variables were considered as predictors of self-directedness in learning and career processes. But in reality the causal relationship might also be in the other direction.
Moreover, most of the predictor variables were based on measuring participant perceptions. Though it can be stated that this is not a major issue, it is important to stress the fact that also self-directedness in learning and career processes were measured by studying perceptions. This might introduce spurious effects in the measurement model, e.g. when employees with high levels of proactive personality, pursuit of knowledge work and mobility aspirations etc. tend to be more self-directed, while at the same time they rate their mobility opportunities on the labour market higher (see Van Loo, 2005).

Fifth, apart from the theoretical underpinning presented when developing the SDL and SDC-scale, a broader perspective on e.g., learning could have been adopted in our study. The present model only

included past and future 'formal' learning initiatives. Research has shown that there are many ways to extend knowledge and skills, and that formal learning is only one way to acquire this (van der Klink,1999; Van Loo, 2005). It could be useful to measure also employee's involvement in informal learning initiatives in the past and in the future.

Sixth, it is not clear whether the results from chapter 5 can be extrapolated to the larger population of low-qualified employees. Binary logistic regression showed that the set of employees who were willing to cooperate at the follow-up study and those who were not willing to cooperate significantly differed in five variables: lower scores on self-directedness in learning and career processes, a lower level of pursuit of knowledge work, a lower levels of perceived task variety and employees working in the food & nourishment industry. These respondents were less likely to be present in the time 2-sample.

Seventh, more advanced statistical techniques such as structural equation modelling should be adopted in order to test the overall model. This technique could not be applied due to the characteristics of our data (e.g. the different indicators of future employability).

Finally, to deepen and elaborate on the findings of this dissertation, additional research from a qualitative-interpretative perspective might be relevant. Processes of self-directedness in learning and career and employability are complex phenomena. It is not easy to catch the complexity of these phenomena with questionnaires. Therefore, qualitative interpretative research is to be set up.

IMPLICATIONS

The results of this dissertation have some theoretical and some practical implications for HRD. In addition, directions for future research can be presented.

Theoretical and methodological implications

A strength of the present studies is that research instruments have been developed with low-qualified workers in mind. In the SDL-scale attention was paid to self-direction in informal learning contexts and the SDL-instrument was consistent with a more collaborative constructivist view of learning. Both scales prove to be valid and reliable. The instruments contributed to the further operationalisation of the concept of self-directedness in learning/career processes. One of the strengths in the validation process is that the stability of the factor structure has been confirmed by involving different samples (low and high-qualified employee samples). Some implications for future scale construction can be derived from the studies; especially when they are primarily meant to address low-qualified respondents. First, it is advisable not to construct reverse-scoring items, although this strategy is often advised in the development of Likert scales. Second, there should be a clear focus on the context of low-qualified people, considering the fact that most existing instruments take the majority culture as a starting point. Third, it is best to administer the scales individually by reading the items of the scale to the respondents. Although this process is a time consuming

process, it has been found to be necessary to guarantee sufficient reliability of the responses.

Our purpose has been to increase the conceptual clarity in the field of self-directedness by presenting a comprehensive model that describes how self-directedness as a characteristic adaptation is related to other variables. Our approach to differentiate between characteristic adaptation, actual behaviour of the employees, their environment and personality traits has been proven to be useful for future researchers.

Results show a moderate positive relationship between self-directedness in learning processes and self-directedness in career processes. This suggests that self-directedness in one situation (e.g. learning situation) predicts a person's self-directedness in another situation (e.g. career situation). A future fruitful line of research is to explore in more detail the link between self-directedness in learning processes and self-directedness in career processes and to investigate to what extent it is domain-specific. This might imply the study of additional types of self-directedness in the work context. In this study a first attempt was made to study concepts that - until now- were studied in separate scientific knowledge domains (adult education versus personnel psychology). The present studies illustrate how these concepts are interrelated in the reality of professionals and how they can be studied from these varying knowledge domain perspectives.

