Employability: an empirical analysis of its antecedents and its relevance for employees in Switzerland

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EMPLOYABILITY:
AN EMPIRICAL ANALYSIS OF ITS ANTECEDENTS AND
ITS RELEVANCE FOR EMPLOYEES IN SWITZERLAND

A dissertation submitted to
ETH ZURICH

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Doctor of Sciences

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2007
The writing of this thesis was accomplished during my research activity at ETH Zurich (Institute of Work Psychology and Organization, Work and Technology Group); more precisely within two research projects, the Swiss National Science Foundation (SNF) project *Participation in work-oriented society under conditions of increasing work flexibility: Does a less continuity-oriented personal identity help?*, and the *Swiss Human Relations-Barometer* (HR-Barometer). Without the great support of numerous people, I would not have been able to realize my aim of writing this thesis. They are gratefully acknowledged.

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Abstract

Most career literature assumes that new, independent forms of career characterized by frequent changes of organizations and career self-management are increasing in prevalence. Employability, an individual’s employment opportunities on the labor market, is considered to be a key contributor to coping with such independent careers. The increasing attention the concept of employability has received in recent years is largely aroused by the assumed increase in independent careers. Although many academics have discussed the rising importance of employability, there is no consensus in employability research regarding its most important antecedents. Furthermore, systematic information on the prevalence of contemporary career types (i.e. independent) and therewith on the actual relevance of employability in different societies (e.g. Switzerland) is lacking. Consequently, this thesis analyzed the concept of employability with regard to its antecedents and relevance in the Swiss labor context. The aim was twofold: Firstly, this thesis aimed to contribute to the understanding of the most important antecedents of employability. Secondly, it aimed to develop types of career orientation, explore their prevalence in Switzerland, and thereby find out how relevant the promotion of employability is.

Based on an analysis of previous employability models, the assumption was, regarding antecedents, that investments in human capital (education, competence development provided by the employer), current level of job-related skills, willingness to be mobile (with regard to development of competencies and changing of jobs or departments), and knowledge of the labor market (with regard to opportunity awareness, and self-awareness and presentation of one’s skills) positively influence perceived employability. Furthermore, it was proposed that current level of job-related skills, willingness to be mobile, and knowledge of the labor market mediate the relationship between investments in human capital and perceived employability. These assumptions were tested with cross-sectional (N₁ = 381 Swiss employees from various sectors; N₂ = 168 employees from a Swiss insurance company) and longitu-
dinal (employees of four Swiss companies at three points in time, with N_{time 1} = 465) data. Hierarchical regression analysis and multilevel analysis revealed that education, competence development provided by employer, and current level of job-related skills were important and stable antecedents of perceived employability. Moreover, the current level of job-related skills mediated the relationship between education and perceived employability as well as between support for career and skill development and perceived employability. However, willingness to develop competencies, opportunity awareness, as well as self-awareness and presentation failed to predict employability. Thus, findings only partly confirmed common assumptions of previous employability models.

In order to estimate the relevance of employability in Switzerland, types of career orientation were developed and their prevalence was explored. Two national samples of employees (N_1 = 835, N_2 = 716) were surveyed. With the data from sample 1, four career types - traditional/promotion, traditional/loyalty, independent, disengaged - were identified, applying exploratory latent class analysis. These were confirmed with confirmatory latent class analysis using the data from sample 2. For the 36 per cent who either expressed an independent or a disengaged orientation employability can be regarded as a key issue. On the other hand, for a considerable proportion of traditional oriented employees who accounted for almost two thirds of participants employability was assumed not to be an issue of high priority.
Zusammenfassung


Betreffend Einflussfaktoren wurde auf Grundlage einer Analyse in der Literatur bestehender Arbeitsmarktfähigkeitsmodelle angenommen, dass Investitionen in Humankapital (Ausbildung, durch den Arbeitgeber geförderte Kompetenzentwicklung), das aktuelle Fähigkeitsniveau, Mobilitätsbereitschaft (hinsichtlich Entwicklung von Kompetenzen und Wechsel von Arbeitsstellen – oder abteilungen) und Kenntnisse des Arbeitsmarktes (hinsichtlich Wissen über alternative Möglichkeiten und Selbstbewusstsein/Fähigkeit eigene Kompetenzen zu präsentieren) wahrgenommene Arbeitsmarktfähigkeit positiv beeinflussen. Weiterhin wurde vermutet, dass der Zu-

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1. Introduction

This chapter serves as an introductory guide to a thesis on employability, its most important antecedents and its relevance among Swiss employees. The thesis is based on the assumption that fundamental changes in work environment have happened in the past decades. This introduction starts with an overview of these changes from which the main research interest is derived. Subsequently, important concepts are discussed, main findings are summarized, and finally, the structure of the thesis is exemplified.

1.1 The changing world of work

The world of work has changed enormously in recent years. Increased international competition, changing markets, and technological innovations have forced widespread organizational change. Organizations have undertaken restructuring and downsizing in order to improve productivity. Further cost-saving strategies that have been applied are mergers and acquisitions, as well as outsourcing, often to low-wage countries (e. g. Bergstrom, 2001; Cascio, 1995; Doherty, 1996; Freeman, Soete, & Efendioglu, 1995; Kickul, Lester, & Finkl, 2002; McGreevy, 2003; Purcell & Purcell, 1998; Worrall, Parkes, & Cooper, 2004). Likewise, the number of non-standard work arrangements, for example, part-time, temporary employment, contract work, or self-employment have continuously increased (e. g. McGreevy, 2003; Tregaskis, Brewster, Mayne, & Hegewisch, 1998).

Organizational changes at the end of the nineties and the beginning of this century have affected major organizations in the US and Europe alike. Examples of companies that have carried out major restructuring and/or downsizing include General Electrics or SBC Communication in the US, France Télécom in France, or Volkswagen and Allianz in Germany (Greenhaus, 2001; “Allianz präsentiert Stellenabbau”, 2006; “Massiver Stellenabbau bei SBC Communications”, 2004; “Volkswagen bestätigt Stellenabbau”, 2005; “Weiterer Stellenabbau bei France Télécom”, 2004).
Likewise, large Swiss companies have downsized, including Fortune Global 500 corporations such as Novartis or Swiss Re, and Swiss companies with a long tradition, such as Sulzer. Moreover, the privatization of former public organizations such as Swisscom and Die Post, has necessitated reorganization and downsizing ("Aktienrücklauf bei Novartis", 1999; "Grösserer Stellenabbau bei Swiss Re", 2006; "Gewerkschaftsprtest", 2003; "Protest gegen Stellenabbau", 2003; "Scharfer Schnitt", 1999).

Many researchers in the fields of human resources, organizational behavior and work psychology have emphasized how organizational changes have influenced the employment relationship (e.g. Anderson & Schalk, 1998; Herriot & Pemberton, 1995; Hiltrop, 1995; Millward & Brewerton, 2000) and individual careers (e.g. Arthur & Rousseau, 1996; Hall, 2002; Hall & Mirvis, 1996). The psychological contract has been suggested as a framework for analyzing changes related to the employment relationship. It may be defined as “an implicit contract between an individual and his organization which specifies what each expects to give and receive from each other in their relationship” (Kotter, 1973, p. 92). Under the traditional psychological contract, job security was exchanged for loyalty and hard work (Herriot & Stickland, 1996). Furthermore, traditional psychological contracts were characterized by continuity, a structured and predictable employment scenario, and organizational responsibility for career management. However, the main features of new psychological contracts encompass job insecurity, flexibility, individual responsibility for career management and employability (e.g. Anderson et al., 1998; Hiltrop, 1995; Millward et al., 2000; Raeder & Grote, 2001). Employability is often regarded as a substitute for job security: Scholars argue that if lifetime employment is no longer guaranteed, it is crucial to provide employees with learning opportunities and training instead, in order to keep them employable in their current or in another organization (Anderson & Schalk, 1998; Millward & Brewerton, 2000; Raeder & Grote, 2001). Research has shown that work flexibility and organizational change do indeed lead to individual responsibility for career management and a loss of job security (e.g. Cavanaugh & Noe, 1999; Raeder et al., 2001; Raeder & Grote, 2004; Turnley & Feldman, 1998).

The traditional organizational career, characterized by hierarchical progression in one organization, long-term employment and job security, is linked to large hierarchical organizations and the traditional psychological contract (e.g. Arthur et al.,
In a traditional career, success was assessed by promotions and raises in salary (e.g. Arthur, Khapova, & Wilderom, 2005; Hall et al., 1996; Heslin, 2005). Given organizational restructuring, an increasing number of flexible work arrangements, and alterations in the psychological contract, scholars argued that the traditional conceptualization of career was no longer compatible and developed new career concepts (e.g. the boundaryless career, Arthur, 1994; Arthur et al., 1996). Main features of new careers are frequent changes of organizations, career self-management and drive by one's personal values (Arthur, 1994; Arthur et al., 1996; Hall, 2002; Hall et al., 1996). The common assumption of new careers is one of being independent from the employing organization, and hence, new forms of career could be labeled independent. The majority of new career literature is based on the supposition of a dramatic change of careers. Arthur (1994) and Arthur und Rousseau (1996) substantiated the assumed increase in new careers by the use of labor force statistics: In the beginning of the nineties the median employment tenure in the US was only four and a half years (Muguire, 1993; Cheng, 1991, cited from Arthur & Rousseau, 1996). Furthermore, in the US, only 44 per cent of employees worked in large firms (more than 500 employees), in which traditional organizational careers are most feasible. This number was only 30 per cent in the UK and other European countries¹ (Storey, 1994, cited from Arthur & Rousseau, 1996). Moreover, the efficacy of new career concepts (e.g. the boundaryless career) has been shown by its use as a framework to demonstrate employee adjustment to new forms of employment. Workers in a narrow range of occupations, for example, in the film industry (Jones, 1996), the Silicon Valley IT industry (Littleton, Arthur, & Rousseau, 2000) and the biotechnology industry (Gunz, Evans, & Jalland, 2000) were reported to have boundaryless careers.

Employability, defined as an individual's employment opportunities on the internal and/or external labor market (Forrier & Sels, 2003), is considered to be a key contributor to coping with independent careers (e.g. Forrier et al., 2003; Fugate, Kinicki, & Ashforth, 2004; Garavan, 1999). If the employment relationship is no longer based on long-term employment and job security and individuals frequently

¹ In Switzerland, the number of employees who worked for companies with more than 250 employees was only 32.5 per cent in 2005 (Federal Statistical Office, 2005).
change jobs and organizations, a fundamental goal for them (as well as for organizations supporting employees) is to maintain and increase employment opportunities. Moreover, only if employees have alternatives on the labor market can they direct their career according to their personal values. As such, individuals pursuing an independent career need to acquire competencies and attitudes that are highly appreciated by possible employers and which enhance their attractiveness on the labor market. To conclude, an understanding of factors that increase employability is particularly important for individuals who pursue an independent career. If independent careers are indeed becoming prototypical, then the relevance of employability also rises.

While many academics have discussed the growing importance of employability in the context of a changing work environment, there is no consistent view on the most important predictors of a person’s employment opportunities in employability literature. A number of models have been suggested, some of which are quite narrow (focusing only on employees competencies), and others all-embracing (taking into account a variety of factors including external ones such as the labor market situation; De Grip, van Loo, & Sanders, 2004; Thijssen, 1998). Most often, authors simply proposed a number of employability components without grounding them in theory or explaining why their model differs from previous ones. Furthermore, empirical evidence for employability models is scarce, which was especially the case when this PhD project was started in 2004. At that point in time, only two empirical studies on employability or perceived marketability respectively were available (Eby, Butts, & Lockwood, 2003; van der Heijden, 2002). In the meantime, a few more studies have been reported (Berntson, Sverke, & Marklund, 2006; van der Heijde & van der Heijden, 2006), and one was published very recently (McArdle, Waters, Briscoe, & Hall, in Press). All these studies are based on different conceptions of employability and yield inconsistent results. In conclusion, a clear understanding of the most important predictors of employability as well as measures and further empirical studies are strongly needed.
1.2 Aim and outline of the dissertation

The central goal of this dissertation was to contribute to the understanding of the most important antecedents of employability. For the purpose of this thesis, employability was defined in line with other authors’ descriptions as an individual’s perception of her/his employment opportunities on the labor market (e.g., Berntson et al., 2006; Eby et al., 2003). The model for this dissertation was developed by identifying numerous factors that might enhance individual’s employability based on an analysis of human capital theory (e.g., Becker, 1993) and existing employability models (De Grip et al., 2004; Eby et al., 2003; Forrier et al., 2003; Fugate et al., 2004; Gaspersz & Ott, 1996; Gazier, 2001; Hillage & Pollard, 1998; Kluytmans & Ott, 1999; van Dam, 2003). Human capital theory was applied separately from employability models, because research has shown that human capital variables (e.g. education\(^2\)) predicted traditional indicators of career success such as pay and promotion. Therefore, human capital theory was assumed to provide a useful theoretical framework for studying perceived employability, which can be regarded as an indicator of success in an independent career (e.g., Eby et al., 2003). The variables that resulted from this analysis were investments in human capital (education, competence development provided by the employer), current level of job-related skills, willingness to be mobile and knowledge of the labor market. These core components of employability were operationalized in a questionnaire, and their relevance for perceived employability was tested in several empirical studies including a longitudinal one.

The dissertation therefore provides substantial empirical evidence for common assumptions of mostly untested models. It should lead to a better understanding of the relative importance of various factors influencing employability. Results will help individuals in making decisions on career activities, which is especially important for those who have independent, self-directed careers.

As mentioned earlier, career scholars assume that independent careers where employability is a key issue are increasingly frequent. However, although labor force statistics and organizational changes that have occurred in many organizations support this assumption, knowledge on how widespread different types of career are in

\(^2\) In this thesis, the term education refers to the formal education level, e.g. university degree.
Western societies (e.g. in Switzerland) is limited. So far, there has been a lack of systematic empirical studies on the prevalence of contemporary career types. Therefore, it is not known whether the universal postulation of employability is applicable to all employees. A further goal of this dissertation was to develop types of career and to examine their prevalence in national samples of employees in Switzerland. Studying the actual prevalence of careers in Switzerland led to a greater and detailed understanding of how significant the promotion of employability really is for employees in Switzerland. Different career concepts (e.g. Arthur, 1994; Arthur et al., 1996; Brousseau, Driver, Eneroth, & Larsson, 1996; Gouldner, 1957; Hall, 1996, 2002; Kanter, 1989) were analyzed in order to derive the most important characteristics linked to the traditional and independent career. Important dimensions related to the traditional career include job security or long-term employment in one organization. A main dimension of the independent career is change of organizations and, therefore, employability in a range of jobs.

**Figure 1.1: Model of the dissertation**
Consequently, this thesis analyzes the concept of employability with regard to its antecedents and relevance in the Swiss labor context. Figure 1.1 presents the model that guided the dissertation.

In order to achieve the aims of the dissertation, three studies - which are reported in the subsequent chapters – were conducted. Study 1 and 2 tested the influence of possible employability enhancing factors on perceived employability. Study 3 explored the prevalence of different career types and thereby the relevance of developing employability for Swiss employees. Before outlining the content of each study and the structure of this dissertation in more detail, the concepts that were applied are described. The illustration of applied concepts is helpful for understanding the development of the model for this dissertation.

1.3 The concept of employability

1.3.1 History

The first publications on employability date back to the 1950s (see Feintuch, 1955). In those times of economic prosperity and tight labor markets, employability interventions aimed to realize full employment. Government interventions were directed towards underprivileged groups such as long-term unemployed or the disabled who had difficulties in finding employment (Forrier et al., 2003; McQuaid et al., 2005). More recently, the focus of attention has changed. Employability is not only considered important for vulnerable groups, but for the total working population. As already mentioned, employability is regarded as an alternative for job security meaning that it is not only important to foster labor market entry, but also to maintain a job on the internal or external labor market (Forrier et al., 2003; Kluytmans et al., 1999; Thijsse, 1998).

1.3.2 Definition

There is no unambiguousness in the definition of employability (Forrier et al., 2003; McArdle et al., in Press; Sanders & De Grip, 2004). Firstly, as mentioned earlier, authors differ in their view on the most important components of employability. Some authors solely consider the personal aptitude (e.g. Groot & Maassen van den Brink,
2000), while others include the context in their definition (Gazier, 2001). Secondly, clarity concerning the status of variables is lacking. Many authors adopted an outcome-based definition referring to employability as the individual’s ability to make labor market transitions or his or her chance of a job on the internal and/or external labor market, respectively (Brown, Hesketh, & Williams, 2003; Finn, 2000; Forrier et al., 2003; Hillage et al., 1998). Other authors however defined employability by its constituting dimensions. For instance, according to Fugate et al. (2004) employability consists of three aspects adaptability, career identity and human and social capital. One problem with these kinds of definitions relates to the lack of consensus regarding the most important components of employability. With an outcome-based definition, components of different employability models represent a list of possible influencing factors of employability. As such, an outcome-based definition permits to analyze the relationship between possible antecedents and a person’s chance on the labor market. Consequently, in this dissertation employability is defined in line with Forrier and Sels (2003) as “an individual’s chance of a job in the internal and/or external labour market” (p. 106).

1.3.3 Indicators

There are several possibilities to estimate a person’s chance of a job on the labor market. Employability can be assessed objectively by studying whether individuals find a new job (McArdle et al., in Press) and/or by considering the quality of a new job (Wanberg, Hough, & Song, 2002). This measurement of employability, however, is only possible for individuals in a transition phase between jobs. As outlined in earlier sections of this introduction, employability is not only important for vulnerable groups, but for the total working population. Furthermore, objective measures assess employability only indirectly (Trevor, 2001). A subjective indicator, that is an individual’s perception of her/his chance on the labor market, provides a direct measure of employability (e. g. Berntson et al., 2006). A subjective assessment is applicable for those who are currently employed.

An increasing number of researchers have followed this subjective approach. Eby et al. (2003) considered both, the perception of internal and external marketability. Other authors, did not distinguish between internal and external employability:
Van den Berg and van der Velde (2005) included the opportunity to “changing jobs within the department, within the organization, outside the organization” (p. 118) in their research, while Berntson (2006) used a broad, and single, item asking participants how easy it would be for them to acquire new and comparable employment. Very recently, Rothwell and Arnold (2007) reported the development and validation of a self-perceived employability scale.

In the following, human capital theory and employability models are described and common assumptions are derived, in order to exemplify how the model of this dissertation was developed.

1.4 Human capital theory

In this section, human capital theory is introduced, because, as already mentioned, it might provide a useful theory in employability research. Human capital theory focuses on individual resources, particularly on the contribution of investments in, for example, education or training. Human capital refers to a host of individual characteristics of individuals in an organization, for example, their skills, experience, knowledge, health, or values (e.g. Becker, 1993). These are termed as human capital, because individuals cannot be separated from their knowledge or skills. Individuals and organizations invest in human capital because they anticipate future returns, for example, higher wages or higher productivity. Education and competence development are the most important investments in human capital (e.g. Becker, 1993; Jackson & Schüler, 1995). Human capital theory predicts that investment in education leads to a return of investment for the individual, which manifests itself in a higher salary, for example. Becker (1993) reported on studies that have proven how college education immensely increases earning potential. This relationship was shown not only for the US, but for more than a hundred countries. Apart from education, competence development at the workplace (e.g. on-the-job and off-the-job training) is another distinct way to invest in human capital. Data indicates that measures of competence development such as on-the-job training also largely raise income (e.g. Leuven, 2007).
A number of further studies have shown that human capital variables are related to traditional measures of career success such as pay and promotion (e.g. Boudreau, Boswell, & Judge, 2001; Judge, Cable, Boudreau, & Bretz, 1995; Judge, Higgins, Thoresen, & Barrick, 1999; Prussia, Fugate, & Kinicki, 2001). Therefore, it is assumed that human capital theory also offers a valuable theoretical framework for studying perceived employability, which can be regarded as an indicator of career success in an independent career (Eby et al., 2003). Consequently, investments in human capital (education, competence development) would be important factors in predicting perceived employability.

1.5 Employability models

1.5.1 Overview and description of employability models

Apart from human capital theory, employability models were analyzed in order to identify the most important individual resources and further possible predictors of employability. Table 1.1 presents an overview of these models which are described in the following. The description of models aims to clarify the meaning of dimensions that have been considered in employability research.

According to Kluytmans and Ott (1999) employees’ employability is determined by their applicable know-how and skills, their willingness to be mobile and their knowledge of the labor market. Willingness to be mobile comprehends changes in employment, jobs, job content and tasks, as well as participation in training. Knowledge of the labor market means knowing about opportunities to find a new job, regular exchange of information through networks, and knowing how to present oneself and/or one’s skills. Unfortunately, Kluytmans and Ott did not provide any explanation why they consider these variables to be the most important determinants of employability.
<table>
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<th>INDIVIDUAL</th>
<th>ORGANIZATIONAL</th>
<th>CONTEXTUAL</th>
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<tbody>
<tr>
<td><strong>Kluytmans and Ott (1999)</strong></td>
<td>Applicable know-how and skills</td>
<td>Knowledge of the labor market: knowing opportunities, exchange of information through networks, presentation of one's skills</td>
<td>Willingness to be mobile with regard to changes in employment, jobs, job content, participation in training</td>
</tr>
<tr>
<td></td>
<td>Job-related skills</td>
<td>Knowledge of the labor market</td>
<td>Willingness to be mobile</td>
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<tr>
<td></td>
<td>Transferable skills / personality</td>
<td>Social capital / network</td>
<td>Other</td>
</tr>
<tr>
<td><strong>De Grip et al. (2004)</strong></td>
<td>Capacity to be mobile: job-related skills; Capacity to participate in training courses: education; Capacity to be functionally flexible: past experience</td>
<td>Willingness to be mobile (change jobs or locations); Willingness to participate in training courses; Willingness to be functional flexible</td>
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<tr>
<td></td>
<td>Knowing how: career/job-related skills</td>
<td>Knowing whom: career related networks</td>
<td>Knowing why: career motivation</td>
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<tr>
<td><strong>DeFillippi et al. (1994); Eby et al., (2003)</strong></td>
<td>Knowing how: career/job-related skills</td>
<td>Knowing whom: career related networks</td>
<td>Knowing why: career motivation</td>
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<tr>
<td><strong>Fugate (2004)</strong></td>
<td>Human capital: education and work experience</td>
<td>Social capital: social networks</td>
<td>Personal adaptability</td>
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<td>Personal adaptability</td>
<td>Career identity</td>
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Table 1.1: Overview of employability models
### Table 1.1 (continued)

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<th>INDIVIDUAL</th>
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<tr>
<td><strong>Job-related skills</strong></td>
<td><strong>Transferable skills / personality</strong></td>
<td><strong>Knowledge of the labor market</strong></td>
</tr>
<tr>
<td>Van der Heijde &amp; van der Heijden (2006)</td>
<td>Occupational expertise</td>
<td></td>
</tr>
<tr>
<td>Hillage &amp; Pollard (1998)</td>
<td>Occupation specific skills</td>
<td>Transferable skills, e.g., communication, problem-solving, team working, self management</td>
</tr>
<tr>
<td>Forrier &amp; Sels (2003)</td>
<td>Technical/job-related capabilities: e.g., education, company training, tenure</td>
<td>Behavioral capabilities: e.g., openness, flexibility, independence</td>
</tr>
<tr>
<td>McQuaid &amp; Lindsay (2005)</td>
<td>Skills: qualification, work knowledge base</td>
<td>Transferable skills, e.g., teamwork, problem-solving, communication, self-management</td>
</tr>
</tbody>
</table>
De Grip et al. (2004) defined employability as the “capacity and willingness of workers to remain attractive for the labour market” (p. 216). They considered the following components of employability:

- The willingness to be mobile concerns changing jobs and changing locations.
- The capacity to be mobile concerns the extent to which employees are able to change jobs or locations. It largely depends on job-specific skills.
- The willingness to participate in training is about an employee’s willingness to develop his/her human capital.
- The capacity to participate in training is dependent on the initial education.
- The willingness to be functionally flexible is about somebody’s flexibility in a job. It concerns the willingness to perform tasks outside the job description and to work flexible hours (e.g., working overtime).
- The capacity to be functionally flexible depends on experience in the past.

De Grip et al. used these components to form an employability index, but did not provide evidence, whether they indeed influence attractiveness on the labor market.

Eby et al. (2003) studied predictors of perceived marketability and used the concept of career capital (DeFillippi et al., 1994; Inkson & Arthur, 2001). The career capital concept suggests that knowing why, knowing how and knowing whom variables predict career success. Knowing why refers to career motivation and personal meaning; knowing whom means career-related networks and contacts. Knowing how relates to career-relevant skills and job-related knowledge. In the study reported by Eby et al. career/job-related skills involved the current level and continuous development of skills.

Fugate et al. (2004) referred to employability as a psycho-social construct which consists of the three dimensions personal adaptability, career identity, and social and human capital. Adaptability may be defined as the willingness and ability to change behaviors, feelings and thoughts according to environmental demands. Career identity means the way individuals define their career experiences and aspirations. Human capital, according to Fugate et al., includes education and work experience, while social capital relates to the breadth of professional networks. When Fugate et al. presented the components of their model they did not refer to previous employability models.
Van der Heijde and van der Heijden (2006) presented a competence-based approach to employability. They assumed that employability consists of five competencies: occupational expertise, anticipation and optimization (preparation for future changes in a creative way in order to aim at the best possible job and career outcomes), personal flexibility (easy adaptation to transitions between jobs and organizations, and to changes on the internal and external labor market), corporate sense (participation and performance in different teams or work groups; identification with corporate goals, acceptance of collective responsibility for the decision-making process), and balance (compromise between employers’ and employees interests). When the model for this dissertation was developed, van der Heijde’s and van der Heijden’s model had not been published. For the sake of completeness, it is yet described here.