In earlier empirical research, organizational characteristics were often overlooked. This study stressed that a person's level of self-directedness

in learning and career processes can only be fully understood if differences in both individual characteristics and organizational environment are taken into account. This dissertation systematically listed predictors for self-directedness in learning and career processes and studied their predictive value in a sample of low-qualified employees. A clear empirical link between proactive personality and self-directedness in learning and career processes was established. This connection between proactive personality and context-specific proactive behaviour was previously suggested and confirmed by Bateman and Crant (1993), Crant (2000) and, Claes and De Witte (2002). Our study enabled to test this relation among a specific group which was hardly studied earlier. This approach might be beneficial to come to theoretical generalizations that build on research findings.

Next, there is a reasonable chance that the results that centre on the predictors of self-directedness might be generalized to the larger populations of low-qualified employees. The studies involved large and heterogeneous samples of employees. The samples were not restricted to employees with a specific job profile or from one single professional organization.

Lastly, we consider it a theoretical contribution that empirical evidence was presented to underpin the relationship between self-directedness on employability outcomes. Since a longitudinal approach was adopted, the adoption of actual learning initiatives, job tenure and career realizations could be observed. This is a richer approach as compared to studies that

are limited to measuring the expected employability in the future (Van Loo, 2005).

Practical implications for HRD staff

The empirical studies yielded insights which have practical implications. The results from chapter 2, chapter 3 and 4 suggest some guidelines for human resources practise to create powerful environments to stimulate self-directedness of employees in their learning and career processes:

1. If you want to compare groups of employees as to their level of self-directedness in your organization, do not use initial qualification level as a distinguishing factor. More optimal criteria are: the extent in which the person's strives for knowledge work, the person's mobility aspiration or the extent in which learning opportunities are being offered.
2. Adopt the SDL-scale and SDC-scale as assessment tools to enable HRD professionals to assist individuals that reflect lower levels of self-directedness in learning and career processes or report poor perceptions of themselves (see Ellinger, 2004).
3. Consider the finding that employees profit from a stimulating working environment that offers task variety, helps to develop task identity, presents growth potential and adopts a participatory staff policy. The set of variables that explain a significant proportion of variance in self-directedness in learning and career processes suggest that the implementation of certain organizational factors might foster self-directedness.

4. The role of a proactive personality was confirmed. Since the variable proactive personality is a relatively stable factor, human resources practitioners should concentrate on coaching and training practises to stimulate self-directed behaviour for those employees who do not have a proactive personality (see Claes & De Witte, 2002).
5. Since involvement in past learning initiatives is an important predictor of self-directedness in learning processes, a stimulating policy towards lifelong learning might motivate employees to take initiative for self-directing their learning processes. Learning to enjoy 'learning' and understanding the benefits of learning might be a first step in stimulating self-directed lifelong learning. This might be of particular importance when we consider low-qualified employees who often have a negative school career reflecting negative experiences with formal educational contexts.
6. A stimulating participatory staff policy was found to be a predictor of higher levels of self-directedness in learning processes.

The study presented in chapter 5 suggests specific lines of actions for human resources practise and policy-makers to create conditions leading to a successful level of employability:

7. Self-directing learning and career processes, actively engaging in learning initiatives and seeking for knowledge intensive work are specific actions one can take to enhance the likelihood of a successful employability status. Organizations and learning and

career counsellors could use the results of this study to design employability programs.

8. Be aware of the importance of the professional sector when considering lines of action.
9. Redesign jobs in a way they offer more task variety. This increases opportunities for lateral job changes and/or enhances task extensions.
10. Policy-makers and organizations should stimulate learning initiatives of employees. A powerful learning policy is to be considered as a key strategic tool for all employee groups including low-qualified and older workers, considering the impact of past learning initiatives.

Directions for further research

On the basis of this dissertation, suggestions can be made to direct further research:

Further empirical research is needed to fully confirm the uni-dimensional nature of adult's beliefs, attitudes, intentions and behaviour towards self-directedness in learning processes and career processes and to further extend the validity of the SDL and SDC-scale across international contexts. As stated previously, an interesting avenue for future validations studies is to obtain a sample of colleague ratings and compare these to the self-report ratings to establish convergent validity (see Crook as cited in Stockdale, 2003). In a future validation processes, it is advised to repeat several steps of the instrument development

process reported in the present studies (Crocker & Algina, 1986; Nunnally & Bernstein, 1994).