Some models are more comprehensive and include organizational (e.g., training facilities provided by employers) and/or contextual (e.g., labor market) beyond individual factors. Hillage and Pollard (1998) assumed that employability depends upon four factors: (1) assets (knowledge, skills and attitudes), (2) deployment (the way of using assets: self-awareness (diagnosing occupational interests and abilities), opportunity awareness (labor market knowledge), job search skills (finding suitable jobs, e.g., through access to networks), adaptability to labor market developments/willingness to be occupationally and locationally mobile, (3) presentation (ability to demonstrate ‘employability’ assets and present them to the others including possible employers), and (4) context (e.g., labor market environment or personal circumstances). They noted that presentation could also be subsumed under the factor deployment of assets, but they regarded it as central and therefore gave it prominence as a separate element of employability. Hillage and Pollard neither referred to other authors nor did they provide any empirical data.

Another comprehensive model of employability was presented by Forrier and Sels (2003). Their model includes individual factors (movement capital, willingness and activities to enhance one’s movement capital, willingness to move), contextual factors (context, shock events), and organizational factors (opportunity to enhance one’s movement capital). Concerning organizational factors, Forrier and Sels noted that organizations mostly offer schooling and training, measures that aim at making
tasks more interesting and varied (e.g., task expansion or task enrichment), and/or career guidance (De Vries, Gründemann, & van Vuuren, 2001; Forrier et al., 2003). Forrier and Sels regarded movement capital, consisting of job-related capabilities (technical/job-related capabilities, behavioral capabilities/transferable skills, labor market behavior) and career expectations, as a core component of the model. They assumed that movement capital would influence ease of movement in the labor market. This model provides a useful overview of employability research, but is too complex for empirical tests.

McQuaid and Lindsay (2005) presented a holistic framework of employability which had not been published when the model for this thesis was developed. McQuaid’s and Lindsay’s framework includes individual factors, personal circumstances and external factors. Individual factors involve skills and attributes (e.g., qualifications and educational attainment, work knowledge base; and transferable skills such as team working, problem-solving, communication, self-management), demographic characteristics (age or ethnicity), health and well-being (e.g., physical and mental health), job seeking (effective use of formal search services, awareness and effective use of informal networks, ability to present one’s skills), adaptability and mobility (e.g., geographical mobility, occupational flexibility), as well as labor market attachment (e.g., unemployment duration). Personal circumstances comprise of household circumstances or access to resources (e.g., transport/mobility issues), while the external factors relate to demand factors (e.g., local labor market, macroeconomic condition) and enabling support factors (e.g., access to job matching technologies, job search counseling). This model constitutes a long list of factors, rather than a theoretical framework.

1.5.2 Summary of employability models

As can be seen from table 1.1 and the description of different models employability models some authors included contextual factors (e.g., labor market) in their model (Forrier et al., 2003; Hillage et al., 1998). Organizational predictors referring to, for example, training and measures of job design have been rarely included into employability models. Individual determinants of employability have been considered in all of the models. These are core dimensions on the individual level:
• **Job-related knowledge and skills** which can be regarded as a key variable and was addressed in all employability models. Some authors referred to it directly taking into account the individual's perception of her/his current level of job-related knowledge and skills, and others indirectly by studying its indicators such as education and competence development;

• **Transferable skills** (Forrier et al., 2003; Hillage et al., 1998; McQuaid et al., 2005);

• **Willingness to be mobile** which mostly comprehends changes in jobs, departments, job content and tasks, as well as participation in training (Forrier et al., 2003; Hillage et al., 1998; Kluytmans et al., 1999; McQuaid et al., 2005);

• **Knowledge of the labor market** which mostly encompasses information on job vacancies, self-awareness, and ability to present one's skills (Forrier et al., 2003; Hillage et al., 1998; Kluytmans et al., 1999; McQuaid et al., 2005). Furthermore, an individual's professional network (or social capital) is suggested to be important for getting insight into the labor market, for example, because it provides individuals with information on vacancies. In some models it is subsumed under the dimension of labor market knowledge (e.g. Kluytmans et al., 1999), while in other models it is regarded as separate dimension (Eby et al., 2003; Fugate et al., 2004).

### 1.6 Antecedents of employability studied in the dissertation

Basically, core individual and organizational variables that resulted from the summary of employability models and from human capital theory were incorporated in the studies reported in this thesis. Acknowledging the role of contextual factors as described in some of the models, they were not studied, because contextual factors can neither be controlled nor influenced by organizations or individuals (e.g. Groot et al., 2000; e.g. Ito & Brotheridge, 2005).

More specifically, the most important investments in human capital (education and competence development) were included in the thesis, because they are considered key in human capital theory and employability models. While investments in education are mostly made by individuals, competence development is often sup-
ported by employers and therefore represents an organizational predictor of employability. Beyond investments in human capital, the current level of job-related knowledge and skills was studied as it can also be considered key in both human capital and employability research. Furthermore, willingness to be mobile with regard to changes in jobs, departments, job contents, tasks, and participation in training as well as the knowledge of the labor market including the aspects information in job vacancies, self-awareness, ability to present one's skills, and availability of professional networks were considered in the studies reported in this thesis.

Although considered important by some authors, transferable skills were not included, because otherwise it would have been necessary to integrate a large number of additional variables. Another reason not to include transferable skills was the fact that the required transferable skills vary from job to job and the aim was to investigate predictors across different occupations and jobs.

In the following, the most important career concepts applied in this dissertation are discussed. This discussion will help the reader to understand how careers were studied.

1.7 The concept of career

The term career refers to a sequence of attitudes, activities or behaviors associated with work roles of a person during the course of a lifetime (Arthur & Lawrence, 1984). According to this definition careers comprehend objective, for example visible activities, and subjective elements, for example attitudes and orientations about the career held by an individual (Gunz, 1988). As such, a career transition does not only comprise objective changes (visible, observable activities or events) but also changes in the orientation to a role already held (Louis, 1980). Career orientations can be defined as superordinate intentions of an individual that will influence career-related decisions (Maier, Rappensperger, Rosenstiel, & Zwart, 1994). Although career orientations are influenced by experiences an individual gains in work and non-work roles, objective changes do not necessarily lead to a change in career orientation (Stephens, 1994).
Traditionally, careers were conceptualized as *linear* (Brousseau et al., 1996) or *bureaucratic* (Kanter, 1989) and were characterized by promotion into higher posts within the hierarchy of one large organization. In a traditional linear career, the employer took over most of the responsibility for career management and development and provided employees with job security (Hall et al., 1998; Millward et al., 2000). Locals (Gouldner, 1957), employees who show high loyalty and commitment to the employer and use a reference group from within the organization, also resemble the traditional linear career. To conclude, a traditional career concerns hierarchical progress within one organization, loyalty and job security. Although the traditional career model has never affected all employees (e.g. self-employed), it has dominated employment in Western societies because the structures of most organizations supported it (e.g. Sullivan, 1999).

As pointed out above, authors argued that the traditional conceptualization of career is no longer compatible with a flexible and uncertain work environment and developed new career concepts (e.g. Arthur, 1994; Arthur et al., 1996). The most prominent ones, the *boundaryless career* (Arthur, 1994; Arthur et al., 1996; DeFillippi & Arthur, 1994) and the *protean career* (Hall, 1976; Hall, 1996; Hall, 2004), are characterized in more detail in the following.

### 1.7.1 The boundaryless and protean career

Although the term *theory* is sometimes used in literature referring to the protean and boundaryless career (e.g. Arthur et al., 2005; Briscoe & Hall, 2006; Pringle & Mallon, 2003), they rather represent models of particular career types (see Inkson, 2006). The main proposition of both models is that protean and boundaryless career are increasingly frequent and important, due to changes in business environment. Arthur (1994) expressed this as follows: "...the old picture of stable employment and associated organizational careers is fading. A new picture of dynamic employment and boundaryless careers calls for our attention" (p. 297).

The term *boundary* means "a real or imagined line that marks the edge or limit of something" (Cambridge Dictionary Online, 2007). "Bound" means "to mark or form the limits" (Cambridge Dictionary Online, 2007). Therefore, the *boundaryless career*, in its literal meaning, is a career which has either no limitation, or no line...
marking its limits. Arthur and Rousseau (1996) defined the boundaryless career as a “range of possible forms that defies traditional employment assumptions” (p. 3) or “the opposite of organizational careers – careers that unfold in a single employment setting” (p. 5). Thus, the emphasis is on a career that transcends boundaries of a particular employment setting or organization. Although the crossing of boundaries can involve changes of jobs, firms, occupations or countries (Sullivan & Arthur, 2006), most authors regard boundaryless as inter-organizational careers (e.g. Eby et al., 2003; Pringle et al., 2003; van Buren, 2003). A common factor of boundaryless careers is independence from traditional employment arrangements. A boundaryless career involves both objective elements such as (physical) mobility, and subjective elements such as an orientation towards one’s career (psychological mobility). A boundaryless career orientation refers to a positive attitude towards being boundaryless (Arthur et al., 1996; Sullivan et al., 2006).

Recently, Sullivan and Arthur (2006) presented a model of boundaryless careers, with physical and psychological mobility as continua (see figure 1.2).

![Figure 1.2: Dimensions of boundaryless careers (According to Sullivan & Arthur, 2006, p.22)](image)

Careers in quadrant 1 have low levels of physical and psychological mobility. This kind of career appeals to both parties of the employment contract, if the organization offers long-term employment and job security and the employee has little desire to change employers (e.g., a long-tenured highly specialized employee in a large public
organization). Careers in quadrant 2 exhibit high levels of physical mobility and low level of psychological mobility. For example, an employee of a temporary employment agency who has to work for many different organizations may wish to have a regular permanent contract with one organization. Careers in this quadrant can be dysfunctional as personal desires are not realized. Careers in quadrant 3 are characterized by low physical and high psychological mobility. Individuals in this quadrant put emphasis on developing their employability – for example as management consultants or reputed researchers – without necessarily changing to another organization. They act on the potential for changing to other attractive jobs. Finally, employees in quadrant 4 have careers with high levels of physical and psychological mobility. They change jobs often and have the will to doing so, for example, because each change broadens their experience.

Most research has tended to focus on physical mobility, while psychological mobility has been neglected. However, as the example of careers in quadrant 2 illustrates, physical mobility can be the result of a lack of alternatives, and not of a boundaryless orientation. In the explanation of the concept, people cross boundaries because they have the will to do so (Inkson, 2006; Sullivan et al., 2006).

The word protean originates from Proteus, a Greek sea-god in Homer’s Odyssey, who changes his form as demanded by the situation. Hall (1976) used the Proteus legend when he suggested the emergence of protean careers in which individuals easily adapt to changing situations. Hall and colleagues (e.g. Briscoe & Hall, 2006; Hall, 1996, 2002; Hall, 2004) refined and developed the concept and thereby provided improvement. They defined the protean career as:

“a career in which the person is (1) value driven in the sense that the person’s internal values provide guidance and measure of success for the individual’s career; and (2) self directed in personal career management – having the ability to be adaptive in terms of performance and learning demands” (Briscoe et al., 2006, p. 8).

This definition thus adds self-directed career management and drive by one’s own values to the original idea of adaptability. Hall and colleagues focused upon the subjective perception of the career actor: “We are more concerned here with the stance or “orientation” one takes towards the career rather than the career structure itself”
Accordingly, the protean career implies an orientation (or attitude) towards the career reflecting freedom, self-direction, and decision making based on personal values, rather than a special behavior such as job mobility.

To summarize, both concepts were originally framed as antithesis to the traditional, bounded organizational career. The common assumption of the boundaryless and protean career model is independence from the organization. Main features are crossing of organizational boundaries, career self-management and commitment to personal values.

1.8 Career types studied in the dissertation

As mentioned above, the study reported in this thesis explored the prevalence of different career types. In order to combine elements of the boundaryless and the protean career and to address the lack of studies on psychological mobility, it focused upon the subjective perspective, taking into account independent career orientations. Their occurrence compared to traditional and disengaged career orientations was studied applying a measure developed by Guest and Conway (2004) which covered the aspects associated with the traditional, independent, and disengaged career. Main features of the latter career type are disengagement from work and career, and emphasis on work-life-balance. As this career type is far less prominent in career literature, it was not emphasized in the introduction.

In the following, each study is summarized with respect to aim and assumptions, methodology, and results. Finally, implications for further research are derived from the three studies.

1.9 Summary of study 1, 2, and 3

This thesis analyzed the concept of employability with regard to its antecedents and relevance in the Swiss labor context. Study 1 aimed to investigate core determinants of perceived employability in two sub studies (study 1a and 1b). As no appropriate questionnaire covering core dimensions was found in the literature, an employability questionnaire was developed for the purpose of the study. This questionnaire con-
tained items that were taken from previous studies and translated from English into German as well as newly developed items. Thus, a further aim of study 1 was to test the employability questionnaire. Based on an analysis of previous employability models and human capital theory, the assumption was that investments in human capital (education, training, tenure), current level of job-related skills, willingness to be mobile, and knowledge of the labor market positively influence perceived employability. Furthermore, it was suggested that current level of job-related skills, willingness to be mobile, and knowledge of the labor market mediate the relationship between investments in human capital and perceived employability. Data for study 1a was taken from a sample of 381 Swiss employees from various sectors, and for study 1b, from a sample of 168 employees from a Swiss insurance company. In order to test the questionnaire, reliability analysis and exploratory and confirmatory factor analysis were applied. Results of these analyses yielded five reliable factors: current level of job-related skills, willingness to change jobs or departments, willingness to develop new competencies, opportunity awareness, and self-awareness and presentation. Thus, willingness to be mobile was split into aspects of the development of competencies and flexibility across jobs, while knowledge of the labor market was split into opportunity awareness (gathering of information on job offers), as well as self-awareness and presentation of skills. Hierarchical regression analysis and mediation analysis revealed that the most stable determinants of employability were formal education and current level of job-related skills. The relationship between formal education and perceived employability was mediated by the current level of job-related skills. Moreover, in both sub studies (1a and 1b), the control variable age was highly related to perceived employability. However, tenure, the willingness to develop new competencies, opportunity awareness, as well as self-awareness and presentation failed to predict perceived employability. Regarding implications for future research, it was suggested that further studies should include measures of competence development beyond participation in training. Furthermore, it was proposed that the study be replicated in a longitudinal design and with participants experiencing high levels of organizational change.

The aim of study 2 was to analyze core determinants of perceived employability in a longitudinal design. More specifically, study 2 tested variations in
perceived employability attributable to investments in human capital (education, training, employers’ support for career and skill development), current level of job-related skills, willingness to change jobs or departments, willingness to develop new competencies, opportunity awareness, and self-awareness and presentation. Study 2 was largely based on study 1 and addressed some of the propositions. Firstly, employees of four Swiss companies that had all gone through major organizational change were surveyed at three points in time ($N_{time1} = 465$). As such a longitudinal design instead of a cross-sectional one was applied and employees who experienced high levels of organizational change and for whom the relevance of employability was assumed to be high participated in study 2. Moreover, an additional measure of competence development (employers’ support for career and skill development) was included. Variables in study 2 were chosen according to factor and reliability analyses of study 1. In order to include data from all participants, multilevel analysis (level 1: time, level 2: person) was used. Independent variables for level 1 were duration of company training, employers’ support for career and skill development, current level of job-related skills, willingness to develop competencies, willingness to change jobs, opportunity awareness, self-awareness, and presentation. For level 2 education, firm and age were considered. Results showed that education, support for career and skill development, current level of job-related skills, willingness to change jobs, and firm and age were significant predictors of perceived employability. The current level of job-related skills mediated the relationship between education and perceived employability as well as between support for career and skill development and perceived employability. Perceived employability was largely dependent on variables that are hardly influenced by either organizations or individuals, especially as concerns age.

Study 3 aimed to develop types of career orientation and explore their prevalence, thereby estimating the relevance of employability in Switzerland. Based on career literature, the assumption was to find a traditional, an independent, and a disengaged type of career orientation. Two large national independent samples ($N_1 = 835, N_2 = 716$) of employees in the German-speaking part of Switzerland were surveyed by means of telephone interviews, one in 2005 and the other in 2006. Career orientations were measured by binary items (Guest & Conway, 2004) that covered
the dimensions associated with traditional, independent and disengaged career orientation. With the data from sample 1, four types - traditional/promotion, traditional/loyalty, independent, disengaged - were identified, applying exploratory latent class analysis. These were confirmed with confirmatory latent class analysis with the data from sample 2. For the traditional linear career as described in the literature, two sub-types could be distinguished; the traditional/promotion oriented and the traditional/loyalty oriented. While the former puts emphasis on hierarchical advancement, preferably in one organization, the latter seeks job security and long-term employment in one organization but is not much concerned about promotion into higher posts. The independent type which combines aspects of the boundaryless (Arthur, 1994; Arthur et al., 1996) and the protean (Hall, 1996) career desires employment in different organizations, employability in a range of jobs, and career self-management. The disengaged type, comparable to the career anchor of life-style (Schein, 1996), regards work and career as marginal to life. Results showed that in the years 2005 and 2006, most participants were traditional/loyalty career oriented (32.5 per cent; 34.6 per cent) or traditional/promotion career oriented (31.0 per cent; 30.3 per cent). Around 18 per cent reported an independent (18.6 per cent; 17.6 per cent) or a disengaged (18.0 per cent; 17.6 per cent) career orientation. These findings clearly indicate that all types of career orientation received substantial approval. However, in contrast with the assumptions of authors who predicted that new forms of career would be the norm in Western societies (e.g. Arthur et al., 1996; Hall, 1996), traditional aspects of a career still received the strongest endorsement in Switzerland.

1.10 Overall discussion of study 1, 2, and 3 and future research

Findings regarding antecedents revealed that education, current level of job-related skills and age were important and stable antecedents of perceived employability. On the other hand, willingness to develop competencies, opportunity awareness, as well as self-awareness and presentation failed to predict employability. Willingness to change jobs or departments was a significant predictor of employability in study 2,
but not in study 1. As such, common assumptions of previous models of employability were only partly confirmed in the Swiss context.

The dominance of education and current level of job-related skills was explained in the context of the Swiss occupational system. A high percentage of the population trains for an occupation through a three to four year apprenticeship, the skills of which are strictly prescribed (Federal Office for Professional Education and Technology, 2007). Many companies still require job-related education, making vocational mobility more complicated in other countries. In a similar vein, studies from other countries showed that variables such as the willingness to be mobile were positively related to employability. For example, McArdle et al. (in Press) found in a sample of Australian unemployed, that adaptability positively influenced reemployment, while education had no influence. The influence of age also seems to be country-specific. While it was strong in the studies reported in this thesis, in other Swiss samples (see Wittekind, Bernard, Gerber, Grote & Staffelbach, 2006; Gerber, Wittekind, Bannwart, Grote, & Staffelbach, 2007) and in a large Swedish sample (see Berntson, 2006), it was weaker than in other countries, for example Australia or the Netherlands (McArdle et al., in Press; van den Berg et al., 2005). The fact that the strength of this influence varies might be due to the different age-related policies of organizations. The recently published “Demographic Fitness Study: Switzerland” (Adecco, 2007) could to some extent explain the strong negative influence of age on employability in Switzerland. The study measured a firm’s readiness for the beginning of an ageing workforce with respect to the areas of knowledge management, lifelong learning, health management, career management, and diversity management. Results showed that in this survey in which eight European countries participated, Switzerland performed second to last.

Several conclusions emerge from the findings discussed above. Firstly, the strength of influence of different factors on employability seems to be context-specific. As such, employability models listing a number of factors universally postulated to be relevant for employability, need to be specified, taking into account the respective labor context (e.g. employment policies of organizations). Secondly, as employability was largely dependent on variables that are hardly influenced by either organizations or individuals (age, education) the scope of employability promotion
through measures discussed in literature (e. g., measures aiming to increase competence or flexibility; De Vries et al., 2001; Rump, 2006) seems to be limited. Unless alternative measures of employability promotion are applied (e. g. different employment policy in organizations), the idea that it supports being able to cope with organizational change does not hold. In other words, unless organizations are unwilling to employ older workers or career changers, adjustment to change seems to be difficult for some groups of employees.

Regarding the relevance of employability for Swiss employees, around 18 per cent reported an independent career orientation, meaning that employability is a key issue for them: it is helpful in achieving job or organizational changes and directing careers according to personal values. The 18 per cent of employees who were disengaged had a tendency towards an independent orientation implying that employability was important for them, too. On the other hand, more than 60 per cent reported a traditional career orientation. According to the Sullivan and Arthur's (2006) model which was described above, traditional oriented employees could belong to quadrant 1 or 2. Employees in quadrant 1 would be provided with job security and long-term employment meaning that employability would not be an issue of high priority for them. Employees in quadrant 2, on the other hand, would be exposed to high levels of physical mobility (e.g., organizational change, flexible work arrangements). The misfit of personal desire and environment can be dysfunctional, and therefore, the question of how the development of an independent career orientation for employees in quadrant 2 could be facilitated, emerges. Employability could foster the development of an independent career orientation (e.g. Fugate et al., 2004, van Buren, 2003). However, as just pointed out, the scope of employability promotion by measures typically discussed in the literature seems to be limited. Therefore, unless more promising measures of employability promotion are applied, organizations should offer long-term employment perspectives for groups of employees who desire job security and stable employment.

As physical mobility was not systematically captured in the reported study, it remained unclear as to how many of the traditional oriented employees belonged to quadrant 1 and how many to quadrant 2. Results from the Swiss HR-Barometer, revealing that in 2005 and 2006 less than 30 per cent of employees in Switzerland ex-
experienced reorganization and less than 20 per cent downsizing in the past 12 months (Wittekind et al., 2006; Gerber et al., 2007), suggest that the proportion of employees in quadrant 1 (employability not an issue of high priority) might be large. The low unemployment rate (3.1 per cent in June 2005; 2.7 per cent in June 2006, State Secretariat for Economic Affairs, 2007) indicating that after several years of organizational restructuring the situation in Swiss companies might have stabilized, further supports this suggestion.

In the following, some of the implications for future research pointed out in each of the studies are highlighted. Future studies should integrate systematic measures of physical mobility beyond measures of psychological mobility (i.e. career orientation). Physical mobility could be measured by the number of changes of jobs, functions, organizations or occupations as well as periods of unemployment, family work or training in an individual’s career. One quadrant in Sullivan’s and Arthur’s (2006) model would be allocated to each study participant and thereby the need for promoting employability would be determined more precisely.

Moreover, the employability model of this dissertation should be tested in different countries. This would enable researchers to specify the model with regard to the moderation effect of the labor context on the relationship between predictors and employability. Future studies should also test further predictors of employability in various contexts (e.g. health; McQuaid & Lindsay, 2006) in order to answer the question as to whether employability is indeed largely dependent on age and qualification. A further suggestion for future research is that employees in a transition phase between jobs should be surveyed in order to integrate further indicators of employability, such as employment status or quality of a new job.

1.11 Structure of the dissertation

After this introduction (chapter 1), the three studies are reported in detail. Study 1 is presented in chapter 2, study 2 in chapter 3, and study 3 in chapter 4. Chapters 2 to 4 are based on previously submitted papers.
Chapter 2 is entirely based on

Chapter 3 is entirely based on

Chapter 4 is entirely based on

This paper is based on

Please note that most of the results of these papers were obtained in collaboration with colleagues. Appendix A (see chapter 5.1) contains an overview of the contribution of each author to the papers.

1.12 References


University Press.


2. Chapter 2: Testing Predictors of Perceived Employability (Study 1)

2.1 Abstract

Today, employability is important as many companies experience organisational change and no longer guarantee job security. We analysed determinants of perceived employability in two studies. More specifically, we investigated the influence of the employability enhancing factors current level of job-related skills, willingness to be mobile, and knowledge of the labour market. Furthermore, we tested the mediation effect of the employability enhancing factors on the relationship between human capital variables (education, training, tenure) and perceived employability. In a first study, data was taken from a sample of 381 Swiss employees from various sectors and analysed by means of hierarchical regression analysis. Findings showed that formal education, training, current level of skills, and breadth of professional networks were significant predictors of perceived employability. The relationship between formal education and perceived employability was mediated by the current level of job-related skills and the breadth of professional networks. In a second study, we verified the findings of study 1a. This sample consisted of 168 employees from a Swiss insurance company. Findings of study 1b indicated that the most stable determinants of employability were formal education and current level of job-related skills.

2.2 Introduction

The concept of employability has received considerable attention in various disciplines in recent years (e.g., politics, economics, or psychology; De Grip, van Loo, &Sanders, 2004). In this paper, employability is defined as “an individual’s chance of a job in the internal and/or external labour market” (Forrier & Sels, 2003; p. 106).
The growing importance of the concept can be explained by changes in the relationship between employers and employees. Increasing international competition, deregulation and globalisation of markets have demanded greater flexibility from organisations. As a consequence, many companies carried out corporate restructuring or downsizing (e.g. Finn, 2000; Probst, 2003; Worrall, Parkes, & Cooper, 2004), and were no longer able to guarantee job security and long-term career opportunities. Scholars argue that it is crucial to provide employees with learning opportunities and training instead, in order to keep them employable in their current or in another organisation (Anderson & Schalk, 1998; Millward & Brewerton, 2000; Raeder & Grote, 2001). If organisations support employability enhancing activities, they benefit from knowing which factors enhance the employability of their employees, and in turn, can efficiently design employability enhancing activities.

Besides changes in employment relations, it is also assumed that new career types are evolving. The protean career (Hall, 1995; Hall & Moss, 1998) focuses on career self-management, while the boundaryless career is characterised by changes between jobs, organisations and industries (Arthur, 1994; Arthur & Rousseau, 1994). If employees are responsible for their career management and confronted with frequent career changes, a better understanding of factors that enhance their employability is crucial for them as well.

While different theoretical concepts of employability have been developed (e.g. Forrier & Sels, 2003; Hillage & Pollard, 1998; Kluytmans & Ott, 1999; McQuaid & Lindsay, 2005), few have been tested empirically (see Berntson, Sverke, & Marklund, 2006). As such, the studies presented investigated possible factors that enhance employability. More precisely, the influence of human capital variables (education, training, tenure) and of the current level of job-related skills, willingness to be mobile and knowledge of the labour market on perceived employability was tested. This study was the first to test which of these factors is the strongest predictor of perceived employability. Results will help organisations and individuals to

---

3 As described in chapter 1, these variables (e.g. current level of job-related skills) are also aspects of human capital. For the purpose of study 1, however, only education, training, and tenure were termed as human capital variables, because these variables are the most frequent used indicators of human capital. The variables current level of job-related skills, willingness to be mobile, and knowledge of the labour market are labeled as (further) employability enhancing factors in study 1.
decide on the amount of time, money or energy to spend on increasing employability. It will also help researchers to understand better the relative importance of different components of employability.