The model of self-directedness in learning and career processes was an attempt to integrate both the process-oriented approach and the personal characteristic approach towards self-directedness. In the literature both approaches are adopted by different authors. On the base of the comprehensive conceptual model, the new scales have been constructed. Further research should ascertain whether a person's perception of high *self-efficacy* (perceived proficiency) for self-directedness may be relevant in the context of the model. It is suggested that this construct might be of importance to influence self-directedness (Garrison, 1997; Stockdale, 2003). This was not explicitly examined in our study. When further exploring the concept of 'self-efficacy', Garrison (1997) advises e.g., to explore self-regulated learning while referring to the work of Bandura (1977) and Zimmerman (1989). Especially in understanding how low-qualified employees perceive and engage in self-directed learning and career processes the concept of 'self-efficacy' might be valuable.

Future research can adopt alternative research methods to examine self-directedness in learning and career processes. More qualitative approaches have already been suggested; such as: diary studies, think-aloud protocols or behaviour observations. This is not only considered to be of value to obtain data triangulation but is also considered to be of importance to contextualize research findings. Next, an attempt should be made to set up experimental designs, involving sub-samples of low-

qualified employees. These studies could help to substantiate and corroborate to a better extent, the results related to the predictors of self-directedness. In the present studies we were less able to clarify some inconsistencies in our findings as compared to previous research or the differences in findings between the studies reported in chapter 3 and chapter 4.

Furthermore, there are potentially relevant variables that were not included in our theoretical model, e.g. individual variables such as desire for control, perceived mastery, production ownership and organizational variables like internal mobility opportunities, support from the immediate supervisor, influence of working in self-directed teams and shift work. Factors outside the organizational job sphere might as well be considered such as family composition, the extent of learning and career support from private-life and labour market mechanisms like the supply of appropriate jobs in the local economy.

This study examined the relation between self-directedness in learning and career processes and employability status with a one-year time interval. A more extended long-term research design is advisable. It might be more promising to assess low-qualified employees' employability status at more than a single point in time in order to evaluate the contributing role of self-directedness in learning and career processes. Moreover, measuring employability outcomes at different moments in time might offer a deeper and more accurate understanding of low-qualified employability status over time.

FINAL CONCLUSION

Fostering self-directedness in learning and career processes should not be aimed at a specific group of employees (Kessels, 1995; Keursten, 1998). As changes in the nature of work and career are taking place at every level in the professional organization, knowledge work and self-directedness in learning and career processes should not be a privilege of the higher qualified employees. The findings from the studies in this dissertation show that it is also beneficial to foster self-directedness in learning and career processes of low-qualified employees. The research approach adopted in the present dissertation was innovative because it included both individual and organizational variables, because of the involvement of low-qualified employees, and because of studying the link between self-directedness and employability outcomes. Future theory development, research and HRD practise might benefit from the theoretical model developed and researched throughout this dissertation.

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Samenvatting (summary in Dutch)

Het hoofddoel van dit doctoraat is het ontwikkelen en empirisch testen van een model voor zelfsturing in leerprocessen en loopbaanprocessen. Het proefschrift omvat een verkenning van de samenhang tussen individuele en organisatorische factoren, zelfsturing in leer- en loopbaanprocessen en employability uitkomsten van laaggeschoolde werknemers. De studies die in de verschillende hoofdstukken gerapporteerd worden, steunen op kwantitatief onderzoek waarin telkens laaggeschoolde werknemers worden betrokken.

In hoofdstuk 1 wordt het onderwerp van dit proefschrift geïntroduceerd en worden de maatschappelijke ontwikkelingen die een verhoogde aandacht voor zelfsturing in leer- en loopbaanprocessen verklaren kort besproken. Allereerst is er de opkomst van de kenniseconomie die de vraag naar hoger opgeleide arbeidskrachten sterk doet toenemen. Een tweede ontwikkeling zijn de technologische veranderingen die bijdragen tot veranderingen in de jobinhoud en de manier waarop het werk wordt georganiseerd. Een derde ontwikkeling die zowel een dalende werkzekerheid als een continue jobmobiliteit binnen en tussen organisaties bewerkstelligd, is de sterker wordende concurrentie tussen organisaties, zowel op nationaal als internationaal vlak. Deze ontwikkelingen dragen niet alleen bij tot veranderingen in het werk zelf maar hebben ook implicaties voor de relatie tussen werkgever en werknemer. Zo verschuift de verantwoordelijkheid voor leren en loopbaan van de organisatie naar de individuele werknemer.