Perceived employability, or in other words, the individual perception of available alternatives in internal and/or external labour market, served as an outcome variable. This variable is considered to be important in the context of work flexibility and job uncertainty, because the feeling of being employable might provide a basis of security (e.g. Bloch & Bates, 1995; Forrier & Sels, 2003; Kanter, 1989). Furthermore, a perceived lack of employment opportunities has negative consequences on health and well-being (e.g. Caplan, Cobb, French, Harrison, & Pinneau, 1975; Catalona, 1991). We did not integrate objective employability measures such as the actual transition to or between jobs (e.g. Forrier & Sels, 2003), because transition is primarily relevant for people who have lost their jobs or who have never been employed. Thus, when organisations experience major changes and reorganisations, for those who are currently employed, the perception of having alternatives on the labour market matters. In previous studies, researchers also assessed employability by the subjective assessment of career opportunities (see Eby, Butts, & Lockwood, 2003; Janssens, Sels, & Brande, 2003).

In the following sections, possible predictors, human capital variables and employability enhancing factors, will be explained in more detail, and their relationship to perceived employability will be established.

### 2.2.1 Predictors

#### 2.2.1.1 Human capital variables

Becker (1993) states that training and education are the most important indicators of human capital. A third widely studied human capital variable is tenure (see Boudreau, Boswell, & Judge, 2001; Judge, Cable, Boudreau, & Bretz, 1995). Numerous studies have proven the importance of human capital variables in the context of career development (e.g. Judge, Higgins, Thoresen, & Barrick, 1999; Prussia, Fugate, & Kinicki, 2001). So far, only Bernston et al. (2006) have explicitly studied the relationship between human capital variables and perceived
employability. They showed that education and training were positively related to perceived employability, whereas tenure had no effect.

Due to the lack of studies that explicitly focus on perceived employability, hypotheses will also be based on a proxy for employability. We conclude that a person experiences higher perceived employability if he or she disposes of job offers or respectively experiences reemployment, because perceived employability can be based upon a sense of or actual job offers (March & Simon, 1958). Kanfer et al. (2001) showed that higher levels of education were associated with faster reemployment. Wanberg et al. (2002) showed that the level of education was positively related to job-improvement and job-organisational fit. Low company tenure was associated with faster reemployment. According to the studies cited, we propose hypothesis 1.

Hypothesis 1: Formal education and company training are positively related to perceived employability, whereas tenure is negatively related to perceived employability.

2.2.1.2 Employability enhancing factors

In this section, we will first outline why we integrated the factors current level of job-related skills, willingness to be mobile and know-how of the labour market in our study, and then establish the relationship of each of the factors to perceived employability. Our selection of employability enhancing factors was guided by the employability concept of Kluytmans and Ott (1999), which considered these factors. The determinants of current level of job-related skills and willingness to be mobile have been considered to be important dimensions of employability by many other researchers (De Grip et al., 2004; Forrier & Sels, 2003; Fugate, Kinicki, & Ashforth, 2004; Hillage & Pollard, 1998; McQuaid & Lindsay, 2005; van der Heijde & van der Heijden, 2006). Likewise, knowledge of the labour market is a component in most of the cited models (Forrier & Sels, 2003; Hillage & Pollard, 1998; McQuaid & Lindsay, 2005). Other individual attributes that have been suggested to influence employability are general abilities such as team work and self-management (Hillage & Pollard, 1998) or health (McQuaid & Lindsay, 2005). The employability enhancing factors current level of job-related skills, willingness to be mobile and know-how of
the labour market however, represent core components of most employability models. The model of Kluytmans and Ott represents a parsimonious model of individual determinants of a person's chance on the labour market. A further determinant of employability, which has been regarded as important by many researchers (Forrier & Sels, 2003; Hillage & Pollard, 1998; McQuaid & Lindsay, 2005) is the labour market. We focused on individual attributes, because they can be influenced by actions an individual chooses to undertake or by employability-enhancing activities set out by organizations (e.g. Groot & Maassen van den Brink, 2000; Ito & Brotheridge, 2005), whereas companies can not directly influence changes on the job market. In the following sections, each of the factors will be examined in more detail.

**Current level of job-related skills**

Forrier and Sels (2003) pointed out that job-related capabilities can be estimated using information on the career (e.g. number of years spent in the present job) and training history (e.g., educational level, duration of company training). However, as skills may have become obsolete or people may have enhanced their skills, it is not sufficient to estimate the level of job-related skills by these indicators of human capital. Some authors (see Eby et al., 2003; Wanberg et al., 2002) used a self-report assessment of skills. This measures how updated a person's skills are and provides information beyond traditional indicators of human capital alone. In line with these authors, we integrated the variable current level of job-related skills into our study.

In a longitudinal study, individuals who reported a higher level of skills at time 1 experienced faster reemployment (Wanberg et al., 2002). Eby et al. (2003) found that job-related skills predicted perceived internal and external marketability. According to these findings, we expected current level of job-related skills to be associated with perceived employability.

**Willingness to be mobile**

Willingness to be mobile refers to a positive attitude towards changes in employment, jobs, job content, tasks, as well as participation in training (De Grip et al., 2004; Hillage & Pollard, 1998; Kluytmans & Ott, 1999). This definition overlaps van Dam's (2004) concept of employability orientation. Employability orientation
refers to employees’ attitudes towards engaging in changes in work content, jobs, departments, or in training and development programs (van Dam, 2003). Other authors considered personal adaptability to be a component of employability (Fugate et al., 2004). Personal adaptability is closely related to the willingness to be mobile, because it is assumed that adaptable people are willing and able to change personal factors and to meet the demands of the situation (Ashforth & Taylor, 1990). Personal adaptability leads to career success and employability (Hall, 2002; Pulakos, Arad, Donovan, & Plamondon, 2000). Van den Berg and van der Velde (2005) reported a positive relationship between willingness and the ability towards functional flexibility. This willingness to be functionally flexible is similar to our definition of willingness to be mobile. The ability to be functionally flexible might be any of the following: the opportunity to change to other jobs within the organisation, to another function within the department, or to another job outside the organisation. As such, it is closely related to the definition of perceived employability. In line with the empirical findings, we suggested that there exists a positive relationship between willingness to be mobile and perceived employability.

**Knowledge of the labour market**

Knowledge of the labour market comprises the following aspects: job search and gathering information on job vacancies, availability of networks, self-awareness, as well as the ability to present one’s skills (Forrier & Sels, 2003; Hillage & Pollard, 1998; Kluytmans & Ott, 1999). In his model of individual employability, Fugate (2004) focused on social capital, defined as access to networks which provide information on career opportunities. In the career capital literature social capital referred to as knowing whom, is considered to be a predictor of career success (DeFillippi & Arthur, 1994; Inkson & Arthur, 2001). Wanberg et al. (2002) included social capital as well as job search intensity in their model of reemployment success. However, social capital was not studied due to overlap with job search intensity. Therefore, we analysed the availability of networks as one aspect of the know-how of the labour market and did not consider it to be a separate predictor of employability.
Eby (2003) showed that there is a significant relationship between internal and external networks and internal and external marketability, as well as career success. Due to the lack of studies that explicitly examine the relationship between job search, skill presentation and perceived employability, we used proxies. Most of the studies that examined the effect of job search used samples of unemployed individuals and considered reemployment or the number of job offers as outcome variables. For instance, Wanberg and colleagues reported a positive association between job search and employment status (Kanfer et al., 2001; Wanberg et al., 2002; Wanberg, Kanfer, & Rotundo, 1999). Saks and Ashforth (2000) found that an increase in active job search behaviour and job search intensity was related to the number of job interviews, and in turn, job interviews were related to more job offers. Hazer and Jacobson (2003) reported that positive self-presentation of applicants predicted the employability rating by an evaluator significantly. Applicants whose self-presentation was positive were evaluated as employable. In accordance with the reported results, we assumed that knowledge of the labour market would be positively related to perceived employability.

We suggest a relationship between employability enhancing factors and perceived employability and put forward hypothesis 2.

Hypothesis 2: The employability enhancing factors current level of job-related skills, willingness to be mobile and knowledge of the labour market are positively related to perceived employability.

2.2.2 Mediation effects

In this section, we will establish the relationship between human capital variables and employability enhancing factors. Wanberg et al. (2002) reported that education correlated positively with the level of self-reported skills whereas tenure did not correlate significantly. Results of a European research project showed that educational attainment significantly predicted occupational expertise, which was closely related to the current level of job-related skills (Indicator consortium, 2005). Much training aims at enhancing job-related skills. A positive relationship between the amount of training and the perception of job-related skills was shown, for example, by Bergmann et al. (2000).
Regarding willingness to be mobile, Ahn, Rica and Ugidos (1999) reported that migration willingness increased significantly with educational level. Ostroff and Clark (2001) found that education was significantly and positively associated with the willingness to change jobs within the organisation, whereas company tenure was negatively associated with the willingness to change jobs. Van Dam (2004) found that tenure had a negative influence on employability orientation. The development of skills through training might lead to an increased willingness to be mobile, because people who are more able to perform different tasks or jobs become more willing to do so (van den Berg & van der Velde, 2005). Furthermore, some training aims at increasing the participant’s willingness to change.

Wanberg et al. (2002; 1999) found a positive relationship between formal education and job search intensity. When considering training, we assumed that it positively influences knowledge of the labour market, because it offers the opportunity to meet people from different organisations, who work in the same professional field, and therefore increases the breadth of professional networks. Furthermore, some training aims to teach people how to apply and how to increase job search skills.

To summarise, we assume that human capital variables are associated with employability enhancing factors. As we hypothesized that human capital variables and employability enhancing factors influence perceived employability, we conclude that the relationship between human capital variables and perceived employability is mediated by employability enhancing factors. Thus, our third hypothesis reads as follows:

Hypothesis 3: The relationship between human capital variables (formal education, training, tenure) and perceived employability is mediated by current level of job-related skills, willingness to be mobile, and knowledge of the labour market.

The proposed relationships are summarized in figure 2.1.
2.3 Study 1a

2.3.1 Method study 1a

2.3.1.1 Participants

The sample consisted of 381 Swiss employees working in different sections, such as manufacturing, services, information and communication technologies and traffic. 60.2 per cent were male and 39.8 per cent were female. The formal education was as follows: 21.1 per cent had a master's degree or Ph.D, 37.4 per cent had a college or bachelor's degree, or had passed a higher vocational education, 33.4 per cent had completed an apprenticeship or senior secondary school with university entrance certificate, and only 8.0 per cent had completed junior secondary school. In Switzerland, the term apprenticeship refers to vocational training, lasting 3 to 4 years, which takes place in a vocational school and on-the-job in a company.

The mean age of the sample was 39.25 years (SD=11.04), and the mean tenure was 7.34 years (SD=8.47). Data collection took place between September 2004 and May 2005. Participants were personally contacted by the researchers and asked to fill in a questionnaire. Only those who agreed to participate received a questionnaire.
2.3.1.2 Measures

*Perceived employability* was assessed by three items by Janssens et al. (2003; e.g., "I'm confident that I would find another job if I started searching"). These items refer to alternatives on the internal and/or external labour market (α=.77).

*Employability enhancing factors*: *Current level of job-related skills* was measured using six items by Wanberg et al. (2002; e.g., "My level of education is sufficient for getting a job in my area of work"). *Willingness to be mobile* was assessed using six items by van Dam (2004; e.g., "I find it important to develop myself in a broad sense, so I will be able to perform different task activities or jobs within the organisation", "In case of organisational changes, I would prefer to stay in my department with my colleagues"). Van Dam developed these items in order to measure employability orientation, a construct which overlaps with willingness to be mobile. The items refer to changes in work content, jobs, departments, or in training and development programs. *Knowledge of the labour market* was assessed by six items, referring to gathering information on job offers (e.g., "I make sure I am informed about vacancies"), to the breadth of professional networks ("I have a broad network of professional contacts"), and to self awareness and presentation (e.g., "I am aware of my interests and skills", "I am able to convince potential employers or project partners of my competencies."). The items were developed for the study, because we found no appropriate instrument that covered every aspect of the variable *knowledge of the labour market*.

All items concerning perceived employability and the employability enhancing factors *current level of job-related skills, willingness to be mobile* and *knowledge of the labour market* were assessed on a 5-point Likert-scale, with 1 = definitely not, 3 = partly, and 5 = definitely. All items that were taken from other studies were translated into German. For the purpose of this article, we have presented the original items in English, and the English translation of items we have developed respectively.

*Human Capital*: Education was assessed on the following scale according to the Swiss educational system: 1) junior secondary school 2) junior secondary school 3) upper secondary school 4) tertiary education (vocational education or university education). For German items see Appendix B (Chapter 5.2.1).
plus an apprenticeship or senior secondary school with university entrance certificate
3) college, bachelor's degree, higher vocational education 4) master's degree or
Ph.D. For the analyses, education was dichotomised, coding college, bachelor's or
master's degree/Ph.D. as 1, and lower educational levels as 0. Company training was
measured by asking participants how many days during the last 12 months they had
participated in technical training, in training of general competencies (such as
communication skills or time management), and in leadership training. The third
indicator was tenure with the current employer. Participants were asked how many
years and months they had been with their current employer.

**Control Variables:** We controlled age and gender because studies showed that
these variables influence employability. For instance, van der Heijden (2002)
reported that age had a significant effect on the degree of employability. Leana and
Feldman (1996) showed that women and older individuals tended to have longer
periods of unemployment.

Prior to data analysis, the dimensionality and reliability of the items that were
intended to measure the employability enhancing factors were tested. We conducted
principal component analysis with varimax rotation to assess the dimensionality of
the items. Table 2.1 presents the resulting factor structure, with all items, their
loadings and the dimension they were intended to measure. A five-factor solution
provided the most conceptually interpretable structure. All five factors reached an
eigenvalue higher than 1, and, with one exception, all items showed factor loadings
higher than .40 and low cross-loading. The item "I have a broad network of
professional contacts" was excluded from reliability analysis due to its low factor
loading.
Table 2.1: Results of exploratory factor analysis

<table>
<thead>
<tr>
<th>Intended factor</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have a good work history.</td>
<td>.78</td>
<td>.12</td>
<td>.04</td>
<td>.10</td>
<td>-.02</td>
</tr>
<tr>
<td>An employer would be impressed with my qualifications.</td>
<td>.74</td>
<td>.24</td>
<td>.06</td>
<td>-.01</td>
<td>-.10</td>
</tr>
<tr>
<td>My skills for doing the type of work I want to do are up to date.</td>
<td>.67</td>
<td>.06</td>
<td>-.04</td>
<td>.12</td>
<td>-.07</td>
</tr>
<tr>
<td>I need more training or education.</td>
<td>-.65</td>
<td>.18</td>
<td>.10</td>
<td>.11</td>
<td>.14</td>
</tr>
<tr>
<td>My work qualifications aren't very good.</td>
<td>-.59</td>
<td>-.21</td>
<td>-.16</td>
<td>-.02</td>
<td>-.06</td>
</tr>
<tr>
<td>I have good job references.</td>
<td>.58</td>
<td>.28</td>
<td>.19</td>
<td>.00</td>
<td>.00</td>
</tr>
<tr>
<td>I don't find it difficult to prove my capability to others.</td>
<td>.01</td>
<td>.80</td>
<td>.08</td>
<td>-.03</td>
<td>.08</td>
</tr>
<tr>
<td>I am able to convince potential employers or project partners of my competencies.</td>
<td>.20</td>
<td>.77</td>
<td>.16</td>
<td>-.01</td>
<td>-.13</td>
</tr>
<tr>
<td>I am aware of my interests and skills.</td>
<td>.27</td>
<td>.69</td>
<td>.10</td>
<td>.18</td>
<td>.00</td>
</tr>
<tr>
<td>I have a broad network of professional contacts.</td>
<td>.30</td>
<td>.39</td>
<td>-.13</td>
<td>.27</td>
<td>-.14</td>
</tr>
<tr>
<td>I find it important to develop myself in a broad sense, so I will be able to perform different task activities or jobs within the organisation.</td>
<td>.08</td>
<td>.06</td>
<td>.82</td>
<td>.11</td>
<td>-.02</td>
</tr>
<tr>
<td>If the organisation needs me to perform different tasks, I am prepared to change my work activities.</td>
<td>-.02</td>
<td>.07</td>
<td>.77</td>
<td>.03</td>
<td>-.01</td>
</tr>
<tr>
<td>If the organisation offered me the possibility to obtain new work experiences, I would take it.</td>
<td>.06</td>
<td>.12</td>
<td>.70</td>
<td>.07</td>
<td>-.20</td>
</tr>
<tr>
<td>I follow developments in the field of industry and employment regularly.</td>
<td>.05</td>
<td>.06</td>
<td>.06</td>
<td>.88</td>
<td>-.07</td>
</tr>
<tr>
<td>I make sure I am informed about vacancies.</td>
<td>-.09</td>
<td>.05</td>
<td>.07</td>
<td>.85</td>
<td>-.08</td>
</tr>
<tr>
<td>In case of organisational change, I would prefer to stay in my current department with my colleagues.</td>
<td>.02</td>
<td>-.01</td>
<td>.00</td>
<td>-.20</td>
<td>.82</td>
</tr>
<tr>
<td>In case of organisational change, I would prefer to stay in my present job.</td>
<td>-.07</td>
<td>-.07</td>
<td>-.04</td>
<td>-.08</td>
<td>.79</td>
</tr>
<tr>
<td>I am not willing to start another job.</td>
<td>-.12</td>
<td>.02</td>
<td>-.15</td>
<td>.10</td>
<td>.61</td>
</tr>
</tbody>
</table>

We computed internal consistencies (Cronbach’s \( \alpha \)) for each of the five factors. The resulting factors can be described as follows:

- **Factor 1 Current level of job-related skills**: All six items, which were intended to measure the current level of work qualification, loaded on this factor. The items referred to skill obsolescence, work qualifications, and need for additional training (\( \alpha = .77 \)).
Chapter 2: Testing Predictors of Perceived Employability

- **Factor 2** *Self-awareness and presentation*: Three of the items we developed to measure the knowledge of the labour market, loaded on this factor. High values on this factor indicate that a person is aware of his or her skills and able to present them to peers, their supervisor, or to potential employers ($\alpha=.71$).

- **Factor 3** *Willingness to develop new competencies*: Three items, which belong to the employability orientation scale, loaded on this factor. The items concern the willingness to perform different tasks, to participate in development activities regularly and to develop oneself in a broad sense ($\alpha=.70$).

- **Factor 4** *Opportunity awareness*: Two of the items we developed to measure the knowledge of the labour market loaded on this factor. They concerned gathering information on vacancies and on the development of the labour market. ($\alpha=.78$).

- **Factor 5** *Willingness to change jobs or departments*: Three items of the employability orientation scale (van Dam, 2004) loaded on this factor. They referred to the willingness to change one’s job or department within an organisation. The item "I am not willing to start another job" had to be dropped from further analysis due to reliability considerations ($\alpha=.69$).

The dimensionality resulting from the exploratory factor and reliability analyses was tested using confirmatory factor analysis. We used the Mplus 4.1 software (Muthén & Muthén, 2005) and chose maximum likelihood estimation. We compared three different models: a one-factor model, which assumes that all items load on one single underlying dimension, the hypothesized three-factor model, and the empirical five-factor model. Given the problems associated with chi-square-statistics, especially if the sample size is large (see Bentler, 1990), we took into account the following fit indices: chi-square relative to its degrees of freedom, the Tucker-Lewis index (TLI), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA). A ratio of chi-square and degrees of freedom of 2 indicates good fit and a ratio of 3 indicates acceptable fit (Schermelleh-Engel, Moosbrugger, & Müller, 2003). For the TLI and CFI a standard of .90 is recommended (Hoyle, 1995). RMSEA values less than .05 indicate good fit, values
between .50 and .80 indicate reasonable fit, values between .80 and .10 indicate mediocre fit, and values larger than .10 indicate poor fit (Browne & Cudeck, 1993).

Table 2.2: Results of confirmatory factor analysis

<table>
<thead>
<tr>
<th>Study 1a</th>
<th>Structure</th>
<th>χ²</th>
<th>df</th>
<th>p</th>
<th>χ²/df</th>
<th>TLI</th>
<th>CFI</th>
<th>RMSEA</th>
<th>Δχ²</th>
<th>χ² difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-factor</td>
<td>863.80</td>
<td>104</td>
<td>&lt; .001</td>
<td>8.31</td>
<td>.42</td>
<td>.50</td>
<td>.14</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3-factor</td>
<td>527.33</td>
<td>101</td>
<td>&lt; .001</td>
<td>5.22</td>
<td>.66</td>
<td>.72</td>
<td>.11</td>
<td>336.48</td>
<td>&lt;.001</td>
<td></td>
</tr>
<tr>
<td>5-factor</td>
<td>188.89</td>
<td>94</td>
<td>&lt; .001</td>
<td>2.01</td>
<td>.92</td>
<td>.94</td>
<td>.05</td>
<td>338.46</td>
<td>&lt;.001</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.2: Results of confirmatory factor analysis

<table>
<thead>
<tr>
<th>Study 1b</th>
<th>Structure</th>
<th>χ²</th>
<th>df</th>
<th>p</th>
<th>χ²/df</th>
<th>TLI</th>
<th>CFI</th>
<th>RMSEA</th>
<th>Δχ²</th>
<th>χ² difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-factor</td>
<td>355.81</td>
<td>77</td>
<td>&lt; .001</td>
<td>4.62</td>
<td>.62</td>
<td>.62</td>
<td>.15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-factor</td>
<td>78.48</td>
<td>43</td>
<td>.001</td>
<td>1.83</td>
<td>.95</td>
<td>.95</td>
<td>.05</td>
<td>245.83</td>
<td>&lt;.001</td>
<td></td>
</tr>
</tbody>
</table>

The results (see table 2.2) illustrate that the five-factor model fitted the data well. The ratio of chi-square and degrees of freedom was 2.02, indicating good fit. The TLI and CFI were higher than .90, and the RMSEA was lower than .80 indicating acceptable fit. To show that the five-factor model was significantly better than the three- and one-factor model, we used the chi-square difference test. The difference in chi-square between the three and five-factor model was statistically significant, suggesting that the five-factor model was significantly better than the three-factor model. The comparison between the one- and the three-factor model was also significant, indicating that the three-factor model was better. For the five-factor model, all regression weights (loading of an item on the latent factor) were statistically significant.

2.3.1.3 Analyses

The hypotheses were tested by means of hierarchical regression analysis. To test for mediating effects, we performed four sets of analyses (Baron & Kenny, 1986). First, the outcome variable perceived employability was regressed on the predictors (human capital variables: formal education, duration of company training, tenure). Secondly, the mediators were regressed on the predictor variables. Thirdly, the outcome was regressed on predictors and on mediators. In the fourth step, we tested the mediated effect for significance using the Sobel test (Baron & Kenny, 1986; Sobel, 1982). In our model, the employability enhancing factors represented the mediating variables. These were the five factors current level of job-related skills, willingness to change jobs, willingness to develop new competencies, self awareness
and presentation and opportunity awareness, which were a result of factor analysis. The item referring to the breadth of professional networks did not show high loadings on any of the factors. Nonetheless, we included the item in the analyses, because of its potential relevance for perceived employability. With regard to study 1b, we wanted to test whether networking is an influencing factor of employability, and whether it was worth incorporating it in study 1b.

2.3.2 Results study 1a

Means, standard deviations, and correlations among control variables, human capital variables, employability enhancing factors, and perceived employability are shown in table 2.3.
Table 2.3: Means, standard deviations and correlations (Pearson) among variables (study 1a)

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Gender (0=male, 1=female)</td>
<td>.40</td>
<td>.49</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Age</td>
<td>39.27</td>
<td>10.82</td>
<td>-.14**</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Formal education (0=lower education, 1=high ed.)</td>
<td>.59</td>
<td>.49</td>
<td>-.33***</td>
<td>.17**</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Duration of company training</td>
<td>12.02</td>
<td>18.00</td>
<td>-.11*</td>
<td>-.12*</td>
<td>.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Tenure</td>
<td>7.36</td>
<td>7.77</td>
<td>-.16**</td>
<td>.52***</td>
<td>.01</td>
<td>.04</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Current level of skills</td>
<td>3.85</td>
<td>.60</td>
<td>-.13*</td>
<td>.11*</td>
<td>.35***</td>
<td>.11*</td>
<td>.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Willingness to change jobs</td>
<td>2.71</td>
<td>.97</td>
<td>-.11*</td>
<td>.01</td>
<td>.26***</td>
<td>.09</td>
<td>-.02</td>
<td>.12*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Willingness to develop new competencies</td>
<td>4.35</td>
<td>.63</td>
<td>.01</td>
<td>-.08</td>
<td>-.04</td>
<td>.09</td>
<td>.04</td>
<td>.14**</td>
<td>.14**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Opportunity awareness</td>
<td>3.16</td>
<td>1.17</td>
<td>-.14**</td>
<td>.09</td>
<td>.09</td>
<td>-.15**</td>
<td>.04</td>
<td>.20***</td>
<td>.17**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Skill presentation</td>
<td>4.08</td>
<td>.67</td>
<td>-.15**</td>
<td>.11*</td>
<td>.06</td>
<td>.02</td>
<td>.11*</td>
<td>.35***</td>
<td>.07</td>
<td>.25***</td>
<td>.13*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 Breadth of networks</td>
<td>3.19</td>
<td>1.09</td>
<td>-.22***</td>
<td>.11*</td>
<td>.22***</td>
<td>.08</td>
<td>.07</td>
<td>.30***</td>
<td>.13*</td>
<td>.05</td>
<td>.18***</td>
<td>.30***</td>
<td></td>
</tr>
<tr>
<td>12 Perceived employability</td>
<td>3.26</td>
<td>.93</td>
<td>-.09</td>
<td>-.31***</td>
<td>.16**</td>
<td>.18***</td>
<td>-.17**</td>
<td>.33***</td>
<td>.16**</td>
<td>.09</td>
<td>.14**</td>
<td>.17**</td>
<td>.25***</td>
</tr>
</tbody>
</table>

Note. N ranged from 372 to 381; *p < .05, **p < .01, ***p < .001.
Chapter 2: Testing Predictors of Perceived Employability

Table 2.4 shows the results of hierarchical regression analysis. The formal education ($\beta=.21$, $p < .001$) and the duration of company training ($\beta=.13$, $p = .010$) had a significant influence on perceived employability. Tenure had no influence on perceived employability ($\beta=.00$, n.s.). Hypothesis 1, which referred to the association between human capital variables and perceived employability, could mostly be confirmed.

Table 2.4: Results of regression analysis study 1a

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 1</strong> Perceived employability regressed on demographic variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (0=male, 1=female)</td>
<td>-.13**</td>
<td>-.05</td>
<td>-.02</td>
</tr>
<tr>
<td>Age</td>
<td>-.33***</td>
<td>-.33***</td>
<td>-.37***</td>
</tr>
<tr>
<td><strong>Model 2</strong> Perceived employability regressed on demographic variables and human capital variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal education (0=lower education, 1=high ed.)</td>
<td>.21***</td>
<td>.08</td>
<td></td>
</tr>
<tr>
<td>Duration of company training</td>
<td>.13*</td>
<td>.08(*)</td>
<td></td>
</tr>
<tr>
<td>Tenure</td>
<td>.00</td>
<td>.00</td>
<td></td>
</tr>
<tr>
<td><strong>Model 3</strong> Perceived employability regressed on demographic variables, human capital variables and employability enhancing factors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current level of skills</td>
<td>.26***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Willingness to change jobs</td>
<td>.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Willingness to develop new competencies</td>
<td>-.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill presentation</td>
<td>.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opportunity awareness</td>
<td>.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breadth of networks</td>
<td>.16**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>.33</td>
<td>.40</td>
<td>.54**</td>
</tr>
<tr>
<td>R²</td>
<td>.11</td>
<td>.16</td>
<td>.29</td>
</tr>
<tr>
<td>F</td>
<td>21.85***</td>
<td>13.95***</td>
<td>13.09***</td>
</tr>
</tbody>
</table>

Note. Model 1: Perceived employability regressed on demographic variables; Model 2: Perceived employability regressed on demographic variables and human capital variables; Model 3: Perceived employability regressed on demographic variables, human capital variables and employability enhancing factors; (*)$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$.

The current level of job-related skills ($\beta=.26$, $p < .001$) and the breadth of networks ($\beta=.16$, $p = .002$) were significant predictors of perceived employability. Willingness to change jobs or departments ($\beta=.07$, $p = n.s.$), willingness to develop new competencies ($\beta=-.01$, n.s.), skill awareness/presentation ($\beta=.07$, n.s.), and opportunity awareness ($\beta=.02$, n.s.) had no influence on perceived employability. Hypothesis 2, which refers to the influence of employability enhancing factors on perceived employability, was partly confirmed. The independent variables explained a considerable proportion of variance (29 per cent) of perceived employability. The
amount of variance explained by the employability enhancing factors largely exceeded the amount that was explained by control and human capital variables.

The mediating variables were regressed on predictors, which reflect step 2 of the mediation analysis. We used the mediating variables of current levels of job-related skills and the availability of networks, because only these variables showed a relation to perceived employability. We dropped tenure from this step of analysis, as it did not relate to the outcome variable. Formal education ($\beta = .33$, $p < .001$), and duration of training ($\beta = .11$, $p = .036$) influenced current level of job-related skills. The breadth of networks was influenced by formal education, but not by duration of training ($\beta = .15$, $p = .004$; $\beta = .07$, n.s.; see table 2.5).

Table 2.5: Results of mediation analysis study 1a and 1b

<table>
<thead>
<tr>
<th></th>
<th>Current level of skills</th>
<th>Breadth of networks</th>
<th>Current level of skills</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>$\beta$</td>
<td>$\beta$</td>
</tr>
<tr>
<td>Control variables</td>
<td></td>
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<tr>
<td>Gender (0=male, 1=female)</td>
<td>.00</td>
<td>-.15**</td>
<td>-.09</td>
</tr>
<tr>
<td>Age</td>
<td>.06</td>
<td>.07</td>
<td>-.03</td>
</tr>
<tr>
<td>Predictors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal education (0=lower education, 1=high ed.)</td>
<td>.33***</td>
<td>.15**</td>
<td>.23**</td>
</tr>
<tr>
<td>Duration of company training</td>
<td>.11*</td>
<td>.07</td>
<td>.27**</td>
</tr>
<tr>
<td>$R$</td>
<td>.37</td>
<td>.29</td>
<td>.35</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.14</td>
<td>.08</td>
<td>.12</td>
</tr>
<tr>
<td>$F$</td>
<td>11.57***</td>
<td>6.50***</td>
<td>4.32**</td>
</tr>
</tbody>
</table>

Note. *$p < .05$; **$p < .01$; ***$p < .001$.

In the fourth step of the mediation analysis, the mediating variables were tested for significance. The current level of job-related skills ($z=3.94$, $p < .001$) and the breadth of networks ($z=2.11$, $p = .035$) significantly mediated the relationship between formal education and perceived employability. The current level of job-related skills ($z=1.86$, $p = .063$) did not mediate the relationship between duration of training and perceived employability.

When current level of job-related skills and breadth of networks were entered into the equation, standardized regression weights dropped from $\beta = .21$ ($p < .001$) to $\beta = .08$ (n.s.), for formal education. Hypothesis 3 could partly be confirmed, as we found a fully mediating effect of current level of job-related skills and breadth of
networks on the relationship between formal education and perceived employability. The relationship between training and perceived employability was not mediated by any of the proposed variables.

**2.3.3 Discussion study 1a**

In study 1a, we tested the assumption that human capital variables and the three employability enhancing factors *current level of job-related skills, willingness to be mobile and knowledge of the labour market*, which were derived from the model of Kluytmans and Ott (1999), influence perceived employability. Moreover, we tested whether the employability enhancing factors mediate the relationship between human capital variables and perceived employability. As we did not find any appropriate instrument to measure all the employability enhancing factors, we translated scales that had been used in previous studies, and developed items for the study. Firstly, we will discuss results concerning the dimensionality and reliability of the questionnaire, and secondly, the influence of the employability enhancing factors on perceived employability.

Factor and reliability analyses yielded five factors that best represented the data: current level of job-related skills, willingness to change jobs or departments, willingness to develop new competencies, opportunity awareness, and self-awareness and presentation. The scale on current level of skills taken from Wanberg et al. (2002) proved to be reliable and the factor was easily interpretable. The willingness to be mobile, which was measured with van Dams’ (2004) items was split into aspects of the development of competencies and flexibility across jobs. This finding is different to that of van Dam, who found that the items loaded on one factor. This finding also contradicts the study of van den Berg and van der Velde (2005). As with our study, they measured the willingness to be mobile by four items that referred to the change of jobs and departments and the development of competencies. A confirmatory factor analysis showed that these items belonged to one factor. However, creating two aspects - changes in jobs/departments and the development of competencies - is reasonable with respect to content. A change of jobs and/or departments might imply a change of colleagues and superiors and a
change in location, whereas willingness to develop new competencies mainly implies learning.

Knowledge of the labour market was split into the following aspects: gathering of information on job offers and self-awareness and presentation of skills. The separation of presentation and job search is in line with the theoretical model of Hillage and Pollard (1998), which regarded presentation as a separate element of employability. We included the single item measuring networking, which did not load highly on any of the factors. In contrast to the finding by Wanberg et al. (2002), networking seems to be conceptually different from job search. While both variables may result in having information on job vacancies, networking implies a social component. In further studies, a network scale should be developed.

Formal education, duration of company training, current level of job-related skills, and breadth of professional networks significantly predicted perceived employability. Tenure, willingness to change jobs or departments and develop new competencies, opportunity awareness as well as self-awareness and presentation failed to predict perceived employability.

The dominance of variables concerning professional skills in comparison to other variables such as the willingness to be mobile might be explained by specific characteristics of the Swiss educational system and labour market. In Switzerland, vocational education comprises of two equally important strands: Trainees are educated for a specific profession both in a vocational school and company. In many cases the learned profession influences future career to a large extent. Furthermore, a specific formal education is required for most jobs. Willingness to be mobile is not sufficient reason to be hired if people do not provide specific educational requirements.

The fact that networking proved to be an important predictor of perceived employability, while job search and skill presentation had no influence, could be explained by the recruiting strategy of many Swiss companies. Many jobs are appointed to applicants through personal contacts, and personal references are important instruments in the personnel selection process (Berchthold, 2005). The discovery that neither job search nor presentation of skills explained perceived employability could also be a result of our sampling. We studied participants who
were in a relatively stable employment relationship. For most of the subjects therefore, there was no need to search for another job or to present themselves to potential alternative employers. Job search and skill presentation may have a stronger effect on employability in a transitional phase.

The fact that tenure was not a significant predictor could be explained by suppressor effects. We controlled for age, which had a significant influence on perceived ease of movement; tenure and age, in turn, were highly correlated.

The relationship between formal education and perceived employability was mediated by the current level of job-related skills and breadth of networks. The relationship between training and perceived employability was not mediated by any of the variables, indicating a direct effect of training on perceived employability. Employees who participated in training, might feel more employable because they undertook measures to increase their employability or because employers appreciate the participation in training and offer them more jobs. It should be noted, that the relationship between training and perceived employability was rather weak.

2.4 Study 1b

Study 1a only partly confirmed the employability model by Kluytmans and Ott (1999). As proposed by the model, job-related skills seemed to be an important determinant of employability. With regard to knowledge of the labour market, only the breadth of professional network was a significant predictor. Willingness to be mobile was not relevant for perceived employability. To gain more empirical evidence on determinants of employability, we performed a second study. The aim of study 1b was to confirm the factors that significantly enhanced perceived employability for employees in a stable employment relationship and to improve the employability measure.

The scale concerning the current level of job-related skills was reliable and could therefore be applied in study 1b. The single item measure of the breadth of professional networks was problematic in study 1a. As a consequence, for study 1b, we developed a scale measuring the breadth of professional networks.
As study 1a mostly confirmed hypothesis 1, which proposed a positive relationship between human capital variables and perceived employability, we maintained hypothesis 1.

Hypothesis 1: Formal education and company training are positively related to perceived employability, whereas tenure is negatively related to perceived employability.

We changed hypotheses 2 and 3 according to the findings of study 1a.

Hypothesis 2a: The current level of job-related skills and the breadth of professional networks will relate positively to perceived employability.

Hypothesis 3a: The relationship between formal education and perceived employability will be mediated by the current level of job-related skills, and the breadth of professional networks.

2.4.1 Method study 1b

2.4.1.1 Participants

The sample consisted of 168 employees (57.0 per cent females) from a Swiss insurance company. 7.2 per cent had a university degree, 24.0 per cent had a college degree, 63.5 per cent completed an apprenticeship and 5.4 per cent were unskilled. The mean age of the sample was 39.50 years (SD=10.91), and the mean tenure was 8.01 years (SD=6.98). The data collection took place in July and August 2006. An email with a link to an online version of the questionnaire was sent to a random sample of 300 employees of the company. The sample was drawn as follows. Firstly, all 1200 employees who were native German speakers were listed alphabetically by name. Secondly, every fourth employee of that list was selected.

2.4.1.2 Measures\(^5\)

In order to measure perceived employability, we used the same three items as in 1a. Cronbach’s α was .79.

Likewise, the current level of job-related skills was assessed by the same items as in study 1a. We removed the item "I need more training and education", as it negatively affected α. Without this item Cronbach’s α was .77.

\(^5\) For German items see Appendix B (Chapter 5.2.2).
The breadth of professional networks was assessed by five items. Four items were taken from Eby et al. (2003), but were slightly changed for the study. Our items referred to networks in general, not only to external networks (i.e. "I have extensive contacts within the industry I work in.", "Co-workers say that I know a lot of people inside and outside my organisation", "I regularly network with individuals outside my organisation.", "I do not have many professional contacts."). The fifth item was the one which we used in study 1a ("I have a broad network of professional contacts"). Cronbach’s α was .83.

All items were assessed on a 5-point Likert-scale, with 1 = definitely not, 3 = partly, and 5 = definitely. For the purpose of the study, the items were translated into German.

Control variables and human capital variables were the same as in study 1a.

The two employability enhancing factors were confirmed by means of confirmatory factor analysis (see table 2.2). Fit indices show that the two-factor model fits the data well. The TLI and CFI were higher than .90, and the RMSEA was .07 indicating acceptable fit. Chi square relative to its degrees of freedom was 1.83, indicating good fit. The two-factor model fitted the data significantly better than the one-factor model, shown by the chi square difference test and the lower fit indices.

2.4.2 Results study 1b

Means, standard deviations and correlations among control variables, human capital variables, employability enhancing factors, and perceived employability are shown in table s.

Hypothesis 1 was investigated by regressing perceived employability on human capital variables (see table 2.7).
<table>
<thead>
<tr>
<th></th>
<th>Gender (0=male, 1=female)</th>
<th>M</th>
<th>SD</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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</tr>
</thead>
<tbody>
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<td>1</td>
<td></td>
<td>1.43</td>
<td>.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Age</td>
<td>39.50</td>
<td>1.91</td>
<td>.05</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Formal education (0=lower education, 1=high ed.)</td>
<td>.31</td>
<td>.46</td>
<td>-.43***</td>
<td>-.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Duration of company training</td>
<td>6.41</td>
<td>1.29</td>
<td>-.23**</td>
<td>-.32***</td>
<td>.13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Tenure</td>
<td>8.01</td>
<td>6.98</td>
<td>-.01</td>
<td>.56***</td>
<td>-.15</td>
<td>-.22**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Current level of skills</td>
<td>3.44</td>
<td>.89</td>
<td>-.07</td>
<td>-.11</td>
<td>.24**</td>
<td>.28***</td>
<td>-.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Breadth of networks</td>
<td>2.44</td>
<td>.98</td>
<td>-.10</td>
<td>-.02</td>
<td>.08</td>
<td>.36***</td>
<td>.09</td>
<td>.36***</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Perceived employability</td>
<td>3.26</td>
<td>.79</td>
<td>-.18*</td>
<td>-.42***</td>
<td>.29***</td>
<td>.24**</td>
<td>-.30***</td>
<td>.60***</td>
<td>.28**</td>
</tr>
</tbody>
</table>

Note. N ranged from 165 to 168, *p < .05, **p < .01, ***p < .001.
Hypothesis 1 could only partly be confirmed as we found a significant relationship between formal education and perceived employability ($\beta = .19$, $p = .023$), but no association between training ($\beta = .08$, $p = \text{n.s.}$), tenure ($\beta = -.07$, $p = \text{n.s.}$), and perceived employability. Control and human capital variables explained 24 per cent of the variance of perceived employability. Hypothesis 2a referred to the influence of the current level of skills and the breadth of networks on perceived employability. We found a highly significant influence of the current level of skills ($\beta = .52$, $p < .001$). The breadth of networks was significant on the 10 per cent level only ($\beta = .12$, $p = .061$). Hypothesis 2 therefore, was only partly confirmed. Table 2.7 shows that the influence of professional networks was highly significant, if the variable of current level of job-related skills was excluded. This indicates that the influence of the breadth of networks was suppressed by the current level of job-related skills. The employability enhancing factors explained more variance of perceived employability than control and human capital variables ($\Delta R^2 = .28$, $p < .001$).

Table 2.7: Results of regression analysis study 1b

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographic variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (0=male, 1=female)</td>
<td>-.16*</td>
<td>-.07</td>
<td>-.12*</td>
<td>.06</td>
</tr>
<tr>
<td>Age</td>
<td>-.41***</td>
<td>-.34***</td>
<td>-.33***</td>
<td>-.40***</td>
</tr>
<tr>
<td><strong>Human capital variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal education (0=lower education, 1=high ed.)</td>
<td>.19*</td>
<td>-.06</td>
<td>.19*</td>
<td></td>
</tr>
<tr>
<td>Duration of company training</td>
<td>.08</td>
<td>-.11</td>
<td>-.02</td>
<td></td>
</tr>
<tr>
<td>Tenure</td>
<td>-.07</td>
<td>-.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Employability enhancing factors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current level of skills</td>
<td></td>
<td>.52***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breadth of networks</td>
<td>.12(*)</td>
<td>.25**</td>
<td>.25**</td>
<td></td>
</tr>
<tr>
<td>$R$</td>
<td>.45</td>
<td>.49</td>
<td>.72</td>
<td>.54</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.20</td>
<td>.24</td>
<td>.52</td>
<td>.30</td>
</tr>
<tr>
<td>$F$</td>
<td>20.67***</td>
<td>10.24***</td>
<td>24.50***</td>
<td>13.33***</td>
</tr>
</tbody>
</table>

Note. Model 1: Perceived employability regressed on demographic variables; Model 2: Perceived employability regressed on demographic variables and human capital variables; Model 3: Perceived employability regressed on demographic variables, human capital variables and all employability enhancing factors; Model 4: Perceived employability regressed on demographic variables, human capital variables, and the breadth of networks; *$p < .05$; **$p < .01$; ***$p < .001$. 

In order to investigate whether a mediating effect of the current level of job-related skills on the relationship between the formal education and perceived employability exists, we regressed the current level of job-related skills on formal education, also controlling for age and gender. We found a significant effect ($\beta = .23$, $p = .006$; see table 2.5).

When the current level of job-related skills was entered into the analysis, $\beta$ dropped from $.19$ ($p = .023$) to $.06$ (n.s.). The mediating effect was significant ($z = 2.63$, $p = .008$).

### 2.4.3 Discussion study 1b

In study 1b, we attempted to replicate the findings of study 1a, which showed that human capital variables, the current level of skills, and breadth of professional networks predict perceived employability. Moreover, the questionnaire was adapted with respect to the measure of professional networks.

Concerning the reliability and dimensionality of the questionnaire, the two factor structure with the factors *current level of skills* and *breadth of professional networks* could be confirmed. Both scales showed good internal consistencies, indicating that we developed a reliable measure of employability enhancing factors.

We found that only education significantly predicted employability, whereas the duration of company training and tenure had no significant influence. As in study 1a, tenure showed no significant influence on employability, as it was suppressed by the highly significant influence of age. The finding that training failed to predict perceived employability might be explained by our sampling. The sample of study 1b comprised employees of only one company, which might result in less variance in duration and also quality of training compared to study 1a.

Regarding the relationship between employability enhancing factors and perceived employability, we found that current level of job-related skills had a very high influence on perceived employability. Combined with the current level of job-related skills, breadth of networks had no significant influence. The analysis showed that current level of job-related skills suppressed the influence of the availability of networks on perceived employability. The mediating effect of the current level of
skills on the relationship between the formal education and employability was confirmed.

2.5 General discussion

In the studies presented, we investigated antecedents of perceived employability, which are consistently reported in literature to be at the core of employability (Forrier & Sels, 2003; Hillage & Pollard, 1998; Kluytmans & Ott, 1999). From a theoretical point of view, these studies contribute to a better understanding of the relative importance of different components of employability. From a practical point of view, they help organisations and employees to make accurate decisions about spending money and energy in stimulating employability attributes.

The aim of study 1a was twofold. Besides investigating the relevance of the employability enhancing factors for perceived employability, an employability questionnaire that included items that were translated from English into German, or that were developed for the study, was tested. In study 1b, the employability model was changed according to the findings of study 1a. It was tested and the questionnaire was improved.

Results of the two studies only partly confirmed the research model. In line with our hypotheses, formal education level and current level of job-related skills were significant predictors of perceived employability in both studies. The mediating effect of the variable of current levels of job-related skills on the relationship between formal education and perceived employability was also confirmed in both studies.

The dominance of variables related to professional skills in comparison to all other variables was explained by specific characteristics of the Swiss educational system and labour market. Many companies still require job-related education, making career changes and vocational mobility more complicated than in countries such as the United States or the U.K. In other countries, variables such as the willingness to be mobile is considered to be a key employability attribute and might therefore prove to be more influential. Moreover, variables related to the job search process such as presentation skills might be important prerequisites for people in a
transitional phase but not for people who have relatively stable jobs. It might, therefore, be useful to specify existing employability models, to distinguish different phases and to define employability enhancing factors accordingly.

The duration of company training and the breadth of professional networks significantly predicted perceived employability in study 1a, but not in study 1b. The inconsistent findings regarding training can be explained by a higher variance in duration, kind and quality of training in the sample of study 1a, resulting in a greater effect of training on employability. It could also be explained by the fact that participants of study 1b were employed in the financial sector, where the standards of training are higher than in other sectors (Wittekind, Bernard, Gerber, Grote, & Staffelbach, 2006). Employers, therefore, might appreciate the participation in training less. We explained the inconsistent finding with regard to the breadth of networks by suppressor effects in study 1b. In study 1b, the relevance of the current level of job-related skills was even higher than in study 1a. The breadth of networks significantly influenced employability, but in combination with the current level of job-related skills, it had no significant influence.

Our conclusion regarding inconsistencies between the two studies is that the relative importance of employability enhancing factors varies according to specific contextual conditions. In line with this conclusion are findings of Berntson et al. (2006) showing that human capital variables influenced perceived employability differently in times of recession than during economic prosperity. For example, education had a relatively weak effect during recession, but a strong effect during prosperity.

To summarise, job-related skills (education, current level of job-related skills) proved to be the most important predictor of employability in the two studies. We concluded that the relevance of employability enhancing factors varies according to background variables such as the country, the context and the phase of job search. Therefore, other studies should test which factors enhance employability varying these background variables.

In both studies the influence of the current level of job-related skills on perceived employability largely exceeded that of the human capital variables we studied. Thus, there must be other factors that increase job-related skills. Promising
measures to enhance job-related skills might be the performance of multifaceted
tasks, for example through job rotation and enrichment or project work. Further
measures of employability promotion are courses on applying for jobs, career advice,
and opportunities to establish networks (see De Vries, Gründemann, & van Vuuren,
2001; Kluymans & Ott, 1999). As the promotion of employability seems to be
especially promising with respect to job-related skills, the influence of these
measures on employability should be investigated in further studies, and
organisations should provide employees with the most promising ones.

Concerning the questionnaire, the analyses of study 1a yield five scales
reaching acceptable reliability. These were current level of job-related skills,
willingness to develop new competencies, willingness to change jobs and/or
departments, self-awareness and presentation, as well as opportunity awareness. In
study 1b, we developed a reliable network scale. Altogether, the two studies provide
a short and economic measure of factors that might enhance employability. This
instrument could be a valuable tool for individuals who wish to reflect upon their
employability and increase self-awareness. Due to its brevity, it could be applied
easily in organisations.

2.5.1 Strength and limitations

The procedure that included two studies is strength. Firstly, it allowed us to test
scales of the questionnaire that were translated or developed in the first study, and
to improve them in the second. Secondly, the model could be tested in two
independent samples, which would increase the generalization of the results.

The generalization, however, is limited to Switzerland. Compared to other
European countries Switzerland has a very low unemployment rate (3.1 per cent in
July 2006; State Secretary for Economic Affairs, 2006), which might have influenced
the results. As mentioned above, the study should be replicated in other countries,
taking into account labour market variables. Moreover, other employability enhancing
factors should be examined in further studies. For example, general competencies,
such as communication or self-management skills, may have an influence on the
chances on the labour market (see Hillage & Pollard, 1998; McQuaid & Lindsay,
2005).
An important limitation of the study is that causal interference can not be derived from the cross-sectional design. The analyses should be replicated with longitudinal data. In order to estimate employability, we used a self-report of employees, so that the relationships between variables could be affected by common method variance. Crampton and Wagner (1994) showed that the use of self-reports implies an inflation of relationships, but that the inflation is smaller than often supposed. Nevertheless, in further studies, data should be taken from different sources. For example, the employability enhancing factors could be assessed by peers or supervisors. If employees in a transitional phase between jobs are studied, additional objective indicators, such as the actual transition, should be taken into account.

2.6 References


3. Chapter 3: A Longitudinal Study of Determinants of Perceived Employability (Study 2)

3.1 Abstract

Employability is highly important to both organizations and individuals in coping with job insecurity. Although many employability models have been developed, few studies have tested determinants of employability empirically. This longitudinal study aims at analyzing core determinants of perceived employability. These were tested using a sample of 465 employees (time 1) taken from four companies in Switzerland surveyed at three points in time. In order to include data from all participants, we used multilevel analysis (level 1: time, level 2: person). Independent variables for level 1 were duration of company training, employers' support for career and skill development, current level of job-related skills, willingness to develop competencies, willingness to change jobs, opportunity awareness, self-awareness, and presentation. For level 2, we considered education, firm and age. Results showed that education, support for career and skill development, current level of job-related skills, willingness to change jobs, and firm and age were significant predictors of perceived employability. The current level of job-related skills mediated the relationship between education and perceived employability as well as between support for career and skill development and perceived employability.

3.2 Introduction

Major restructuring, delayering, downsizing and other forms of organizational change have become common phenomena in organizations over the last decades (e.g. Doherty, 1996; Finn, 2000; Probst, 2003; Worrall, Parkes, & Cooper, 2004). These changes lead to increased feelings of job insecurity (e.g. Adams, 1965; e.g. Cavanaugh & Noe, 1999; Davy, Kinicki, & Scheck, 1991; Hellgren, Sverke, &
Isaksson, 1999; Sverke, Hellgren, & Näswall, 2002). Job insecurity refers to an overall concern about the continuation of the job in the future and reflects the subjective experience of an individual (De Witte, 1999; Sverke & Hellgren, 2002; Sverke et al., 2002). Its detrimental consequences both for organizations and individuals such as lower levels of organizational commitment, performance, job satisfaction or decreased health (e.g. Sverke et al., 2002) highlight the necessity of being able to cope effectively with organizational change. Employability has been put forward as a way of coping with such changes (e.g. Bloch & Bates, 1995; Forrier & Sels, 2003; Gaspersz & Ott, 1996). It is assumed that employees who trust their employability, will not respond with job insecurity to objective threats such as layoffs. Following this argument, employability, defined as “an individual’s chance of a job on the internal and/or external labour market” (Forrier & Sels, 2003, p. 106), is of high importance for organizations as well as individuals in today’s turbulent work environment. It is not only relevant for unemployed or laid off individuals, but also for those who are currently employed.