Ook binnen het discours over levenslang leren zijn er enkele verschuivingen waarneembaar als gevolg van deze hierboven genoemde maatschappelijke ontwikkelingen. De volgende accentverschuivingen zijn de meest opvallende: De sterke nadruk op de socio-economische aspecten van levenslang leren en permanente educatie, de verhoogde aandacht voor informele vormen van leren en de sterke waardering voor vormen van zelfsturing in leerprocessen.

In het tweede deel van hoofdstuk 1 wordt op basis van een literatuuronderzoek een conceptueel model voor zelfsturing in leer- en loopbaanprocessen ontwikkeld door de mate van zelfsturing in leerprocessen en loopbaanprocessen te koppelen aan individuele en organisatorische factoren, en employability effecten. Op basis van het literatuuronderzoek en het ontwikkelde model wordt tevens een agenda voor toekomstig onderzoek afgeleid. Dit resulteert uiteindelijk in het bepalen van vier onderzoeksdoelen die in dit doctoraat centraal staan en behandeld worden in de hoofdstukken 2, 3, 4 en 5:

1) Het ontwikkelen van een instrument voor het meten van zelfsturing in leer- en loopbaanprocessen voor laaggeschoolde werknemers.

2) Het identificeren van de individuele en organisatorische voorspellers voor zelfsturing in leer- en loopbaanprocessen.

3) Het exploreren van de relatie tussen zelfsturing in leerprocessen en zelfsturing in loopbaanprocessen.

4) Het onderzoeken van de relatie tussen zelfsturing in leer- en loopbaanprocessen en employability uitkomsten.

Zelfsturing in leerprocessen definiëren we in hoofdstuk 2, als een karakteristieke adaptatie tot het beïnvloeden van werkgerelateerde leerprocessen ten behoeve van de individuele zelfredzaamheid op de arbeidsmarkt Zelfsturing in loopbaanprocessen is dan een karakteristieke adaptatie tot het beïnvloeden van loopbaanprocessen ten behoeve van de individuele zelfredzaamheid op de arbeidsmarkt. Zelfsturing wordt gekenmerkt door de volgende karakteristieken: 1) Zelfsturing is een karakteristieke adaptatie welke bepaald wordt door persoonlijkheidskenmerken, door de sociale omgeving en de interactie tussen beide. Zelfsturing is *karakteristiek* omdat het bepaald wordt door min of meer vaststaande persoonskenmerken, en het is een *adaptatie* omdat het vorm krijgt en wordt bijgesteld in interactie met de vereisten en kansen die de sociale omgeving biedt. Dit betekent dus dat zelfsturing ontwikkelbaar is en veranderbaar en moet gezien worden als een continuüm dat in zekere mate bij elke persoon of in elke situatie aanwezig is. 2) Zelfsturing is een domeinspecifiek construct. De mate waarin individuen zelfsturend zijn verschilt naargelang het functioneringsdomein. Individuen kunnen zelfsturend zijn in hun verenigingsleven maar niet in hun arbeidsleven. Ook in hun arbeidsleven kan men naargelang de eigen prioriteiten en geboden kansen meer of minder zelfsturend zijn op vlak van leren, loopbaan, socialisatie enz. 3) Zelfsturing is een actieve benadering ten aanzien van leren en loopbaan in plaats van een passieve reactie op omgevingsveranderingen. 4) Zelfsturing focust op het individu en zijn/haar zelfredzaamheid op de arbeidsmarkt. Een match met de organisatiedoelen is mogelijk maar zeker geen noodzaak. Het individu staat centraal en zijn/haar leer- en loopbaandoelen. (5) Zelfsturing heeft een lange termijn perspectief in die