Employability can be assessed objectively by studying whether employees find a new job or not and/or by considering the quality of the new job (Forrier & Sels, 2003). This objective approach however, is only relevant for employees in a transitional phase between jobs. The employability of those who are employed can be assessed by regarding an individual’s perception of her/his chances on the labor market. If employability is meant to buffer the negative effects of (subjective) job insecurity, then the knowledge of one’s ability to find an alternative position should protect a person from the negative effects of job insecurity. As such, it is crucial to gain knowledge of determinants of perceived employability. So far, empirical research on determinants of perceived employability has been limited. Few cross-sectional studies have been conducted (see Berntson, Sverke, & Marklund, 2006; Eby, Butts, & Lockwood, 2003).

This longitudinal study tested variations in perceived employability attributable to various possible determining factors that were derived from the analysis of existing models in the literature (Boom & Metselaar, 2001; De Grip, van Loo, & Sanders, 2004; Eby et al., 2003; Forrier & Sels, 2003; Fugate, Kinicki, & Ashforth, 2004; Gaspersz & Ott, 1996; Gazier, 2001; Hillage & Pollard, 1998; Kluytmans & Ott,
The sample consisted of employees of four Swiss companies surveyed at three points in time between 2004 and 2006. During this period, the four companies had all gone through major reorganization and/or downsizing, meaning that employability was highly relevant. Determining factors may have increased or decreased and the level of perceived employability is expected to have changed. The longitudinal model applied in this study captures possible changes in perceived employability and the interrelation with determinants.

The employability models cited above lack clarity concerning the status of variables (see Forrier & Sels, 2003). While some authors regard certain variables (e.g. the willingness to be mobile) as determinants of employability (e.g. Boom & Metselaar, 2001), others regard the same variables as dimensions constituting employability (e.g. De Grip et al., 2004). In line with Forrier and Sels, we consider components of employability models to be a list of possible factors influencing an individual’s chances on the labor market. This approach enables us to analyze the relationship between determining factors and a person’s chances on the labor market.

Additionally, authors differ in their view on the most important predictors of employability. Therefore, as a first step, the common assumptions of employability models were derived. As such, this study provides empirical evidence of common assumptions of mostly untested models. It should lead to a better understanding of the relative importance of various factors influencing employability. From a practical point of view, results will help individuals and organizations in making decisions on career activities. The framework that guides the study is presented in figure 3.1 and will be outlined in the subsequent sections.
3.2.1 Theoretical Background and Hypotheses

We analyzed existing models from the literature, in order to derive core determinants of employability. From this analysis, we concluded that job-related knowledge and skills are the key variable of employability models (Berntson et al., 2006; De Grip et al., 2004; Eby et al., 2003; Forrier & Sels, 2003; Fugate et al., 2004; Gazier, 2001; Hillage & Pollard, 1998; Kluytmans & Ott, 1999; McQuaid & Lindsay, 2005; van Dam, 2004; van der Heijde & van der Heijden, 2006). Some authors referred to job-related knowledge and skills indirectly by emphasizing the role of their indicators such as education and competence development. Other authors emphasized the role of the current level of job-related knowledge and skills, which refers to work qualifications, skill obsolescence, and the need for additional training (Wanberg, Hough, & Song, 2002). The current level of job-related knowledge and skills can be captured as perceived level of skills, knowledge and qualification (see Eby et al., 2003; Wanberg et al., 2002). Thus, authors of employability models mention directly, or indirectly, human capital, which refers to competencies of individuals in an organization, for example their skills, knowledge and experience. Education and competence development are the most important investments in human capital (Becker, 1993).

In our study, we include both education and competence development as well as the current level of job-related skills. Education and competence development might influence perceived employability both directly and indirectly. Firstly, we
consider the direct influence. For most jobs a certain level of education, i.e. a vocational training or a university certificate, is required, and can therefore be regarded as a basis of finding employment. Accordingly, Berntson (2006) showed that education was positively related to perceived employability.

Education relates to investment that, in most cases, has been made before employment with a particular organization. Competence development, on the other hand, can take place continuously, including during employment, and is often supported by employers. Organizations mostly offer schooling and training and/or measures that aim to make tasks more interesting and varied (e.g. task expansion or task enrichment; De Vries, Gründemann, & van Vuuren, 2001; Forrier & Sels, 2003). Engagement in competence development might be helpful for finding a job as it indicates a certain level of knowledge and a positive attitude towards continuous learning, which possible employers certainly appreciate. The direct relationship between competence development and employability has hardly been researched empirically. To our knowledge, two studies considered the relationship between company training and employability. Groot and Maassen van den Brink (2000) studied the influence of company training on employability. Employability was operationalized by “the extent to which workers can be assigned to other jobs or departments within the firm” (p. 574). This measure is somewhat related to perceived employability, but only refers to employability within the internal labor market. Groot and Maassen van den Brink found that the number of training courses influenced employability. Berntson also reported a positive relationship between training and perceived employability. Both studies, however, used a single-item measure of employability.

The relationship between current level of job-related skills and perceived employability has been shown empirically by Eby et al. (2003). This study found that current job-related skills predicted perceived internal and external marketability. In line with existing employability models and empirical evidence, we assumed that education, competence development and the current level of job-related skills are positively related to perceived employability.

Hypothesis 1a: Education and competence development are positively related to perceived employability.
Hypothesis 1b: The current level of job-related skills is positively related to perceived employability.

Apart from their direct effect, education and competence development possibly influence perceived employability indirectly through increasing current levels of job-related skills. For example, Wanberg et al. (2002) reported that education correlated positively with the level of self-reported skills. Results of a European research project showed that educational attainment significantly predicted occupational expertise, which is closely related to the current level of job-related skills (The Indicator consortium, 2005). Most training programmes and other measures of personnel development aim at increasing human capital, particularly the job-related skills of employees. The relationship between opportunities for competence development and job-related skills has been shown in research on job design and training. For example, Baitsch (1985) proved that task complexity and decision latitude positively influenced the level of job-related qualification. Bergmann et al. (2000) reported that a task providing opportunities for learning and the amount of training were positively associated with the level of job-related skills. Given these findings, we assume that education and support for competence development positively influences employability through increasing the current level of job-related skills.

Hypothesis 2a: The relationship between education and perceived employability is mediated by the variable of current level of job-related skills.

Hypothesis 2b: The relationship between competence development and perceived employability is mediated by the variable of current level of job-related skills.

Furthermore, a common assumption of most authors is that knowledge and skills is not a sufficient prerequisite for finding alternative employment. Rather, individuals also need to “manage” their skills. The following variables have been suggested to influence employability by different authors (e.g. Forrier & Sels, 2003; Gaspersz & Ott, 1996; e.g. Hillage & Pollard, 1998; Kluytmans & Ott, 1999; McQuaid & Lindsay, 2005):

- Opportunity awareness: knowledge of opportunities through regular information.
- Self awareness: diagnosis of interest and skills.
• Presentation: competency to show one’s capacities.
• Willingness to be mobile: employee’s attitude towards engaging in changes in work content, jobs, departments, or in training and development programs (De Grip et al., 2004; Kluytmans & Ott, 1999), also referred to as employability orientation by van Dam (2004).

In our study, we take into account the variables opportunity awareness, self awareness and presentation, willingness to develop new competencies and willingness to change jobs or departments, according to factor analysis reported by Wittekind, Raeder and Grote (2006). In the following, we present empirical evidence on the relationship between these variables and perceived employability.

Van den Berg and van der Velde (2005) reported a positive relationship between the willingness to be functionally flexible and the opportunity to change to other jobs within the organization, to another function within the department, or to another job outside the organization. As reported by these authors, this willingness to be functionally flexible refers to changing jobs or departments as well as developing new competencies. Considering the link between presentation and employability, Hazer and Jacobson (2003) reported that positive self-presentation of applicants significantly predicted the employability rating by an evaluator. Applicants whose self-presentation was positive were evaluated as employable. Most of the studies that examined the effect of opportunity awareness used samples of unemployed individuals and considered reemployment or the number of job offers as outcome variables. Therefore, we considered proxies for perceived employability, such as reemployment and the number of job offers. Wanberg and colleagues reported a positive association between job search and employment status (Kanfer, Wanberg, & Kantrowitz, 2001; Wanberg et al., 2002; Wanberg, Kanfer, & Rotundo, 1999). Saks and Ashforth (2000) found that an increase in active job search behavior and job search intensity was related to the number of job interviews and, in turn, job interviews were related to more job offers. According to employability models and the reported empirical evidence above, we hypothesize the following.

Hypothesis 3: The willingness to develop competencies, willingness to change jobs or departments, self-awareness and presentation and opportunity awareness are positively related to perceived employability.
3.3 Organizational Context

Data for this study was collected in four large-scale Swiss companies at three points in time between September 2004 and November 2006. When we planned the study, all four companies had either gone through major changes (downsizing or reorganization) or were planning to do so. Employees therefore had to adapt to a new work situation (e.g., they had to find a new job, work at a different site, department, team, or with a different superior, or they had to perform new functions/tasks or to work with new technologies). Company A, information and communication technology, had gone through continuous change since 1998, including downsizing. We studied employees from one department who were responsible for network engineering. The work was mainly organized into project work, and tasks were highly complex and specialized. At time 1, a small number of employees were laid off; between time 1 and 2 the department was reorganized meaning that some employees were grouped into new teams and got a new supervisor. After time 2, there were no more changes. Company B, engineering, was carrying out a reorganization of organizational structures, processes, products, and IT. Participants were mainly service technicians, who were responsible for the service and repair of the engines of a number of clients. At time 1, employees were informed about proposed changes, while actual major changes took place between time 1 and time 2. Company C, logistics, was planning a major restructuring of production sites, meaning that 18 sites were reduced to 3 major sites and 6 smaller ones. Employees would either be laid off or would have to adapt to a new site, work organization, team, and new technology. Participants were mainly responsible for the sorting of mail. At time 1, time 2, and time 3 employees were informed about the changes, but restructuring had not taken place. Between time 2 and time 3 employees were informed about whether or not they got a job offer in the new organization. Company D, engineering, had closed one production site. Employees were mainly blue collar workers, responsible for the production of trains and locomotives. At time 1, some employees had already been laid off, while others were still working in company D.
Due to the changes described above, all the companies which were studied put the development of employability high on the agenda and initiated measures to enhance employees’ opportunities on the labor market. We expected that the conditions in the four companies were ideally suited for testing the relationship between possible employability enhancing factors and employability.

3.4 Method

3.4.1 Sample and procedure

A contact person in each firm was responsible for the distribution of questionnaires. The researchers informed each contact person about the study in detail. In company A, higher level management decided on the department to be studied. All employees working in this department received a questionnaire from their direct supervisor. In company B, the contact person drew a random sample of employees working in a division that was affected by changes. The contact person administered the questionnaires to the employees. In company C, a sample of employees at seven company sites were asked to fill in the questionnaire during their work time, after a decision by company management. Each site manager was well informed about the study. In company D, the questionnaire was sent by the researchers to all employees who worked at the company site that was to be closed. In all companies, each questionnaire was prefaced by an introductory letter that explained the purpose of the study and assured anonymity and confidentiality. A stamped envelope addressed to the researchers was provided for returning the completed questionnaire. A second stamped envelope was provided for the participants’ address. This enabled us to contact time 1-participants at time 2 and time 3 directly, whilst maintaining anonymity. On each questionnaire participants filled in a personal code, which was used to match the questionnaires of time 1, 2, and 3. Table 3.1 shows the number of distributed questionnaires and the number of completed questionnaires per company. At time 1 the total response rate was 48 per cent. 131 questionnaires could be matched at all three points in time.
Table 3.1: Number of distributed and completed questionnaires

<table>
<thead>
<tr>
<th></th>
<th>Number of questionnaires administered</th>
<th>Number of completed questionnaires</th>
<th>Response rate</th>
<th>Response rate in relation to administered questionnaires at t2</th>
<th>t1</th>
<th>t2</th>
<th>t3</th>
<th>t1</th>
<th>t2</th>
<th>t3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company A</td>
<td>222</td>
<td>72</td>
<td>72</td>
<td>32.43%</td>
<td>38</td>
<td>27</td>
<td>37.50%</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>52.78%</td>
<td>52</td>
<td>37.27%</td>
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</tr>
<tr>
<td>Company B</td>
<td>105</td>
<td>62</td>
<td>62</td>
<td>59.05%</td>
<td>27</td>
<td>16</td>
<td>25.81%</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>43.55%</td>
<td>43</td>
<td>37.28%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company C</td>
<td>320</td>
<td>287</td>
<td>287</td>
<td>89.69%</td>
<td>128</td>
<td>107</td>
<td>37.28%</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>44.60%</td>
<td>44</td>
<td>38.64%</td>
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<td></td>
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<tr>
<td>Company D</td>
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<td>44</td>
<td>13.84%</td>
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<td>17</td>
<td>38.64%</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td>43.18%</td>
<td>48</td>
<td>35.91%</td>
<td></td>
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<tr>
<td>Total</td>
<td>965</td>
<td>465</td>
<td>465</td>
<td>48.19%</td>
<td>212</td>
<td>167</td>
<td>35.91%</td>
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</tbody>
</table>

At time 1, the sample consisted of 465 employees (25.4 per cent female). Formal education was as follows: 8.1 per cent had a master's degree or Ph.D., 16.2 per cent had a college or bachelor's degree or had passed a higher vocational education, 52.6 per cent had completed an apprenticeship or senior secondary school with university entrance certificate, and 23.1 per cent had completed junior secondary school. In Switzerland, the term apprenticeship refers to vocational training which lasts three to four years and takes place both in a vocational school and on-the-job in a company. The mean age of participants was 41.82 years (SD=9.80), and the mean tenure was 16.66 years (SD=10.85).

At time 2, the sample consisted of 212 employees (23.0 per cent female). 9.0 per cent had a master's degree or Ph.D., 19.5 per cent had a college or bachelor's degree, or a higher vocational education, 50.5 per cent had an apprenticeship/senior secondary school with university entrance certificate, and 21.0 per cent had completed junior secondary school. The mean age was 43.01 years (SD=9.13), and the mean tenure was 18.06 years (SD=11.66).

At time 3, the sample consisted of 167 employees (20.8 per cent female). Formal education was as follows: 11.9 per cent had a master's degree or Ph.D., 18.8 per cent had a college or bachelor's degree, or a higher vocational education, 50.0 per cent had an apprenticeship/senior secondary school with university entrance certificate, and 19.4 per cent had completed junior secondary school. The mean age was 42.24 years (SD=9.62), and the mean tenure was 17.50 years (SD=11.41).
3.4.2 Measures

3.4.2.1 Perceived employability

Perceived employability was assessed at all three points in time using three items by Janssens et al. (2003), translated into German by Wittekind et al. (2006). These items refer to opportunities on the internal and/or external labor market (e.g., "I'm confident that I would find another job if I started searching"). Ratings were completed on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Cronbach’s alpha was .80 at time 1, .86 at time 2, and .88 at time 3.

3.4.2.2 Predictors

*Education* was assessed at time 1. For the analysis, it was dichotomized coding college, bachelor’s, master’s degree and Ph.D. as 1, and lower educational levels (junior secondary school, junior secondary school plus apprenticeship or senior secondary school with university entrance certificate) as 0.

We used two measures for *competence development*. Firstly, we asked participants at all three points in time how many days of training (training of job-related skill, training of generic skills, leadership training) supported by their employer they had participated in during the past 12 months. Secondly, we assessed employers’ inducements in terms of support for career and skill development, applying a scale which was developed by Raeder and colleagues (Raeder & Grote, 2004; Raeder, Wittekind, Inauen, & Grote, 2007). After the statement "My employer provides me with..." seven different items were presented (e.g., "apply skills in a variety of contexts", "interesting work"). Ratings were completed on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Cronbach’s alpha was .85 at time 1, .86 at time 2, and .88 at time 3.

All measures described in the following were also applied at times 1, 2 and 3. The variables current level of job-related skills, willingness to develop new competencies, willingness to change jobs or departments, opportunity awareness, and self-awareness and presentation were measured using a questionnaire.

---

6 For German items see Appendix B (Chapter 5.2.3).
developed and tested by Wittekind et al. (2006). This questionnaire includes scales that have been used in past research as well as newly developed items. *Current level of job-related skills* contained six items that were originally developed by Wanberg et al. (2002; e.g., "My level of education is sufficient for getting a job in my area of work"). Cronbach’s alpha was .75 at time 1, .69 at time 2, and .75 at time 3. *Willingness to develop new competencies* was assessed using three items originally developed by van Dam (2004; e.g., "I find it important to develop myself in a broad sense, so I will be able to perform different task activities or jobs within the organization"). Cronbach’s alpha was .57 at time 1, .61 at time 2, and .76 at time 3. *Willingness to change jobs or departments* was assessed using two items originally developed by van Dam (2004; e.g., "In case of organizational changes, I would prefer to stay in my department with my colleagues"). Cronbach’s alpha was .70 at time 1, .65 at time 2, and .71 at time 3. *Opportunity awareness* was assessed by two items (e.g., "I make sure I am informed about vacancies"). Cronbach’s alpha was .85 at time 1, .84 at time 2, and .87 at time 3. *Self-awareness and presentation* was assessed by means of three items (e.g., "I am able to convince potential employers or project partners of my competencies."). Cronbach’s alpha was .65 at time 1, .71 at time 2, and .65 at time 3.

For the purpose of the study we used German items and, for the purpose of this article, we presented items in English.

3.4.2.3 **Control variables**

Age and firm were controlled in all our analyses. Previous studies had shown that age influences perceived employability (e.g. van der Heijden, 2002). In each of the four firms employees were exposed to different conditions. For example, they had to perform different tasks, they were provided with different measures of personal development, or work was organized in a different way. All these conditions might influence perceived employability.

3.4.3 **Analyses**

In order to analyze predictors of perceived employability, we conducted hierarchical linear modeling (HLM), a method which is appropriate for the analysis of longitudinal data (e.g. Hox, 2002; Singer & Willett, 2003). An advantage of HLM is that it permits
the inclusion of data from all participants. As recommended by Singer and Willett (2003) continuous predictors were centered for the analysis by subtracting the mean from each value and also, categorical predictors were centered by setting the most frequent value to 0. In order to analyze data, we used the procedure SPSS Mixed (SPSS 15.0).

Our model contained two levels of analysis that represent repeated measurements over time (level 1) and individuals (level 2). Duration of company training, support for career and skill development, current level of job-related skills, willingness to change jobs or departments, willingness to develop new competencies, opportunity awareness, and self-awareness and presentation were level 1-predictors, while education and control variables (firm, age) were level 2-predictors.

The null model included only one predictor (time). In longitudinal research, the properties imposed on the models composite residual have to match those required by data (Singer & Willett, 2003). In line with Singer and Willett’s suggestion, we tested the following error covariance structures of the null model as a first step: unstructured, compound symmetric, heterogeneous compound symmetric, autoregressive, heterogeneous autoregressive and Toeplitz. We used goodness of fit statistics (AIC, BIC) to compare the performance of the models.

To verify hypothesis 1a, in a second step, we entered the variables education, duration of company training and support for career and skill development (model 1a). In a third step, we introduced the variable current level of job related skills (hypothesis 1b, model 1b). In a forth step, we entered the variables willingness to change jobs or departments, willingness to develop new competencies, opportunity awareness, and self-awareness and presentation (hypothesis 3, model 2). In a final step, we entered control variables on level 2 (age, firm; model 3).

To test for mediation, we followed the procedure outlined by Baron and Kenny (1986) and by Krull and MacKinnon (2001). According to these authors, four criteria need to be met to support mediation. Firstly, the predictor needs to be related to the outcome variable (perceived employability). Secondly, the mediator needs to be related to the outcome and, thirdly, the predictor needs to be related to the mediator. In the fourth step, the mediated effect needs to be tested for significance, for example, by means of the Sobel test (Baron & Kenny, 1986; Sobel, 1982). Education, du-
ration of company training and support for career and skill development represented the predictor variables, whereas the current level of job-related skills represented the mediator.

### 3.5 Results

#### 3.5.1 Descriptive statistics

Table 3.2 presents descriptive statistics of all study variables for times 1, 2 and 3.

<table>
<thead>
<tr>
<th></th>
<th>Time 1 Mean</th>
<th>Time 1 SD</th>
<th>Time 2 Mean</th>
<th>Time 2 SD</th>
<th>Time 3 Mean</th>
<th>Time 3 SD</th>
</tr>
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<tbody>
<tr>
<td>Perceived employability</td>
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<td>1.05</td>
<td>2.70</td>
<td>1.07</td>
<td>2.86</td>
<td>1.10</td>
</tr>
<tr>
<td>Education (0=lower educational degree, 1= graduate)</td>
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<td>.43</td>
<td>.24</td>
<td>.43</td>
<td>.24</td>
<td>.43</td>
</tr>
<tr>
<td>Duration of company training</td>
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<td>12.00</td>
<td>9.94</td>
<td>20.11</td>
<td>9.06</td>
<td>12.80</td>
</tr>
<tr>
<td>Support for career and skill development</td>
<td>3.13</td>
<td>.84</td>
<td>3.20</td>
<td>.86</td>
<td>3.20</td>
<td>.88</td>
</tr>
<tr>
<td>Current level of job-related skills</td>
<td>3.59</td>
<td>.68</td>
<td>3.74</td>
<td>.59</td>
<td>3.68</td>
<td>.66</td>
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<tr>
<td>Willingness to change jobs</td>
<td>2.46</td>
<td>1.04</td>
<td>2.51</td>
<td>.96</td>
<td>2.70</td>
<td>.95</td>
</tr>
<tr>
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<td>4.35</td>
<td>.56</td>
<td>4.29</td>
<td>.58</td>
<td>4.25</td>
<td>.64</td>
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<td>3.42</td>
<td>1.15</td>
<td>3.37</td>
<td>1.24</td>
<td>3.26</td>
<td>1.17</td>
</tr>
<tr>
<td>Self awareness and presentation</td>
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<td>.73</td>
<td>3.97</td>
<td>.70</td>
<td>3.94</td>
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<td>9.80</td>
<td>43.01</td>
<td>9.13</td>
<td>42.23</td>
<td>9.60</td>
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<td>.36</td>
<td>.16</td>
<td>.36</td>
<td>.15</td>
<td>.36</td>
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<tr>
<td>Firm (0=no employee of firm B, 1=employee of firm B)</td>
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<td>.34</td>
<td>.14</td>
<td>.35</td>
<td>.14</td>
<td>.14</td>
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<tr>
<td>Firm (0=no employee of firm C, 1=employee of firm C)</td>
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<td>.49</td>
<td>.61</td>
<td>.49</td>
<td>.62</td>
<td>.49</td>
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<td>Firm (0=no employee of firm D, 1=employee of firm D)</td>
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<td>.29</td>
<td>.09</td>
<td>.29</td>
<td>.09</td>
<td>.29</td>
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</table>

#### 3.5.2 Results of HLM

Firstly, we compared null models with different error covariance structures. As can be seen from table 3.3, the autoregressive structure fitted the data best as it had the lowest AIC and BIC value. Consequently, we used the autoregressive error covariance structure to compare model 0 to 3.
The null model showed a variance of .25 within (p < .001) and .83 between employees (p < .001; see table 3.4).