zin dat niet alleen gereageerd wordt op bestaande veranderingen maar ook wordt geanticipeerd op toekomstige problemen en kansen. (6) Zelfsturing is een dynamisch proces dat gereguleerd wordt door een netwerk van opvattingen, attitudes, intenties en gedrag. Het feitelijke zelfsturingsgedrag heeft een cyclisch karakter aangezien er bij de sturing vlot heen en weer geschakeld wordt tussen de verschillende fasen van het leerproces/loopbaanproces.
De constructen zelfsturing in leerprocessen en loopbaanprocessen vertonen gelijkenissen en verschillen met constructen als 'proactieve persoonlijkheid', 'persoonlijk initiatief', 'locus of control' en 'role breadth self-efficacy'.

Naast een duidelijke conceptuele afbakening focust het tweede hoofdstuk op de ontwikkeling van een instrument voor het meten van zelfsturing in leerprocessen (SDL-schaal) en zelfsturing in loopbaanprocessen (SDC-schaal) . Bij de constructie van de schalen (onderzoeksdoel 1) wordt aandacht besteed aan de geschiktheid van de instrumenten voor laaggeschoolde werknemers en toepassing in een werkplekcontext. Er wordt gelet op een eenvoudige formulering en het herkenbaar zijn van de iteminhoud voor laaggeschoolde werknemers. Zelfsturing in leerprocessen is zowel gerelateerd aan formele en informele leercontexten. De finale schalen voor zelfsturing in leerprocessen en voor zelfsturing in loopbaanprocessen bestaan beide uit 14 items en meten iemands karakteristieke adaptatie tot het beïnvloeden van zijn/haar leer/loopbaanprocessen. Beide schalen hebben een goede betrouwbaarheid.

Een eerste studie waarin 940 laaggeschoolde en hoger geschoolde werknemers worden betrokken, toont de unidimensionele structuur van beide schalen aan. In een tweede studie waaraan 408 laaggeschoolde werknemers deelnamen, wordt het unidimensionele karakter van beide schalen bevestigd. Discriminante en convergente validiteit van de SDL-schaal en SDC-schaal wordt eveneens onderzocht. De SDL-schaal en de SDC-schaal zijn matig gecorreleerd met de proactieve persoonlijkheidsschaal van Bateman en Crant. De SDL-scores en SDC-scores die op basis van de zelfrapporteringsschalen werden verkregen, correleren significant maar relatief laag met de scores door de supervisor gegeven en relatief hoog met scores die door de interviewer werden toegekend. Een derde en laatste studie vergelijkt de model fit van de schalen voor de laaggeschoolde en de hooggeschoolde steekproef uit de eerste studie. Door middel van een meervoudige groepsanalyse wordt aangetoond dat de schalen voor zelfsturing in leerprocessen en loopbaanprocessen geschikt zijn voor zowel laaggeschoolde als hoger geschoolde doelgroepen.

In hoofdstuk 3 wordt er gekeken naar de relatie tussen zelfsturing in leerprocessen en zelfsturing in loopbaanprocessen (onderzoeksdoel 3). Beide constructen zijn empirisch te onderscheiden (zie hoofdstuk 2) maar zijn duidelijk positief en matig gecorreleerd. Een hoge mate van zelfsturing in leerprocessen gaat doorgaans samen met een hoge mate van zelfsturing in loopbaanprocessen. Beide constructen zijn dus gerelateerd.

De identificatie van de individuele en organisatorische voorspellers voor zelfsturing in leerprocessen en loopbaanprocessen komt aan bod in hoofdstuk 3 en hoofdstuk 4 (onderzoeksdoel 2). In hoofdstuk 3 wordt slechts een beperkt aantal predictoren onderzocht terwijl in hoofdstuk 4 een meer uitgebreid model wordt bestudeerd. Beide studies resulteren in de identificatie van een aantal factoren die belangrijk zijn in het voorspellen van de mate van zelfsturing in leer- en loopbaanprocessen. In hoofdstuk 3 worden laaggeschoolde en hooggeschoolde werknemers betrokken uit de publieke en private sector terwijl in hoofdstuk 4 enkel laaggeschoolde werknemers uit de energiesector, de chemische sector en voedingsindustrie worden bestudeerd.

In de empirische studie in hoofdstuk 3 werden volgende resultaten gevonden: Het krijgen van leerkansen, het zelf streven naar kenniswerk en de mobiliteitswens van de werknemer voorspellen in positieve zin zowel zelfsturing in leerprocessen als loopbaanprocessen. Taakvariatie in de job leidt tot meer zelfsturing in loopbaanprocessen en taakidentificatie tot meer zelfsturing in leerprocessen. Organisatiegrootte voorspelt zelfsturing in loopbaanprocessen in negatieve zin. Leeftijd en een positieve perceptie t.a.v. je loopbaanverleden voorspellen hogere scores voor zelfsturing in leerprocessen. Echter, de belangrijkste conclusie van de studie in hoofdstuk 3 is dat opleidingsniveau niet de meeste belangrijke voorspeller is voor zelfsturing in zowel leer- als loopbaanprocessen. Opleidingsniveau is enkel significant in univariate analyses voor zelfsturing in leerprocessen maar niet in multivariate analyses. Andere factoren zoals het al of niet streven naar kenniswerk en het al of niet krijgen van leerkansen zijn betere factoren om onderscheid

te maken tussen werknemers wanneer men zelfsturing in leer-en loopbaanprocessen wil bestuderen.

In hoofdstuk 4 worden individuele karakteristieken zoals demografische variabelen, 'human capital' variabelen en persoonlijkheidskenmerken, en indirecte en directe organisatorische karakteristieken onderzocht. Verschillende categorieën van variabelen zijn relevant in het voorspellen van zelfsturing in leerprocessen en loopbaanprocessen. De meest belangrijke voorspeller is 'proactieve persoonlijkheid'. Werknemers met een proactieve persoonlijkheid tonen meer zelfsturing in leer-en loopbaanprocessen. De andere persoonlijkheidskenmerken zoals het streven naar kenniswerk en de mobiliteitswens van de werknemer voorspellen op significante wijze zelfsturing. Dit komt overeen met de resultaten in hoofdstuk 3. Ook leeftijd, leerinitiatief in het verleden, sector, personeelsbeleid en jobkarakteristieken werden relevant gevonden. Toenemende leeftijd voorspelt een lagere score voor zelfsturing in leer- en loopbaanprocessen. Dit is in tegenstelling met de bevindingen uit de studie in hoofdstuk 3 waar leeftijd geen significante invloed had op zelfsturing in loopbaanprocessen en een toenemende leeftijd een hogere score voorspelde voor zelfsturing in leerprocessen. Deelname aan training of cursussen in het verleden voorspelt zelfsturing in leerprocessen in positieve zin. De economische sector waartoe een organisatie behoort, speelt ook een rol. Er worden hogere scores voor zelfsturing in leer- en loopbaanprocessen gevonden in de chemische industrie in vergelijking met de voedingsindustrie. Significante verschillen met de energiesector worden er enkel gevonden voor zelfsturing in loopbaanprocessen. Wanneer 'sector' geoperationaliseerd wordt als 'private en publieke sector' , dan is deze variabele geen

significante voorspeller (hoofdstuk 3) Een participatief personeelsbeleid zorgt dan weer wel voor hogere scores op vlak van zelfsturing in leerprocessen. Ook de jobkarakteristieken ‘taakvariatie’ en ‘groeipotentieel’ van de job voorspellen in positieve zin een hoge mate van zelfsturing in leer- en loopbaanprocessen. In tegenstelling tot de resultaten in hoofdstuk 3, hebben organisatiegrootte en het loopbaanverleden geen significante predictieve waarde.
Bijkomende analyses tonen dat interactie-effecten tussen individuele en organisatorische variabelen geen bijkomende significante proportie aan verklaarde variantie bijdragen. Deze bevindingen stemmen niet overeen met de assumpties die in de literatuur worden gemaakt. De resultaten impliceren wel dat de impact van organisatorische factoren zoals taakvariatie, groeipotentieel en een stimulerend participatiebeleid niet afhangt van bijvoorbeeld de mate waarin de persoon een proactieve persoonlijkheid heeft. of de mate waarin de persoon streeft naar kenniswerk of de mate waarin hij al of niet participeert in trainingen of cursussen . We verwachten dat werknemers profiteren van het werken in een stimulerende werkomgeving die taakvariatie, groeipotentieel biedt en waar een participatief personeelsbeleid wordt geïmplementeerd.