The total variance in the null model was 1.08 (sum of variances between and within employees). The variance explained by introducing variables into the model can be used as an indicator for the quality of the multilevel model (Singer & Willett, 2003). From model 0 to model 1a, variance decreased considerably through the introduction of education, duration of training and support for career and skill development. In model 1a variance within employees was .24 and between employees .65. Thus, the total variance was .89 and the reduction of total variance amounted to 19 percent. From model 0 to model 1b, the reduction of total variance was 21 percent, indicating that the current level of job-related skills explained 2 per cent of additional variance. From model 0 to model 2, the reduction in total variance was 24 percent. Thus, by including willingness to change jobs or departments, willingness to develop new competencies, opportunity awareness, and self-awareness and presentation another 3 per cent of variance was explained. Finally, the reduction of variance from model 0 to model 3 amounted to 39 per cent, indicating that control variables explained 15 per cent of total variance. Akaike's Information Criterion (AIC) decreased from model 0 to model 3, which demonstrates that model 3 best fitted the data.
Table 3.4: Results of multilevel analysis: Predictors of perceived employability

<table>
<thead>
<tr>
<th></th>
<th>Model 0</th>
<th>Model 1a</th>
<th>Model 1b</th>
<th>Model 2</th>
<th>Model 3</th>
<th>St. E.</th>
<th>Stand. Coeff.</th>
<th>df</th>
<th>t</th>
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<tr>
<td>Intercept</td>
<td>2.79***</td>
<td>3.38***</td>
<td>3.31***</td>
<td>3.27</td>
<td>3.31***</td>
<td>.11</td>
<td>541.46</td>
<td>30.79</td>
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<td>-.14*</td>
<td>-.14*</td>
<td>-.15</td>
<td>-.18**</td>
<td>.06</td>
<td>-0.08**</td>
<td>198.80</td>
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</tr>
<tr>
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<td>-.18**</td>
<td>-.17**</td>
<td>-.18</td>
<td>-.19**</td>
<td>.06</td>
<td>-0.08**</td>
<td>312.25</td>
<td>-3.22</td>
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<tr>
<td>Education (0=lower educational degree, 1=graduate)</td>
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<td></td>
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<tr>
<td>Duration of company training</td>
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<td>-.65***</td>
<td>-.58***</td>
<td>-.31*</td>
<td>.12</td>
<td>-.13*</td>
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<td>.19***</td>
<td>.20***</td>
<td>.13***</td>
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<td>.11***</td>
<td>707.02</td>
<td>3.52</td>
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<td>-.21**</td>
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<tr>
<td>Firm (1 = Company D)</td>
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<td>.06</td>
<td>417.02</td>
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<td>.14**</td>
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<td>Variation within employees</td>
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<td>.24***</td>
<td>.24***</td>
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<td>.04</td>
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<td>1523.70</td>
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*Note. St. E., Standardized coefficient, df and t is only reported for model 3 which best fitted the data; *p < .05, **p < .01, ***p < .001.
Table 3.4 (continued)

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<td>df</td>
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<td>St.E.</td>
<td>df</td>
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<tr>
<td>Firm (1=Company C)</td>
<td>-.48**</td>
<td>.14</td>
<td>372.16</td>
<td>-3.33</td>
<td>-.43**</td>
<td>.14</td>
<td>375.32</td>
<td>-3.02</td>
</tr>
<tr>
<td>Firm (1 = Company D)</td>
<td>.24</td>
<td>.17</td>
<td>413.04</td>
<td>1.405</td>
<td>.26</td>
<td>.17</td>
<td>414.36</td>
<td>1.53</td>
</tr>
<tr>
<td>Firm (1=Company B)</td>
<td>.44*</td>
<td>.17</td>
<td>386.2</td>
<td>2.687</td>
<td>.45**</td>
<td>.16</td>
<td>386.77</td>
<td>2.78</td>
</tr>
<tr>
<td>Wald Z</td>
<td></td>
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<td>Wald Z</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Variation within employees</td>
<td>.24***</td>
<td>.03</td>
<td>8.08</td>
<td>.24***</td>
<td>.03</td>
<td>8.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variation between employees</td>
<td>.40***</td>
<td>.05</td>
<td>8.63</td>
<td>.38***</td>
<td>.04</td>
<td>8.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Akaike’s Information Criterion (AIC)</td>
<td>1540.69</td>
<td></td>
<td></td>
<td>1528.97</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
In order to estimate the contribution of each variable, we calculated standardised coefficients for model 3 according to Hox (2002): standardised coefficient = (unstandardized coefficient*standard deviation explanatory variable)/standard deviation outcome variable. Table 3.4 illustrates that the control variable age had by far the strongest influence on perceived employability, followed by the control variable firm. Education, support for career and skill development, current level of job-related skills, and willingness to change jobs were significant predictors of perceived employability. They showed however, a weaker contribution than the control variables. Employees below degree level as well as employees from company C perceived themselves as less employable than the rest of the sample. On the other hand, the higher employers’ support for career and skill development, current level of job-related skills, willingness to change jobs and the younger participants, the higher employability was perceived. Furthermore, the influence of time on perceived employability was significant but weak: At time 3, perceived employability was higher than at times 1 and 2 (see table 3.2 and 3.4). Duration of company training, willingness to develop competencies and skill awareness and presentation had no significant influence on perceived employability.

To summarize, hypothesis 1a was mostly supported, as education and support for career and skill development were positively related to perceived employability and, only the duration of company training was not related to employability. Hypothesis 1b (relationship between current level of job-related skills and perceived employability) was confirmed. However, hypothesis 3 was only partly supported, because only willingness to change jobs was a predictor of perceived employability, whilst willingness to develop new competencies, opportunity awareness, and self-awareness/presentation failed to predict perceived employability.

In order to test for mediation, we firstly examined whether the predictor variables (education, duration of company training, support for career and skill development) were related to the outcome variable, controlling for age and firm. As can be seen from table 3.4 (model 4), education and support for career and skill development showed significant influence, while duration of company training showed no significant influence on perceived employability. Secondly, we tested whether the mediator (current level of job-related skills) was related to the outcome
variable, controlling for the predictors as well as control variables (age and firm). The current level of job-related skills was significantly related to perceived employability (see table 3.4, model 5). Thirdly, we explored whether the predictors were related to the mediator and ran another multilevel model. Table 3.5 shows that education and support for career and skill development were significantly related to the current level of job-related skills.

**Table 3.5: Relationship between predictors and the mediator (current level of job-related skills)**

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>Std. Error</th>
<th>df</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fixed effects</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>3.40***</td>
<td>.11</td>
<td>515.21</td>
<td>32.15</td>
</tr>
<tr>
<td>Wave (t1)</td>
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<td>.06</td>
<td>199.29</td>
<td>-3.02</td>
</tr>
<tr>
<td>Wave (t2)</td>
<td>-.18**</td>
<td>.06</td>
<td>308.80</td>
<td>-3.13</td>
</tr>
<tr>
<td><strong>Predictors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational level (lower ed. degree)</td>
<td>-.44**</td>
<td>.13</td>
<td>374.52</td>
<td>-3.45</td>
</tr>
<tr>
<td>Duration of company training</td>
<td>.00</td>
<td>.00</td>
<td>445.63</td>
<td>1.18</td>
</tr>
<tr>
<td>Support for career and skill development</td>
<td>.16***</td>
<td>.04</td>
<td>706.65</td>
<td>4.13</td>
</tr>
<tr>
<td><strong>Control variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.04***</td>
<td>.00</td>
<td>416.53</td>
<td>-10.58</td>
</tr>
<tr>
<td>Firm (1 = Company C)</td>
<td>-.48**</td>
<td>.14</td>
<td>372.16</td>
<td>-3.33</td>
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<tr>
<td>Firm (1 = Company D)</td>
<td>.24</td>
<td>.17</td>
<td>413.04</td>
<td>1.40</td>
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<tr>
<td>Firm (1 = Company B)</td>
<td>.44**</td>
<td>.17</td>
<td>386.23</td>
<td>2.69</td>
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<tr>
<td>Variation within employees</td>
<td>.16***</td>
<td>.03</td>
<td></td>
<td></td>
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<tr>
<td>Variation between employees</td>
<td>.28***</td>
<td>.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Akaike's Information Criterion (AIC)</td>
<td></td>
<td></td>
<td>1304.08</td>
<td></td>
</tr>
</tbody>
</table>

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

Fourthly, we tested the mediation effect for significance by means of the Sobel test (Sobel, 1982). The current level of job-related skills significantly mediated the relationship between education ($z=3.31, p = .001$) and support for career and skill development ($z=3.14, p = .002$). When the current level of job-related skills was entered into the equation, estimates dropped from -.75 ($p < .001$) to -.65 ($p < .001$) for education and from .22 ($p < .001$) to .19 ($p < .001$) for support for career and skill development, indicating a partial mediation effect. Hypothesis 2a, which predicted that the relationship between education and perceived employability was mediated by the current level of job-related skills, was supported. Hypothesis 2b (relationship between competence development and perceived employability is
mediated by the current level of job-related skills) was only supported for the variable support for career and skill development, not for the variable duration of company training.

3.6 Discussion

The purpose of the present study was to investigate antecedents of perceived employability or, in other words, a person’s perception of her/his chance of finding alternative employment. Despite the popularity of the employability concept in the context of job insecurity and increasing flexibility demands, empirical research on factors that cause individuals to experience employability security has been limited. The choice of predictors was guided by the analysis of previous employability models. The study provides empirical evidence of common assumptions of mostly untested models. We hypothesized that education, competence development (duration of company training, employers’ support for career and skill development) and the current level of job-related skills influence perceived employability. Moreover, we suggested that education and competence development influence perceived employability indirectly by increasing the current level of job-related skills. As far as the management of skills was concerned, we assumed that willingness to change jobs or departments, willingness to develop competencies, opportunity awareness and self-awareness and presentation all influence perceived employability.

The results of our study supported the notion that variables related to job-related skills are associated with the degree of employability perceived by the individual. Education, employers’ support for career and skill development and the current level of job-related skills were significantly related to perceived employability. Moreover, the current levels of job-related skills partially mediated both the relationship between education and perceived employability and that between support for career and skill development and perceived employability. However, the duration of company training during the past 12 months was not related to perceived employability. Concerning the management of skills, only the willingness to change jobs or departments significantly predicted perceived employability, whilst willingness
to develop competencies, opportunity awareness and self-awareness and presentation failed to predict perceived employability. The important role of education in the context of career development is in line with previous research (e.g. Berntson et al., 2006; Judge, Higgins, Thoresen, & Barrick, 1999; Prussia, Fugate, & Kinicki, 2001). Education has to be considered as a basis for finding employment, because for most jobs a certain level of education is required. There are several explanations as to why individuals who reported better support for career and skill development provided by their employer scored higher on perceived employability: Firstly, potential new employers might appreciate learning opportunities that are already underway in applicants’ current jobs and offer them more jobs as a result. Secondly, employees who have continuously developed their skills probably have a greater confidence in their ability to adapt to a new (work) environment, and thus feel that they could easily work elsewhere. General support for career and skill development (e.g. by means of interesting and varied work) seems to be more relevant than the number of days employees participated in training. The finding that training was not related to perceived employability is in contrast to other studies (Berntson et al., 2006; Groot & Maassen van den Brink, 2000). It could be explained by the fact that we only considered the duration and not the quality of training. The current level of job-related skills explained variance beyond indicators of human capital. It is therefore important to consider this variable in employability research also and not only rely on indicators (see Wanberg et al., 2002)

The fact that willingness to change jobs or departments predicted perceived employability confirms the findings of previous research (van den Berg & van der Velde, 2005). People scoring high on willingness to change might feel more employable, because they consider a broader spectrum of jobs, for example, jobs in other companies, at other sites of the same company, or in different sectors. While the willingness to develop competencies was related to perceived employability in previous studies (van den Berg & van der Velde, 2005), no relation was indicated in this study. This finding might be due to a ceiling effect, as most of the participants had very high values on this scale. The finding that neither opportunity awareness nor presentation of skills explained employability contrasts with other studies that
chose mainly reemployment or the number of job offers as outcome variables (Hazer & Jacobson, 2003; Hazer & Jacobson, 2003; Kanfer et al., 2001; Saks & Ashforth, 2000; Wanberg et al., 2002). One explanation for this might be that, as mentioned above, the fulfillment of a specific qualification or level of skills is a precondition for getting the majority of jobs. However, following labor market developments, being informed about vacancies, and being able to prove one’s capability to others might only have a positive influence if individuals are sufficiently qualified and thus fulfill the basic requirements of these vacancies. For highly qualified individuals, increasing the awareness of vacancies and increasing the capability of convincing potential employers of one’s competencies might indeed have a positive effect on perceived opportunities in the labor market. If the level of job-related skills is, however, on a rather low or average level – and this was true for many participants of our sample – opportunity awareness might have no influence on perceived employability. To summarize, variables related to job-related skills play an important role in the context of employability, while opportunity awareness and presentations of skills were less relevant in this study. These variables seem to be relevant only if requirements concerning education, competence development and level of knowledge and skills are satisfied.

The amount of variance that was explained by predictors which can be influenced by individuals or organizations (e.g., employers’ support for skill development, current level of job-related skills, willingness to change jobs) was rather low in comparison to variance that was explained by age and firm. Age which can obviously not be influenced had by far the strongest effect on perceived employability of all predictor variables tested: The older employees are, the less employable they perceive themselves to be. Furthermore, the affiliation to a specific firm quite strongly influenced perceived employability. One explanation for this finding relates to the fact that the firms studied operated in different sectors, meaning that their employees were confronted with different labor markets. Thus, employees who work in a booming sector might perceive higher chances on the labor market. To conclude therefore, under some circumstances, the possibilities of increasing employability seem to be relatively limited. This is especially the case if employees are older.
3.6.1 Study limitations and implications for future research

One weakness of the study relates to the characteristics of the sample. The study was conducted in four Swiss companies with mainly male employees. We do not know whether findings would generalize to other types of organizations, for example, more female contexts such as healthcare organizations. The generalization is limited to Switzerland which has a very low unemployment rate (3.1 per cent in July 2006; State Secretary for Economic Affairs, 2006). As labor market characteristics might influence perceived employability and its relationship to other variables (Berntson et al., 2006), results are not transferable to other countries. In future research, thought should be given to testing whether these findings can be applied to other types of organizations and to organizations in other countries.

Furthermore, future research needs to consider the effects of variables that were not included in the current study. For example, instead of testing the influence of the general variable support of career and skill development, future studies could integrate several more specific measures that aim at promoting employability. As far as individual predictors are concerned, additional variables that might influence employability and were not considered in this study should be explored. Examples include social capital (Fugate et al., 2004) or general competencies, such as communication or self-management skills (see Hillage & Pollard, 1998; McQuaid & Lindsay, 2005). Testing a range of alternative possible predictors would allow researchers to answer the question as to whether there is more potential to influence individual employability, or if it is indeed determined to a large extent by unchangeable factors.

In order to estimate employability, we used a self-report of employees, so that the relationships between variables could be affected by common method variance. Crampton and Wagner (1994) showed that the use of self-reports implies an inflation of relationships, but that the inflation is smaller than often supposed. Nevertheless, in further studies, data should be taken from different sources. For example, individual determinants of employability could be assessed by peers or supervisors, and organizational determinants could be evaluated by representatives of the organization.
In future research, more outcome variables could be taken into account. For example, besides focusing on the possibility of finding a new job, studies could consider employees’ confidence in keeping the current one (Sverke et al., 2002).

### 3.6.2 Conclusion and practical implications

This study provides empirical evidence of mostly untested employability models applying a longitudinal design. It leads to a better understanding of the relative importance of determinants of employability. Two main conclusions can be derived from the study: The first is that job-related skills are more relevant for employability than the management of these skills which only seems to be important if employees meet requirements concerning human capital. Thus, from a theoretical point of view, existing models should be specified introducing moderation effects. From a practical point of view, employers’ support for skill and career development should focus primarily on increasing knowledge and skills. Only if these are at a high level, do developing competencies such as effective job search strategies seem to be promising.

The second conclusion is that perceived employability is largely dependent on variables that can hardly be influenced by either organizations or individuals, especially as concerns age. This finding challenges to some extent the idea that employability could be a substitute for job security. Employability security seems to work well for young and highly qualified employees, but not for older ones. The scope of employability promotion, through measures that mostly aim to increase employees’ competence or flexibility, seems to be limited. As such, different approaches seem to be necessary: For example, organizations should overcome policies of early retirement. Furthermore, studies have shown that older employees are more productive due to higher levels of work experience and crystallized knowledge (e.g. Kanfer & Ackerman, 2004). Organizations should acknowledge this finding and hire older employees increasingly. Also, training and development programs should not only be offered to younger employees.
3.7 References


Raeder, S., & Grote, G. (2004). Fairness als Voraussetzung für die Tragfähigkeit psychologischer Verträge [Fairness as precondition for sound psychological contracts]. In G. Schreyögg, P. Conrad & J. Sydow (Eds.),


4. Chapter 4: Exploring Types of Career Orientation in Switzerland: A latent class analysis approach (Study 3)

4.1 Abstract

Career literature has been discussing the decline of the traditional career. Despite this debate systematic information on the prevalence of contemporary career types is lacking. The study aimed to develop types of career orientation, to explore their prevalence in Switzerland and to validate these types by relating each of the career orientations to employability and intention to quit. We used two national samples of employees ($N_1 = 835$, $N_2 = 716$). With the data of sample 1 we identified four career types - traditional/promotion, traditional/loyalty, independent, disengaged - applying exploratory latent class analysis. These were confirmed with confirmatory latent class analysis using the data from sample 2. The pattern of variables associated with the career types mostly confirmed their validity. Almost two thirds reported a traditional career orientation, while 18 per cent expressed an independent and a disengaged orientation. This finding challenges the view that new career forms are evolving.

4.2 Introduction

The way scholars conceptualize careers has changed enormously. Traditionally, careers occurred within the context of one employer. Career-related changes mainly concerned structured hierarchical moves within one company (e.g. Sullivan, 1999). Since the late 1980s, organizational changes such as downsizing, delayering and restructurin9 have implied a flattening of organizational hierarchies, thereby reducing opportunities for linear career progression (e.g. Brousseau, Driver, Eneroth, & Larsson, 1996; Inkson & Coe, 1993). Also, the employment relationship between employers and employees has altered (e.g. Rousseau, 1995), leading to decreased lev-
els of job security (Cavanaugh & Noe, 1999; Turnley & Feldman, 1998). Given these changes, researchers assume that the traditional career would decline and suggest new types of career characterized by frequent job changes, career self-management and commitment to oneself rather than the employing organization. Baruch (2004) portrays this trend as transition from a linear career system into a multidirectional career system. In addition, due to a shift in social values, an increase in types of career which can be described as being driven by a concern about life-style and work-life balance is supposed (Schein, 1996). Although the current literature discusses new types of career extensively, the question remains as to what extent these are prevalent among employees. As much previous research on careers has been limited to samples of one single organization or to (MBA-) students, general conclusions on the occurrence of different types of career in Western societies can not be drawn. The present study examined careers in Switzerland using two national samples. As a first step, types of career orientation were developed and the prevalence of different types was explored using data from sample 1. As a second step, these types and their occurrence were replicated using data from sample 2. Furthermore, career types were validated by testing their relationship to employability and intention to quit. The study therefore contributes to a better understanding of how widespread different types of career orientations are in Western societies.

4.2.1 The concept of career

Careers may be defined as a sequence of attitudes, activities or behaviors associated with work roles of individuals during the course of their lifetime (Arthur & Lawrence, 1984). According to this definition, careers are comprised of objective elements, for example, visible activities, and subjective elements, for example, attitudes and orientations about the career held by an individual (Gunz, 1988).

Careers can have many different forms. One key distinction in the literature is between linear and non-linear careers (Heslin, 2005). The linear career focuses on a “progressive series of steps upward in a hierarchy to positions of ever-increasing authority and responsibility” (Brousseau et al., 1996; p. 56). Also, in a traditional linear career, the employer takes over most of the responsibility for career management and development and provides employees with job security (Hall & Moss, 1998; Mill-
ward & Brewerton, 2000). Kanter (1989) labeled this type as *bureaucratic career*. *Locals*, characterized by high loyalty and commitment to the employer, and the use of a reference group from within the organization (Gouldner, 1957), also resemble the concept of linear career. Thus, a linear career concerns a hierarchical progress within one organization, loyalty and job security.

Non-linear careers comprise of many other types, such as the *boundaryless career* (Arthur, 1994; Arthur & Rousseau, 1996; DeFillippi & Arthur, 1994) or the *protean career* (Hall, 1996; Hall, 2004). The boundaryless career is characterized by changes of employers, jobs or occupations. The protean career focuses on career-self management and loyalty to oneself rather than the organization. Further non-linear career concepts include *cosmopolitans* (Gouldner, 1957), *professional career* (Kanter, 1989) *expert career*, *spiral career* or *transitory career* (Brousseau et al., 1996) as well as the *multidirectional career* (Baruch, 2004). These non-linear career types involve commitment to developing one's skills, weak loyalty towards the employer, career self-management, and shifts in jobs or occupational disciplines. Thus, individuals pursuing such a career could be termed *independent* from the employing organization.

Some authors highlight the influence of changing values on career patterns and describe career types that can be characterized by a reduced interest in an upwardly oriented career or in the work itself. The focus of interest relates to family, leisure/hobbies or social engagement. For instance, Schein (1996) noted that due to an increase in dual careers, a growing number of employees define their career by viewing it as one part of a larger outlook on life, and social values move towards more autonomy and a higher concern for work-life balance. He emphasized that the career anchor of *life style* has shown the biggest change since 1960. German authors stressed a shift from materialistic to postmaterialistic values (e.g. Klages, 1984; Kollar & Stengel, 1990; Rosenstiel & Nerdinger, 2000). Accordingly, they proposed an *alternative orientation* and a *leisure orientation* as opposed to the traditional linear career orientation (e.g. Blickle, 1999; Rosenstiel, 1982). Individuals endorsing an alternative orientation are willing to engage in a higher cause and to renounce money in order to realise their ideals. Leisure oriented individuals are supposed to set priorities in the domain of leisure, regarding work only as a means to an end. The
orientation called job (Wrzesniewski, McCauley, Rozin, & Schwartz, 1997) is also characterized by a reduced interest in work and career. People who regard their work as job only seek material benefits from work. Their job is a means to an end (e.g. acquisition of resources needed to enjoy life outside from work), not an end in itself.

To conclude, there may be at least three types of career. The first can be termed as traditional and described as having a concern for job security and loyalty or in a desire for a hierarchical progress within one organization. The second type reflects an independent career, and can be characterized by frequent changes of organizations and also, commitment to oneself rather than the employer. The third may be portrayed by disengagement from career and work in general and/or a concern for work-life balance.

4.2.2 Empirical evidence

Although different career models have been developed, little systematic empirical evidence on the occurrence of different types of career exists and available results are mixed. On the one hand, some studies support the notion that the nature of careers has changed. For example, Reitman and Schneer (2003) reported that even though traditional career patterns were still valid for one third of MBA graduates in the northeastern United States, the emergence of a new career as described in the literature as the protean or boundaryless career has apparently taken place. Wajcman and Martin (2001) studied managers in six large Australian based companies. Among younger managers they found some evidence of a shift from bureaucratic to new careers. In Germany, Rosenstiel and colleagues demonstrated that three career orientations (traditional, leisure, alternative) were prevalent among students and young professionals (Rosenstiel, Nerdinger, & Spiess, 1991; Rosenstiel, Nerdinger, Spiess, & Stengel, 1989; Rosenstiel & Stengel, 1987). In the 1980s, leisure orientation was the most widespread career orientation. In the 1990s however, this high prevalence decreased.

On the other hand, findings from other studies challenged the view of an evolution of the independent employee. A study carried out by McDonald, Brown and Bradley (2005) suggests that in at least one Australian public service organization, traditional career patterns were still valid. Likewise Guest and McKenzie Davey
(1996) reported that the traditional career is common in most top UK firms. Kings’ (2003) data reveals that graduates’ endorsement of the new career was limited. Graduates were concerned about their employability, but expected to develop it within a traditional career. Guest and Conway (2004) found that 25 per cent of employees in the UK expressed a preference for an independent career, 31 per cent for a disengaged career, and 36 per cent for a traditional career. Some employees did not express any clear preference, while others expressed more than one. One weakness of this study by Guest and Conway was that the allocation of employees to types of career orientation was based on prior assumption and not on statistical analysis. Danny (2003) conducted interviews with French managers and concluded that they still think of their careers in terms of professional advancement: either vertical or through the acquisition of skills.

4.2.3 The present study and assumptions

Up till now, most studies have been conducted in a small number of organizations or with (MBA-) students. They therefore provide little systematic information about the prevalence of different forms of career in Western societies. More research based on large samples, including a wide array of employees from different workplaces, and a more rigorous empirical approach is needed. The present study explored careers in Switzerland using two large national samples, including employees from different sectors and from many different companies. It focused on career orientations defined as superordinate intentions of an individual that will influence career-related decisions (Maier, Rappensperger, Rosenstiel, & Zwarg, 1994). Studying career orientations can henceforth be seen as a subjective approach to studying careers. Firstly, with data of one sample, types of career orientation were developed applying latent class analysis and their occurrence was explored. Secondly, types and their occurrence were replicated using data from a second sample. Switzerland served as an example of a Western industrialized nation.

Based on the predominance of three career types in career research, we suggest the following.

Hypothesis 1: There is a traditional, independent and disengaged type of career orientation among Swiss employees.
We had no prior assumptions concerning the exact proportion of career orientation types in the Swiss sample due to a lack of empirical evidence. Therefore, the next step of our investigation took the form of a research questions rather than a hypothesis.

Research question 1: If these types (traditional, independent, and disengaged) can be found, what is their prevalence in Switzerland?

To further validate career orientation types, we investigated their relationship to employability and intention to quit. Career models as well as initial empirical evidence suggest that employability is related to an individual’s career orientation. The independent career has been characterized by frequent moves between jobs, organizations and industries, rather than structured hierarchical moves within one organization. Consequently, independently oriented employees need to be ready for re-entry into the labor market, which implies that employability is of high importance. If employees act adaptively, those who pursue an independent career are likely to put more emphasis on developing their employability (van Dam, 2004). In line with this argument, the link between career orientation and employability was addressed in the employability concept of Forrier and Sels (2003). The concept suggests that career orientations are an aspect of movement capital, which is assumed to influence the ease of movement on the labor market. Eby et al. (2003) found that proactive personality was positively related to perceived internal and external marketability. The concept of proactive personality is closely related to self-directed career management attitudes, which are a key feature of the independent career (e.g. Inkson, 2006). Employees with a traditional career orientation are likely to experience both more job security and career opportunities within their employing organization. Consequently, this might decrease employees’ efforts to further their employability. For disengaged employees, employability might not be an issue of high priority, as work and career is not central to their lives. Thus, we hypothesize the following:

Hypothesis 2: An independent career orientation is positively related to employability, whereas a traditional and a disengaged career orientation is negatively related to employability.

Additionally, careers literature implies that the intention of individuals with different career orientations to leave the organization varies. An independent career
can be characterized by “a sequence of job opportunities that go beyond the boundaries of a single employment setting” (DeFillippi & Arthur, 1994, p. 116). Thus, an independent orientation might be associated with higher levels of intention to leave a particular organization. Traditional career orientation concerns upward moves and long-term employment within one organization. The intention to look for another employer should therefore be weak for traditionally oriented employees. Disengaged employees might consider their work merely as a means for earning their living. Therefore they probably do not intend to change their work situation as long as it enables them to live their preferred lifestyle outside the organization. Accordingly, we present hypothesis 3:

Hypothesis 3: An independent career orientation is positively related to intention to quit, whereas a traditional and a disengaged career orientation is negatively related to intention to quit.

4.3 Method

4.3.1 Procedure

We carried out two surveys in the German speaking part of Switzerland based on telephone interviews; one in 2005, the other in 2006. For each survey, we used a random sample of telephone numbers drawn from all telephone numbers of conventional telephone networks registered in the German speaking part of Switzerland. The surveys included employees who were employed at at least 40 per cent of the time, aged between 16 and 65 years. People were contacted at home, and interviewers checked whether they belonged to the target group. The 20 interviewers were mainly psychology and economy students, who took part in an extensive preparatory training before carrying out the interviews. The first survey took place between May and July 2005, and the second one between April and July 2006.

4.3.2 Participants

We surveyed two independent samples: Sample 1 was interviewed in 2005 and sample 2 in 2006. Sample 1 was made up of 835 employees in Switzerland (42.5 per cent female). The mean age was 42.92 years (SD = 11.27) and the mean tenure was
10.16 years (SD = 9.52). The highest educational level of the participants was as follows:

- University degree or equivalent and above: 12.2 per cent,
- Other higher education below university degree level: 32.1 per cent,
- Apprenticeship/vocational level: 45.3 per cent,
- A levels: 4.9 per cent,
- Junior secondary school: 5.4 per cent.

Sample 2 was made up of 716 employees in Switzerland (42.0 per cent female). The mean age was 44.77 years (SD = 10.96). The mean tenure was 11.14 years (SD = 10.60). The highest educational level of the participants was as follows:

- University degree or equivalent and above: 14.0 per cent,
- Other higher education below university degree level: 31.4 per cent,
- Apprenticeship/vocational level: 46.7 per cent,
- A levels: 4.5 per cent,
- Junior secondary school: 3.4 per cent.

### 4.3.3 Measures

We measured career orientations by means of nine binary items that were developed by Guest and Conway (2004). We selected these items because they covered the dimensions associated with traditional, independent, and disengaged career orientations. Furthermore, this instrument constituted a short and economic measure well-suited for telephone interviews. Participants were offered a choice of contrasting options (e.g., "Being employable in a range of jobs" vs. "Having job security", "A career is not important to you" vs. "Career success is very important to you") and asked the question "Looking ahead at your work life, which of the following would you choose?" This question refers to orientations rather than current or past behavior.

Outcome variables were perceived employability and intention to quit. In 2005 and 2006, intention to quit was measured with two items that were developed by Guest and Conway (2004; e.g., "How likely is it that you will voluntarily leave this organization in the following year?"). Items for intention to quit were assessed on a 4-point Likert-scale with 1 = very unlikely and 4 = very likely. In 2005, Cronbach's

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7 For German version of items see Appendix B (Chapter 5.2.4).
alpha was .70 and in 2005 it was .71. In 2005, employability was measured by means of a single item. Participants were asked the following question: "If, for some reason you were to leave your current job, how confident are you that you could quickly get another job that is comparable to your current job?" The response scale was a 4-point Likert scale with 1 = not at all confident and 4 = very confident. In 2006, employability was assessed by three items (Janssens et al., 2003; e.g., "I’m confident that I would find another job if I started searching") using a 5-point Likert-scale, with 1 = definitely not, 3 = partly, and 5 = definitely. Cronbach’s alpha of the three item scale was .84.

Control variables were gender, age, tenure, and education. Education was assessed on the following scale according to the Swiss educational system: 1) junior secondary school, 2) A-levels, 3) apprenticeship/vocational level, 4) other higher education below university degree level, and 5) university degree or equivalent and above. For the analyses, education was dichotomized, coding university degree/degree equivalent and above as 1, and lower educational levels as 0.

4.3.4 Analytical strategy

We analyzed the data of sample 1 by means of exploratory latent class analysis (LCA). Latent class analysis is a technique for the analysis of categorical data. It is suitable for dichotomous responses such as the career orientation items provide, and for large sample sizes. LCA assumes that the associations between items can be explained by the existence of several subgroups which cannot be observed directly, and are therefore called latent classes. LCA explains inter-individual differences in item response patterns by a reduced number of groups. Within one latent class, subjects are assumed to have identical patterns of response probabilities. However, between classes, differences in response probabilities are expected.

In LCA, the appropriate number of classes can be determined by comparing the goodness-of-fit of several models with an increasing number of classes. There are a variety of indices available for the selection of latent class models (see Collins, Fidler, Wugalter, & Long, 1993; Eid, Langeheine, & Diener, 2003). Information criteria (IC) like Akaike’s information criterion (AIC) and the Bayesian information criterion (BIC) are frequently used in order to compare the fit of competing LCA models.
When comparing a series of models, the model with the lowest IC value is selected. We used the BIC, because it often rewards a more parsimonious model and should be selected for large item numbers and small pattern frequencies (Rost, 1996). One disadvantage of this form of fit assessment is that IC measures are rather descriptive and only meaningful in relation to other models.

A possibility for testing model fit statistically is offered by the Pearson test statistic. Unfortunately, the assumptions under which these test statistics follow a chi-square-distribution may be violated if there is sparse data. Data is considered sparse if large numbers of unobserved patterns occur, and this is the case even with relatively few items in relatively large samples. It is recommended that a parametric bootstrap procedure is used, if the asymptotic conditions for the test statistics are unlikely to hold (von Davier, 1997). Generally, the model is accepted, if the bootstrap probability is larger than .05.

In our study, we first fitted models with different numbers of classes to the career orientation items and compared them according to their BIC values. It is advisable to try a large number of different starting values for each model to make sure that the estimation algorithm will find the global maximum of the likelihood rather than stop at a local optimum. Therefore, we used 500 starting values. We used the computer program Panmark 3.09 (van den Pol, Langeheine, & de Jong, 1996) and Mplus 4.1 (Muthén & Muthén, 2005) to estimate the BIC values. The use of two programs allowed us to compare the BIC values and to check whether the LCA solutions estimated by the two programs represented global likelihood maxima solutions and not local optima. Secondly, we ran a parametric bootstrap for models with the lowest BIC values. We only used Panmark 3.09 as Mplus does not run the parametric bootstrap. After an appropriate model had been found, individuals were assigned to the latent class for which their assignment probability was maximum. The resulting class membership variable can be used in further statistical analysis.

As described above, the data of 2005 was analyzed by means of exploratory latent class analysis. The model that best fitted the data of 2005 was verified by conducting confirmatory latent class analysis with the data of 2006. Instead of trying a large number of starting values, we used the response probabilities of the 2005 model as starting values. That is, response probabilities were fixed, and only the
class sizes were estimated. We used the bootstrap probability in order to check whether the model was acceptable.

After defining types of career orientations, we tested the association between career orientations and outcome variables (employability, intention to quit). The career types were dichotomized using weighted effect coding (Cohen, Cohen, West, & Aiken, 2003). In weighted effect coding, each group is compared with the aggregate sample. We carried out hierarchical regression analysis for each of the outcome variables. As a first step, control variables were entered, and as a second step, dummy variables for the career types were entered.

4.4 Results

4.4.1 Descriptive statistics for the career orientation items

The responses to the career orientation items for the two samples are shown in table 4.1.

<table>
<thead>
<tr>
<th>Item no.</th>
<th>Option 1</th>
<th>Sample 1 (year 2005)</th>
<th>Sample 2 (year 2006)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Being employable in a range of jobs</td>
<td>49.9</td>
<td>51.0</td>
</tr>
<tr>
<td>2</td>
<td>Managing your own career</td>
<td>79.2</td>
<td>81.6</td>
</tr>
<tr>
<td>3</td>
<td>A short time in lots of organizations</td>
<td>23.8</td>
<td>24.4</td>
</tr>
<tr>
<td>4</td>
<td>Commitment to yourself and your career</td>
<td>51.5</td>
<td>48.6</td>
</tr>
<tr>
<td>5</td>
<td>A series of jobs at the same kind of level</td>
<td>46.5</td>
<td>48.6</td>
</tr>
<tr>
<td>6</td>
<td>Living for the present</td>
<td>44.6</td>
<td>42.7</td>
</tr>
<tr>
<td>7</td>
<td>Work as marginal to your life</td>
<td>16.8</td>
<td>12.8</td>
</tr>
<tr>
<td>8</td>
<td>A career is not important to you</td>
<td>65.5</td>
<td>66.8</td>
</tr>
<tr>
<td>9</td>
<td>Spend what you've got and enjoy it</td>
<td>46.0</td>
<td>43.9</td>
</tr>
</tbody>
</table>

4.4.2 Latent class analysis

We computed exploratory latent class analysis with the data of 2005 and compared the BIC values for the 2, 3, 4, 5, and 6 class models. As can be seen from table 4.2, the 3 and 4 class models showed the lowest BIC values (BIC values were the same with both Panmark and Mplus).
Table 4.2: BIC values for different models, data of sample 1 (year 2005)

<table>
<thead>
<tr>
<th>Classes</th>
<th>BIC</th>
<th>df</th>
<th>Pearson χ²</th>
<th>p(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 classes</td>
<td>9281.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 classes</td>
<td>9228.8</td>
<td>482</td>
<td>558.26</td>
<td>.08</td>
</tr>
<tr>
<td>4 classes</td>
<td>9254.8</td>
<td>472</td>
<td>524.46</td>
<td>.12</td>
</tr>
<tr>
<td>5 classes</td>
<td>9289.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 classes</td>
<td>9324.8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

We used the Pearson chi-square as a further criterion, in order to decide between the 3 and the 4 class model. The values of the test statistic and their respective bootstrap probabilities (p(B)) are also shown in table 4.2. The Pearson statistic showed an acceptable fit for the 3 class and the 4 class model. However, the Pearson chi-square value of the 4 class model was lower, therewith more supportive. Therefore, we decided in favor of the 4 class solution. Moreover, the response pattern of the 4 class model could be interpreted more reasonably than that of the 3 class model.

As our next step, we confirmed the four class model by means of confirmatory latent class analysis, using the data of 2006. The four class model could be confirmed (BIC = 7618.8, χ² = 547.49, df = 472, p(B) = .11). BIC values were the same with both Panmark and Mplus.

The conditional response probabilities of the 4 class model are shown in figure 4.1. As this model was derived with the data of 2005 and confirmed for the data of 2006, it holds for both samples. In the following paragraphs, the four career orientation types derived from latent class analysis will be detailed.

Members of class 1, compared to the other classes, were most likely to choose the options "Being employable in a range of jobs", "Managing your own career", "A short time in lots of organizations" and "Commitment to yourself and your career". These are key features of the independent, low loyalty career. Moreover, there was a high probability that members of class 1 would choose the options "Striving for promotion into more senior posts" and "Career success is very important to you". Class 1 is clearly independent oriented and concerned about career success.
Figure 4.1: Response probabilities for choosing option 1 for the 4 class model

It was highly probable that members of class 2 would, compared to members of other classes, choose the options "Planning for the future", "Work as central to your life", and "Save for the future". The probability of deciding on the options "Striving for promotion into more senior posts" and "Career success is very important to you" was second highest. The choice of class 2 indicates a desire for a progressive career. Furthermore, members of class 2 rated "Having job security" and "A long time with one organization" highly, indicating that they prefer to achieve this progression within few organizations. Overall, class 2 reported a traditional/promotion career orientation.

There was a high probability that members of class 3 would choose "Having job security", "Having your organization manage your career for you", "A long time with one organization", and "Commitment to the organization", compared to members of other classes. These options refer to a career orientation with emphasis on job security and loyalty. It was also probable that members of class 3 would opt for "A series of jobs at the same kind of level" and "A career is not important to you", indicating that hierarchical advancement within their organization is less important to them. To conclude, class 3 showed a clear traditional/loyalty oriented pattern.
There was a high probability that members of class 4 would choose "A series of jobs at the same kind of level", "Living for the present", "Work as marginal to your life", "A career is not important to you", and "Spend what you've got and enjoy it". All these options describe a disengagement from work and an orientation towards the living in the present. Members of class 4 had the second highest probability of choosing "Being employable in a range of jobs", "Managing your own career", and "A short time in lots of organizations". Thus, members of class 4 prefer an independent career to a traditional one. Overall, class 4 reported a clear disengaged career orientation.

To summarize, we identified four career orientation types in the sample of 2005 as well as in the sample of 2006, which we termed independent, traditional/promotion oriented, traditional/loyalty oriented, and disengaged. Thus, hypothesis 1, which referred to the existence of a traditional, an independent and a disengaged career type was mostly confirmed. We found two of the predicted types, whilst for the traditional career as described in the literature, two sub-types - the traditional/loyalty and the traditional/promotion oriented - could be distinguished.

As our next step, we investigated how widespread different classes were in the years 2005 and 2006. Therefore, with both samples, we assigned each participant to the latent class for which his/her assignment probability was maximal. Table 4.3 shows the class sizes of the four types in the years 2005 and 2006. In 2005, 18.6 per cent reported an independent and 18.0 per cent reported a disengaged career orientation. Far more people expressed an orientation for one of the traditional forms of career (32.5 per cent for loyalty, and 31.0 per cent for promotion). The prevalence of orientations did not change significantly from 2005 to 2006 ($\chi^2 = .87, df = 3, p = .834$).

Table 4.3 also shows the average assignment probabilities for all subjects that belong to the same class. These can be interpreted as reliability measures for the class assignment. As can be seen in both samples these average probabilities are above .70.
Table 4.3: Career orientations in the two samples

<table>
<thead>
<tr>
<th>Class</th>
<th>Mean probability of expected class membership (SD)</th>
<th>Class size (in per cent)</th>
<th>Sample 1 (year 2005)</th>
<th>Sample 2 (year 2006)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1: Independent</td>
<td>.72 (.17)</td>
<td>18.6</td>
<td>.71 (.15)</td>
<td>17.6</td>
</tr>
<tr>
<td>Class 2: Traditional/promotion oriented</td>
<td>75 (.19)</td>
<td>31.0</td>
<td>.74 (.17)</td>
<td>30.3</td>
</tr>
<tr>
<td>Class 3: Traditional/loyalty oriented</td>
<td>.72 (.16)</td>
<td>32.5</td>
<td>.72 (.10)</td>
<td>34.6</td>
</tr>
<tr>
<td>Class 4: Disengaged</td>
<td>.70 (.18)</td>
<td>18.0</td>
<td>.70 (.18)</td>
<td>17.6</td>
</tr>
</tbody>
</table>

4.4.3 Correlation and regression analysis

Table 4.4 and table 4.5 present means, standard deviations and correlation coefficients for control variables, career orientations and outcome variables, for the data of the years 2005 and 2006.
Table 4.4: Means, standard deviations, and correlations (Pearson), Sample 1

<table>
<thead>
<tr>
<th></th>
<th>Sample 1 (year 2005)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Gender (0 = female, 1 = male)</td>
<td>.58</td>
<td>.50</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Age</td>
<td>42.92</td>
<td>11.27</td>
<td>.08*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tenure</td>
<td>10.16</td>
<td>9.52</td>
<td>.15**</td>
<td>.54***</td>
<td>1.00</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Education (1 = degree)</td>
<td>.12</td>
<td>.33</td>
<td>.12**</td>
<td>.04</td>
<td>.00</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO1: Traditional/promotion oriented</td>
<td>.31</td>
<td>.46</td>
<td>.02</td>
<td>-.09**</td>
<td>.04</td>
<td>-.10**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO: Independent</td>
<td>.19</td>
<td>.39</td>
<td>.07*</td>
<td>-.09**</td>
<td>-.15***</td>
<td>.17***</td>
<td>-.32***</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO: Traditional/loyalty oriented</td>
<td>.32</td>
<td>.47</td>
<td>-.02</td>
<td>.18***</td>
<td>.19***</td>
<td>-.07*</td>
<td>-.47***</td>
<td>-.33***</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>CO: Disengaged</td>
<td>.18</td>
<td>.38</td>
<td>-.07</td>
<td>-.13***</td>
<td>.03</td>
<td>-.31***</td>
<td>-.22***</td>
<td>-.32***</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Employability</td>
<td>2.42</td>
<td>.98</td>
<td>.06</td>
<td>-.26***</td>
<td>-.20***</td>
<td>.11**</td>
<td>.00</td>
<td>.17***</td>
<td>-.15***</td>
<td>.01</td>
</tr>
<tr>
<td>Intention to quit</td>
<td>1.83</td>
<td>.84</td>
<td>-.03</td>
<td>-.18***</td>
<td>-.13***</td>
<td>.07*</td>
<td>-.04</td>
<td>.18***</td>
<td>-.19***</td>
<td>.10**</td>
</tr>
</tbody>
</table>

Note. *CO = Career Orientation; *p < .05, **p < .01, ***p < .001.

Table 4.5: Means, standard deviations, and correlations (Pearson), Sample 2

<table>
<thead>
<tr>
<th></th>
<th>Sample 2 (year 2006)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Gender (0 = female, 1 = male)</td>
<td>.58</td>
<td>.49</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>44.77</td>
<td>10.96</td>
<td>.10**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tenure</td>
<td>11.14</td>
<td>10.60</td>
<td>.24***</td>
<td>.53***</td>
<td>1.00</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Education (1 = degree)</td>
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<td>.01</td>
<td>-.09*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO1: Traditional/promotion oriented</td>
<td>.30</td>
<td>.46</td>
<td>.04</td>
<td>-.07</td>
<td>.04</td>
<td>-.09*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO: Independent</td>
<td>.18</td>
<td>.38</td>
<td>.07*</td>
<td>-.11***</td>
<td>-.13***</td>
<td>.13***</td>
<td>-.31***</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO: Traditional/loyalty oriented</td>
<td>.35</td>
<td>.48</td>
<td>-.05</td>
<td>.14***</td>
<td>.13**</td>
<td>-.06</td>
<td>-.48***</td>
<td>-.37***</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>CO: Disengaged</td>
<td>.17</td>
<td>.38</td>
<td>-.06</td>
<td>.01</td>
<td>-.08*</td>
<td>.05</td>
<td>-.30***</td>
<td>-.21***</td>
<td>.34***</td>
<td>1.00</td>
</tr>
<tr>
<td>Employability</td>
<td>3.36</td>
<td>1.15</td>
<td>.01</td>
<td>-.45***</td>
<td>-.32***</td>
<td>.04</td>
<td>.02</td>
<td>.16***</td>
<td>-.16***</td>
<td>.02</td>
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<tr>
<td>Intention to quit</td>
<td>1.85</td>
<td>.87</td>
<td>.00</td>
<td>-.25***</td>
<td>-.14***</td>
<td>.03</td>
<td>.03</td>
<td>.18***</td>
<td>-.21***</td>
<td>.05</td>
</tr>
</tbody>
</table>

Note. *CO = Career Orientation; *p < .05, **p < .01, ***p < .001.
Table 4.6 presents results of hierarchical regression analysis. Model 1 included control variables only, whereas model 2 included control variables and career orientations. For each outcome variable, we conducted two regression analyses with different base groups (1. traditional/promotion orientation, 2. traditional/loyalty orientation) in weighted effect coding. This approach was chosen because it allowed us to obtain regression coefficients for each of the career orientations. As such, altogether, we performed eight sets of regression analysis.

In 2005 and 2006, an independent career orientation was associated with higher levels of employability, while a traditional/loyalty career orientation was associated with lower levels of employability. Neither a disengaged nor a traditional/promotion career orientation was related to employability. Thus, hypothesis 2, which predicted that the independent career orientation is positively related to employability and the traditional and disengaged career orientation negatively, was only partly confirmed.

Table 4.6: Results of regression analysis

<table>
<thead>
<tr>
<th>Base group: traditional/promotion oriented</th>
<th>Sample 1 (year 2005)</th>
<th>Sample 2 (year 2006)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Employability</td>
<td>Intention to quit</td>
</tr>
<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
</tr>
<tr>
<td>Gender (0 = female, 1 = male)</td>
<td>.08*</td>
<td>.07*</td>
</tr>
<tr>
<td></td>
<td>.09*</td>
<td>.07*</td>
</tr>
<tr>
<td>Age</td>
<td>-.22***</td>
<td>-.22***</td>
</tr>
<tr>
<td></td>
<td>-.39***</td>
<td>-.38***</td>
</tr>
<tr>
<td>Tenure</td>
<td>-.08*</td>
<td>-.06</td>
</tr>
<tr>
<td></td>
<td>-.14**</td>
<td>-.12**</td>
</tr>
<tr>
<td>Education (1 = degree)</td>
<td>.11**</td>
<td>.08*</td>
</tr>
<tr>
<td></td>
<td>.02</td>
<td>.01</td>
</tr>
<tr>
<td>Career orientation: Independent</td>
<td>.16***</td>
<td>.20***</td>
</tr>
<tr>
<td>Career orientation: disengaged</td>
<td>.01</td>
<td>.11**</td>
</tr>
<tr>
<td>Career orientation: Traditional/loyalty oriented</td>
<td>-.13**</td>
<td>-.11*</td>
</tr>
<tr>
<td>R</td>
<td>.30</td>
<td>.33</td>
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<tr>
<td></td>
<td>.47</td>
<td>.48</td>
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<td>R^2</td>
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<td></td>
<td>49.65***</td>
<td>30.40***</td>
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</tbody>
</table>
In 2005 and 2006, participants with an independent career orientation reported higher levels of intention to quit as expected. Also in line with expectations, participants with a traditional/loyalty career orientation reported lower levels of intention to quit. Only in 2005, participants with a traditional/promotion career orientation reported lower levels of intention to quit. Contrary to our expectations, disengaged oriented employees reported higher levels of intention to quit in 2005. In 2006, however, neither was a disengaged nor a traditional/promotion career orientation associated with intention to quit. Hypothesis 3 (positive relationship between independent career orientation and intention to quit; negative relationship between traditional and disengaged career orientation and intention to quit) was thus partly confirmed.

### 4.5 Discussion

The present study aimed to develop different types of career orientation and explore their occurrence in Switzerland. A second aim was to validate the types by relating

<table>
<thead>
<tr>
<th>Base group: traditional/loyalty oriented</th>
<th>Sample 1 (year 2005)</th>
<th>Sample 2 (year 2006)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Employability Model 1</td>
<td>Employability Model 2</td>
</tr>
<tr>
<td>Gender (0 = female, 1 = male)</td>
<td>.08*</td>
<td>.07*</td>
</tr>
<tr>
<td>Age</td>
<td>-.23***</td>
<td>-.22***</td>
</tr>
<tr>
<td>Tenure</td>
<td>-.08*</td>
<td>-.06</td>
</tr>
<tr>
<td>Education (1 = degree)</td>
<td>.11**</td>
<td>.08*</td>
</tr>
<tr>
<td>Career orientation: Independent</td>
<td>.17***</td>
<td>.19***</td>
</tr>
<tr>
<td>Career orientation: disengaged</td>
<td>.01</td>
<td>.11**</td>
</tr>
<tr>
<td>Career orientation: Traditional/promotion oriented</td>
<td>-.04</td>
<td>-.19***</td>
</tr>
<tr>
<td>R</td>
<td>.30</td>
<td>.33</td>
</tr>
<tr>
<td>R²</td>
<td>.09</td>
<td>.11</td>
</tr>
<tr>
<td>F</td>
<td>21.03***</td>
<td>14.56***</td>
</tr>
</tbody>
</table>

Note. *p < .05, **p < .01, ***p < .001.
each of the career orientations to employability and intention to quit. The study was the first to systematically test the prevalence of different career orientations among the workforce of a Western industrialized country by applying a sound empirical approach. Knowledge of prevalence of career orientations is of great importance for policy makers and human resource managers: They need to be aware of current career orientations in order to develop suitable strategies for attraction, selection, and development of employees. Two large national samples of employees in the German-speaking part of Switzerland were surveyed, one in 2005 and the other in 2006. Being able to survey a very wide range of employees was achieved by the use of telephone interviews.

Based on a review of the literature, we assumed that a traditional, independent and disengaged type of career orientation may exist. A model with four latent classes best fitted the data of 2005 and was confirmed by the data of 2006, indicating stability of the career orientation types. The types were labeled traditional/promotion oriented, traditional/loyalty oriented, independent, and disengaged. For the traditional linear career as described in the literature, two sub-types could be distinguished; one focusing on upward mobility; and the other on loyalty, commitment and job security. Thus, our assumption was mostly confirmed. Traditional/promotion oriented employees regard work and career success as very important to their lives and want to climb the hierarchical ladder. They prefer to achieve this advancement within one organization. This orientation therefore very much resembles the linear career as described by Brousseau (1996) or the bureaucratic career (Kanter, 1989). On the other hand, traditional/loyalty oriented employees seek loyalty, job security and long-term employment in one organization. Furthermore, they want their employer to be responsible for career management. The main comparison between this and the traditional/promotion oriented type is that loyalty oriented employees are less concerned about promotion to higher posts. This career orientation is comparable to the career anchor of security/stability (Schein, 1996) and resembles locals (Gouldner, 1957). Independent career orientation is characterized by employability in a range of jobs, employment in different organizations, and career self-management. This class combines aspects of the boundaryless (Arthur & Rousseau, 1996) and the protean (Hall, 1996) career. For disengaged employees,
work is marginal to one’s own life. The reasons for disengagement were not specified in the present study. The focus of disengaged employees could relate to leisure time and hobbies (see leisure orientation; Rosenstiel, 1982). The disengaged career orientation is also comparable to the career anchor of life-style (Schein, 1996).

Results on the prevalence of types of career orientation showed that all four types received endorsement. In the years 2005 and 2006, most participants were traditional/loyalty career oriented (32.5 per cent; 34.6 per cent) or traditional/promotion career oriented (31.0 per cent; 30.3 per cent). Around 18 per cent (18.6 per cent; 17.6 per cent) reported an independent or a disengaged career orientation (18.0 per cent; 17.6 per cent). Thus, almost two third of our sample still has traditional career preferences. These figures clearly indicate that traditional aspects of a career received the strongest approval in Switzerland. They also indicate that prevalence of career orientation types did not change between 2005 and 2006, supporting the stability of prevalence data.