Hoofdstuk 5 onderzoekt de relatie tussen zelfsturing in leer- en loopbaanprocessen en employability uitkomsten zoals toekomstig leerinitiatief en toekomstig loopbaan-realisatiesucces bij laaggeschoolde werknemers (onderzoeksdoel 4). . Vroegere studies focusten vooral op de uitkomstvariabelen ‘jobprestatie’ en ‘objectief en subjectief loopbaansucces’.

De tewerkstellingssituatie van de laaggeschoolde werknemers wordt bestudeerd één jaar na hun deelname aan de eerste studie (hoofdstuk 4). De cijfergegevens tonen dat een minderheid op eigen initiatief participeert aan leeractiviteiten in het jaar dat volgt op het tijdstip waarop hun mate van zelfsturing in leer- en loopbaanprocessen werd gemeten. Het merendeel van de werknemers is één jaar later nog steeds tewerkgesteld in dezelfde organisatie en in dezelfde job. Van de 20% werknemers die tijdens het eerste meetmoment verloopintentie hadden waren er uiteindelijk slechts 3,2% werknemers die in de loop van dat jaar verloopgedrag tonen. 15,9% realiseren intussen hun mobiliteitswensen. 25,2% had helemaal geen mobiliteitswensen.

Een positieve link is gevonden tussen zelfsturing in leerprocessen en het nemen van toekomstig leerinitiatief en het hebben van geen initieel verloopintentie en ook geen toekomstig verloopgedrag. Zelfsturing in loopbaanprocessen voorspelt in positieve zin de toekomstige realisatie van mobiliteitswensen en in negatieve zin het hebben van geen initieel verloopintentie en ook geen toekomstig verloopgedrag. Andere variabelen zoals leeftijd, leerinitiatief in het verleden, het streven naar kenniswerk, de sector, taakvariatie en groeipotentieel van de job, en mobiliteitsmogelijkheden op de arbeidsmarkt zijn eveneens voorspellers van employability uitkomsten.

Concluderend kunnen we constateren dat de ontwikkelde schalen voor zelfsturing in leerprocessen en loopbaanprocessen voldoende betrouwbaar en valide zijn, dat zelfsturing in leerprocessen en zelfsturing in loopbaanprocessen gerelateerd zijn, dat zowel individuele

als contextuele factoren, maar niet hun interacties, zelfsturing in leer- en loopbaanprocessen beïnvloeden, dat opleidingsniveau van werknemers geen belangrijke voorspeller is van zelfsturing in leerprocessen en loopbaanprocessen en tot slot dat zelfsturing in leerprocessen en zelfsturing in loopbaanprocessen voorspellers zijn voor uitkomsten op vlak van employability. Deze bevindingen moeten echter gezien worden met enkele beperkingen indachtig zoals het cross-sectioneel design in hoofdstuk 3 en 4, de data op basis van zelfrapportering, de samenstelling van de follow-up sample in hoofdstuk 5 en enkele data-analytische beperkingen.

De tekortkomingen van deze studie duiden op interessante mogelijkheden voor toekomstig onderzoek Een eerste mogelijkheid betreft verdere studies ter validering van de SDL-schaal en de SDC-schaal met scores van collega's in plaats van scores van de supervisor. Een tweede suggestie is het opzetten van kwalitatief onderzoek om bepaalde onderzoeksresultaten beter te kunnen contextualiseren of het opzetten van een experimenteel onderzoeksdesign met verschillende sub-samples. Tot slot een meer uitgebreid longitudinaal onderzoek zou wenselijk zijn om het effect van zelfsturing in leer- en loopbaanprocessen op employability uitkomsten verder te kunnen bestuderen.