The high endorsement for traditional forms of career contrasts with the argumentation of authors who have predicted the decline of the traditional career (e.g. Hall, 1996). For a large proportion of employees in Switzerland, traditional careers still seem to be desirable. Several explanations hold for this finding. The first one is that changes in Swiss companies have indeed occurred, but that a large number of Swiss employees have not yet adapted to it. The second one is that business environment has not changed as much as sometimes predicted in the literature. Current Swiss statistics support this explanation. This finding fits recent Swiss labor force statistics. From 1992 to 2006 the percentage of employees who had a permanent contract remained stable and was higher than 90 per cent. Furthermore, the unemployment rate at the date of the two surveys (3.1 per cent in June 2005; 2.7 per cent in June 2006, State Secretariat for Economic Affairs, 2006) was very low. These figures indicate a prosperous work environment and a stable labor market. This economic context might promote traditional career orientations, as employees can “afford” to expect traditional values such as loyalty from their employer. A further explanation for the high endorsement of traditional career values relates to the Swiss education system which is somewhat different from that in the US. After nine years of compulsory school, some pupils attend a “Gymnasium” which prepares them for university.
Others learn an occupation through a three to four year apprenticeship, combining training in a company with studying at a vocational school. In this dual education system pupils can choose between many different occupations, the skills of which are strictly prescribed (Federal Office for Professional Education and Technology (OPET), 2006). In our samples, a high percentage of employees had completed an apprenticeship (45.3 per cent in 2005, 46.7 per cent in 2006), while only around 13 per cent (12.2 per cent in 2005, 14.0 per cent in 2006) had a university degree. These figures are comparable to Swiss national statistics (apprenticeship: 47 per cent, university degree: 13 per cent, in 2005 and 2006; Federal Statistical Office, 2006). The precise regulation of skills that are acquired and applied by employees in apprenticed trades might shape their career orientation into a traditional direction. Furthermore, studies have shown that university graduates are more likely to endorse an independent career orientation (Guest & Conway, 2004). Therefore, in countries with more university graduates, the percentage of independently oriented employees might be higher.

We expected that an independent career orientation is positively related to employability and intention to quit, and that a traditional and a disengaged career orientation is negatively related to employability and intention to quit. In line with expectations, findings showed that an independent career orientation was associated with a higher perceived employability and intention to quit the current organization. Also in line with expectations, employees who endorsed a traditional/loyalty career orientation reported lower levels of employability and intention to quit. Thus, the variables of employability and intention to quit were useful to distinguish employees with an independent orientation from those with a traditional/loyalty career orientation. However, neither the traditional/promotion career oriented nor the disengaged career type was consistently associated with any of the outcome variables. To characterize the traditional/promotion oriented and the disengaged type, other variables such as career success or motivation might be more suitable.

4.5.1 Strengths and limitations

A strong feature of this study is the fact that the analysis was based on two large independent samples. This allowed us to derive one latent class model with data of sample 1 in an exploratory manner. The stability of the model could be demonstrated
by confirmatory latent class analysis with data of sample 2. Furthermore, with both samples we obtained the same results on prevalence of different career types, indicating stability of the prevalence data. As such, with a short measure consisting of only nine items, we found valid types of career orientation. The use of an economic measure is advantageous because it enables researchers to study large samples and/or to integrate other measures. Thus, the approach adopted in this study permits the gathering of systematic information on the occurrence of career orientation types covering different employment settings, sectors, and workplaces.

One limitation of the study, however, was that the random sample of telephone numbers was drawn from a population of conventional telephone network users. Therefore individuals who use only other communication tools (e.g. cell phones) were not included in the sample. This might have caused a tendency towards more traditional types of career orientation. Another limitation relates to the measurement of self-reported career orientation. Objective aspects of career patterns might indeed have changed, contrary to the subjective appraisal of employees. A further drawback of the study concerns the employability measure in 2005, because we used a single employability item. This problem was addressed in the study of 2006 by using an employability scale.

4.5.2 Implications for future research

In this study, we found four types of career orientation that were validated with employability and intention to quit. As these variables were useful only in characterizing the independent and traditional/loyalty orientation, in future studies the types should be validated with further variables. In order to distinguish the traditional/promotion oriented type, career success might be especially suitable, as these employees probably put more effort into striving for higher positions and earning increased salaries. The disengaged career type could be described as having satisfaction with work-life balance. As disengaged employees are more concerned about a balance between work and non-work, they should be more satisfied with their work-life balance. In order to further increase the generalization of results, the study should be replicated in different countries. This would also permit cross-cultural comparison of the prevalence of career orientations. Furthermore, the change of career orientations over a
longer period of time should be explored, by repeating the study with longitudinal data. The development of career orientations could then be associated with major economic changes, which would shed more light on possible antecedents of career orientations.

4.5.3 Conclusion and practical implications

This study was the first to systematically investigate the prevalence of types of career orientation in a national sample with a rigorous empirical approach. Our analyses revealed four types of career orientation, traditional/promotion, traditional/loyalty, independent, and disengaged. The traditional career was best represented by the two sub-types of promotion and loyalty orientation. Although both traditional and new forms of career were prevalent in Switzerland traditional aspects clearly received the strongest endorsement. These findings have important implications for human resource practitioners in deciding on adequate career management strategies. Firstly, if possible, organizations should offer career opportunities and long-term employment perspectives, in order to meet the preferences of their employees. While the traditional/promotion career oriented type can probably be retained in the organization and performs best when offered career and development opportunities, the traditional/loyalty oriented type should be provided with a fair amount of job security. The independent oriented career type, who puts emphasis on employability, needs to be provided with a stimulating work environment. This type probably appreciates project work, autonomy, and internal job changes. Concerning disengaged career oriented employees, employers could offer work arrangements (e.g. flexible hours) that allow these employees to combine work and private interests.
4.6 References


Lawrence (Eds.), *Handbook of career theory* (pp. 506-521). New York: Cambridge University Press.


5. Appendix

5.1 Appendix A: Contribution of authors to study 1, 2, and 3

Study 1: Predictors of Perceived Employability
Authors: Anette Wittekind, Sabine Raeder & Gudela Grote

Study 2: A Longitudinal Study of Determinants of Perceived Employability
Authors: Anette Wittekind, Sabine Raeder & Gudela Grote

Study 3: Exploring Types of Career Orientation in Switzerland: A latent class analysis approach
Authors: Anette Wittekind, Marius Gerber, Gudela Grote & Bruno Staffelbach

Table 5.1: Contribution of the authors to study 1, 2, and 3

<table>
<thead>
<tr>
<th>Study 1</th>
<th>Study 2</th>
<th>Study 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project in which the study was based</td>
<td>Participation in work-oriented society</td>
<td>Participation in work-oriented society</td>
</tr>
<tr>
<td>Involved in project context</td>
<td>AW², SR, GG</td>
<td>AW, SR, GG</td>
</tr>
<tr>
<td>Literature research</td>
<td>AW</td>
<td>AW</td>
</tr>
<tr>
<td>Study design: Development of model, Research questions, Hypotheses</td>
<td>AW, discussed with SR</td>
<td>AW, discussed with SR</td>
</tr>
<tr>
<td>Data collection</td>
<td>AW</td>
<td>AW, SR</td>
</tr>
<tr>
<td>Design of questionnaire</td>
<td>AW, discussed with SR</td>
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</tr>
<tr>
<td>Data analysis</td>
<td>AW</td>
<td>AW, with assistance of SR</td>
</tr>
<tr>
<td>Writing of paper</td>
<td>AW</td>
<td>AW</td>
</tr>
<tr>
<td>Proofreading</td>
<td>SR, GG</td>
<td>SR, GG</td>
</tr>
</tbody>
</table>

*Note. ¹Full title of the project: Participation in work-oriented society under conditions of increasing work flexibility: Does a less continuity-oriented personal identity help? (Founded by the Swiss National Science Foundation (SNF)); ²AW = Anette Wittekind, SR= Sabine Raeder, GG = Gudela Grote, MG = Marius Gerber, BSt = Bruno Staffelbach.*
### 5.2 Appendix B: Measures

#### 5.2.1 Study 1a

**Arbeitsmarktfähigkeit**

<table>
<thead>
<tr>
<th></th>
<th>Trifft nicht zu</th>
<th>Trifft eher nicht zu</th>
<th>Teils-teils</th>
<th>Trifft eher zu</th>
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<tbody>
<tr>
<td>Wenn ich meinen Arbeitgeber verlasse, ist es schwierig für mich, eine neue Anstellung zu finden.</td>
<td>☐</td>
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</tr>
<tr>
<td>Falls ich entlassen werde, würde ich sofort eine gleichwertige Stelle innerhalb oder ausserhalb des Unternehmens finden.</td>
<td>☐</td>
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</tr>
<tr>
<td>Ich bin zuversichtlich, dass ich eine andere Stelle finden würde, wenn ich anfangen würde zu suchen.</td>
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</thead>
<tbody>
<tr>
<td>Für die Art von Arbeit, die ich ausüben möchte, sind meine Fähigkeiten auf dem neuesten Stand.</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>Ich habe einen guten beruflichen Werdegang.</td>
<td>☐</td>
<td>☐</td>
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<td>☐</td>
</tr>
<tr>
<td>Ein Arbeitgeber wäre von meinen Qualifikationen beeindruckt.</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Ich habe gute berufliche Referenzen.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>Meine beruflichen Qualifikationen sind nicht besonders gut.</td>
<td>☐</td>
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</tr>
<tr>
<td>Ich brauche mehr Aus- oder Weiterbildung.</td>
<td>☐</td>
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<th>Teils-teils</th>
<th>Trifft eher zu</th>
<th>Trifft zu</th>
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</thead>
<tbody>
<tr>
<td>Ich sorge dafür, dass ich über freie Stellen informiert bin.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Ich verfolge regelmäßig die Entwicklungen des Arbeitsmarktes in meinem Berufsfeld.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Ich bin mir meiner beruflichen Fähigkeiten und Interessen bewusst.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Ich habe keine Schwierigkeiten damit, gegenüber Arbeitskollegen und Vorgesetzten meine Fähigkeiten und Fertigkeiten zu zeigen.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>Ich kann mögliche Arbeitgeber oder Projektpartner von meiner Leistungsfähigkeit überzeugen.</td>
<td>☐</td>
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</tr>
<tr>
<td>Ich verfüge über ein dichtes Netz von beruflichen Kontakten.</td>
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</tbody>
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Trifft nicht zu  Trifft eher nicht zu  Teils-teils  Trifft eher zu  Trifft zu

Wenn mein Arbeitgeber von mir verlangt, dass ich andere Arbeitsaufgaben erledige, bin ich dazu bereit.

Ich finde es wichtig, eine breite Palette von Fähigkeiten zu entwickeln, so dass ich verschiedene Aufgaben im Unternehmen ausüben kann.

Im Falle einer Reorganisation möchte ich lieber mit meinen Kollegen in meiner Abteilung bleiben.

Im Falle einer Reorganisation würde ich gerne an meinem jetzigen Arbeitsplatz bleiben.

Ich bin nicht bereit, eine andere Arbeitsstelle anzutreten.

Wenn mir mein Arbeitgeber die Gelegenheit bietet, neue Erfahrungen zu sammeln, würde ich sie ergreifen.

**Weiterbildung**

Diese Fragen beziehen sich auf Weiterbildungen, an denen Sie in den letzten 12 Monaten teilgenommen haben.

<table>
<thead>
<tr>
<th>Anzahl Tage</th>
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<tr>
<td>Vom Arbeitgeber gefördert (durch Geld oder Zeit)</td>
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<td>Nicht gefördert</td>
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</table>

Wie viele Tage haben Sie an fachlicher Weiterbildung teilgenommen?

Wie viele Tage haben Sie an überfachlicher Weiterbildung (z.B. Team-training, Kommunikationstraining, Moderation, Zeitmanagement) teilgenommen?

Wie viele Tage haben Sie an Trainings zur Führungskompetenz teilgenommen?

**Weiter Angaben**

Welche Ausbildung haben Sie abgeschlossen? *Mehrfaches Ankreuzen ist möglich!*

- obligatorische Schulzeit
- Anlehre
- Berufselehre / Maturität
- Meisterdiplom, Höhere Fachschule, Fachhochschule
- Universitätsabschluss / Nachdiplom

Seit wie vielen Jahren arbeiten Sie beim jetzigen Arbeitgeber? ______ Jahre / ______ Monate

Geschlecht:  

- Weiblich
- Männlich

Alter: ______
Hier haben Sie noch Platz für Anmerkungen oder Kommentare:

### 5.2.2 Study 1b

**Arbeitsmarktfähigkeit**

<table>
<thead>
<tr>
<th></th>
<th>Trifft nicht zu</th>
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<tbody>
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<tr>
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<tr>
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</tr>
<tr>
<td>Für die Art von Arbeit, die ich ausüben möchte, sind meine Fähigkeiten auf dem neuesten Stand.</td>
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<tr>
<td>Ich habe einen guten beruflichen Werdegang.</td>
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<tr>
<td>Ein Arbeitgeber wäre von meinen Qualifikationen beeindruckt.</td>
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<tr>
<td>Ich habe gute berufliche Referenzen.</td>
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<tr>
<td>Ich brauche mehr Aus- oder Weiterbildung.</td>
<td>☐</td>
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</tr>
<tr>
<td>Ich habe in meiner Branche weit reichende Kontakte.</td>
<td>☐</td>
<td>☐</td>
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</tr>
<tr>
<td>Arbeitskollegen sagen, dass ich innerhalb und ausserhalb meiner Organisation viele Leute kenne.</td>
<td>☐</td>
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</tr>
<tr>
<td>Ich verfüge über ein dichtes Netz von beruflichen Kontakten.</td>
<td>☐</td>
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<td>☐</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Ich treffe mich regelmässig mit Personen ausserhalb meiner Organisation.</td>
<td>☐</td>
<td>☐</td>
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<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Ich habe nicht viele berufliche Kontakte.</td>
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</tr>
</tbody>
</table>
Weiterbildung

Diese Fragen beziehen sich auf Weiterbildungen, an denen Sie in den letzten 12 Monaten teilgenommen haben.

<table>
<thead>
<tr>
<th>Anzahl Tage</th>
<th>Vom Arbeitgeber gefördert (durch Geld oder Zeit)</th>
<th>Nicht gefördert</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Wie viele Tage haben Sie an fachlicher Weiterbildung teilgenommen?

Wie viele Tage haben Sie an überfachlicher Weiterbildung (z.B. Teamtraining, Kommunikationstraining, Moderation, Zeitmanagement) teilgenommen?

Wie viele Tage haben Sie an Trainings zur Führungskompetenz teilgenommen?

Weiter Angaben

Welche Ausbildung haben Sie abgeschlossen? Mehrfaches Ankreuzen ist möglich!

- obligatorische Schulzeit
- Anlehre
- Berufskern / Maturität
- Meisterdiplom, Höhere Fachschule, Fachhochschule
- Universitätsabschluss / Nachdiplom

Seit wie vielen Jahren arbeiten Sie beim jetzigen Arbeitgeber? _____ Jahre / _____ Monate

Geschlecht:  

- Weiblich
- Männlich

Alter: ________

Hier haben Sie noch Platz für Anmerkungen oder Kommentare:

5.2.3 Study 2

Persönlicher Code
Anfangsbuchstabe des ersten Vornamens Ihrer Mutter:
Endbuchstabe des ersten Vornamens Ihres Vaters:
Geburtsmonat Ihrer Mutter:
Geburtsmonat Ihres Vaters:
### Arbeitsmarktfähigkeit

<table>
<thead>
<tr>
<th>Fragesatz</th>
<th>Trifft nicht zu</th>
<th>Trifft eher nicht zu</th>
<th>Teils-teils</th>
<th>Trifft eher zu</th>
<th>Trifft zu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wenn ich meinen Arbeitgeber verlasse, ist es schwierig für mich, eine neue Anstellung zu finden.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Falls ich entlassen werde, würde ich sofort eine gleichwertige Stelle innerhalb oder ausserhalb des Unternehmens finden.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Ich bin zuversichtlich, dass ich eine andere Stelle finden würde, wenn ich anfangen würde zu suchen.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Für die Art von Arbeit, die ich ausüben möchte, sind meine Fähigkeiten auf dem neuesten Stand.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Ich habe einen guten beruflichen Werdegang.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Ein Arbeitgeber wäre von meinen Qualifikationen beeindruckt.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Ich habe gute berufliche Referenzen.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Meine beruflichen Qualifikationen sind nicht besonders gut.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Ich brauche mehr Aus- oder Weiterbildung.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Ich sorge dafür, dass ich über freie Stellen informiert bin.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Ich verfolge regelmässig die Entwicklungen des Arbeitsmarktes in meinem Berufsfeld.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Ich bin mir meiner beruflichen Fähigkeiten und Interessen bewusst.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Ich habe keine Schwierigkeiten damit, gegenüber Arbeitskollegen und Vorgesetzten meine Fähigkeiten und Fertigkeiten zu zeigen.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Ich kann mögliche Arbeitgeber oder Projektpartner von meiner Leistungsfähigkeit überzeugen.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
<tr>
<td>Ich verfüge über ein dichtes Netz von beruflichen Kontakten.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
</tbody>
</table>
Wenn mein Arbeitgeber von mir verlangt, dass ich andere Arbeitsaufgaben erledige, bin ich dazu bereit.

Ich finde es wichtig, eine breite Palette von Fähigkeiten zu entwickeln, so dass ich verschiedene Aufgaben im Unternehmen ausüben kann.

Im Falle einer Reorganisation möchte ich lieber mit meinen Kollegen in meiner Abteilung bleiben.

Im Falle einer Reorganisation würde ich gerne an meinem jetzigen Arbeitsplatz bleiben.

Ich bin nicht bereit, eine andere Arbeitsstelle anzutreten.

Wenn mir mein Arbeitgeber die Gelegenheit bietet, neue Erfahrungen zu sammeln, würde ich sie ergreifen.

**Angebote des Arbeitgebers**

<table>
<thead>
<tr>
<th>Mein Arbeitgeber <strong>bietet</strong> mir...</th>
<th>Trifft nicht zu</th>
<th>Trifft eher nicht zu</th>
<th>Teils-teils</th>
<th>Trifft eher zu</th>
<th>Trifft zu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interessante Arbeitsinhalte</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Möglichkeit, innerhalb des Unternehmens das Arbeitsgebiet zu wechseln</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Förderung und Entwicklung einer breiten Palette von Fähigkeiten</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>EntwicklungsPerspektive im Unternehmen</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Möglichkeiten, Eigenverantwortung zu übernehmen</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Möglichkeiten, meine Fähigkeiten vielfältig einzusetzen</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Aufstiegsmöglichkeiten</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

**Weiterbildung**

Diese Fragen beziehen sich auf Weiterbildungen, an denen Sie in den letzten 12 Monaten teilgenommen haben.

<table>
<thead>
<tr>
<th>Anzahl Tage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vom Arbeitgeber gefördert (durch Geld oder Zeit)</td>
</tr>
</tbody>
</table>

| Wie viele Tage haben Sie an fachlicher Weiterbildung teilgenommen? |
|-----------------------------------------------------------------
| Wie viele Tage haben Sie an überfachlicher Weiterbildung (z.B. Teamtraining, Kommunikationstraining, Moderation, Zeitmanagement) teilgenommen? |
| Wie viele Tage haben Sie an Trainings zur Führungskompetenz teilgenommen? |
**Weitere Angaben**

Seit wie vielen Jahren arbeiten Sie in Ihrem Unternehmen?  
_____ Jahre / _____ Monate

Welche Ausbildung haben Sie abgeschlossen? *Mehrfaches Ankreuzen ist möglich!*

- [ ] obligatorische Schulzeit
- [ ] Anlehre
- [ ] Berufslehre / Maturität
- [ ] Meisterdiplom, Höhere Fachschule, Fachhochschule
- [ ] Universitätsabschluss / Nachdiplom

In welchem Beruf arbeiten Sie momentan?

Geschlecht:  
- [ ] Weiblich
- [ ] Männlich

Geburtsjahr:  

Hier haben Sie noch Platz für Anmerkungen oder Kommentare:

---

### 5.2.4 Study 3

*Extract from the HR-Barometer interview guideline (Relevant questions for study 3)*

**Allgemeine Angaben**

NOTIEREN  
Geschlecht:  
- [ ] Weiblich
- [ ] Männlich

ALLE FRAGEN

Kann ich zunächst nachfragen, ob Sie zwischen 16 und 65 Jahre alt sind?

- [ ] Ja
- [ ] Nein

ALLE FRAGEN

Können Sie mir sagen ob Sie zurzeit entweder Vollzeit oder Teilzeit in einer bezahlten (bzw. abhängigen) Beschäftigung arbeiten?

- [ ] Ja, Vollzeit
- [ ] Ja, Teilzeit
- [ ] Nein
ALLE FRAGEN, DIE MOMENTAN NICHT VOLLZEIT ODER TEILZEIT BESCHÄFTIGT SIND

Sind Sie momentan beurlaubt?

☐ Krankheitsurlaub
☐ Mutterschaftsurlaub
☐ Anderer Urlaub
☐ Nein

ALLE FRAGEN

A4b Sind Sie selbständig oder der/die Geschäftsinhaberin des Unternehmens, in dem Sie arbeiten?

☐ Ja, selbständig
☐ Ja, Geschäftsinhaber
☐ Nein

ALLE FRAGEN

Seit wie vielen Jahren arbeiten Sie für Ihr jetziges Unternehmen (an allen Orten und in allen Positionen)?

_____ Jahre / _____ Monate

Karriereorientierung

Wenn wir Ihr zukünftiges Arbeitsleben betrachten, für welche der zwei Möglichkeiten würden Sie sich entscheiden (wenn sie müssten)?

<table>
<thead>
<tr>
<th>versus</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>In verschiedenen Arbeitsbereichen einsetzbar sein</td>
<td>Einen sicheren Arbeitsplatz haben</td>
<td></td>
</tr>
<tr>
<td>Meine Karriere selber managen</td>
<td>Meine Firma die eigene Karriere managen lassen</td>
<td></td>
</tr>
<tr>
<td>Sich und seiner Karriere verpflichtet sein</td>
<td>Seiner Firma/Organisation verpflichtet sein</td>
<td></td>
</tr>
<tr>
<td>Eine kurze Zeit in vielen Firmen</td>
<td>Eine lange Zeit mit einer Firma</td>
<td></td>
</tr>
<tr>
<td>Eine Reihe von Stellen auf der gleichen Hierarchiestufe</td>
<td>Eine höhere Hierarchiestufe anstreben</td>
<td></td>
</tr>
<tr>
<td>In der Gegenwart leben</td>
<td>Für die Zukunft planen</td>
<td></td>
</tr>
<tr>
<td>Arbeit ist im Leben nebensächlich</td>
<td>Arbeit ist zentral im Leben</td>
<td></td>
</tr>
<tr>
<td>Eine Karriere ist mir nicht wichtig</td>
<td>Karriere machen ist mir sehr wichtig</td>
<td></td>
</tr>
<tr>
<td>Ausgeben was man hat und es genießen</td>
<td>Für die Zukunft sparen</td>
<td></td>
</tr>
</tbody>
</table>

Absicht das Unternehmen zu verlassen

Wie wahrscheinlich ist es, dass Sie Ihr Unternehmen im kommenden Jahr (im Laufe eines Jahres) freiwillig verlassen werden?  KATEGORIEN LESEN

<table>
<thead>
<tr>
<th>Sehr unwahrscheinlich</th>
<th>Unwahrscheinlich</th>
<th>Ziemlich wahrscheinlich</th>
<th>Sehr wahrscheinlich</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
Ich habe nie daran gedacht, diese Stelle zu verlassen (kündigen)

Ich habe manchmal daran gedacht, diese Stelle zu verlassen (kündigen), habe aber nie etwas unternommen

Ich habe mich nach anderen Stellen umgesehen

Ich ver suche zur Zeit, diese Stelle zu verlassen

Haben Sie jemals darüber nachgedacht oder etwas unternommen um Ihre jetzige Stelle zu verlassen? Welche der folgenden Aussagen umschreibt Ihre aktuelle Situation am besten? KATEGORIEN LESEN

<table>
<thead>
<tr>
<th>KATEGORIEN</th>
<th>LESEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Überhaupt nicht sicher</td>
<td>☐</td>
</tr>
<tr>
<td>Eher nicht sicher</td>
<td>☐</td>
</tr>
<tr>
<td>Ziemlich sicher</td>
<td>☐</td>
</tr>
<tr>
<td>Sehr sicher</td>
<td>☐</td>
</tr>
</tbody>
</table>

Arbeitsmarktfähigkeit 2005

Sollten Sie Ihre jetzige Stelle aus irgendeinem Grund verlassen, z.B. weil Ihnen gekündigt wird oder sich entscheiden zu kündigen (zu gehen) – wie sicher sind Sie, dass Sie schnell eine andere Stelle, mit vergleichbarem Lohn, finden würden ohne umziehen zu müssen? KATEGORIEN LESEN

<table>
<thead>
<tr>
<th>KATEGORIEN</th>
<th>LESEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trifft nicht zu</td>
<td>☐</td>
</tr>
<tr>
<td>Trifft eher nicht zu</td>
<td>☐</td>
</tr>
<tr>
<td>Teils-teils</td>
<td>☐</td>
</tr>
<tr>
<td>Trifft eher zu</td>
<td>☐</td>
</tr>
<tr>
<td>Trifft zu</td>
<td>☐</td>
</tr>
</tbody>
</table>

Arbeitsmarktfähigkeit 2006

Wenn ich meinen Arbeitgeber verlasse, ist es schwierig für mich, eine neue Anstellung zu finden.

Falls ich entlassen werde, würde ich sofort eine gleichwertige Stelle innerhalb oder ausserhalb des Unternehmens finden.

Ich bin zuversichtlich, dass ich eine andere Stelle finden würde, wenn ich anfangen würde zu suchen.

<table>
<thead>
<tr>
<th>KATEGORIEN</th>
<th>LESEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trifft nicht zu</td>
<td>☐</td>
</tr>
<tr>
<td>Trifft eher nicht zu</td>
<td>☐</td>
</tr>
<tr>
<td>Teils-teils</td>
<td>☐</td>
</tr>
<tr>
<td>Trifft eher zu</td>
<td>☐</td>
</tr>
<tr>
<td>Trifft zu</td>
<td>☐</td>
</tr>
</tbody>
</table>
5.3 Appendix C: Curriculum Vitae

Name: Anette Wittekind
Date of Birth February 08, 1978
Place of Birth Darmstadt, Germany

Education and Professional Experience
1984 – 1988 Primary school in Freiburg i. Br. and Grossburgwedel
1988 – 1997 Gymnasium in Grossburgwedel, Forchheim and Erlangen
1997 Abitur
1997 – 1999 Studies in Psychology at Julius-Maximilians-Universität Würzburg
1999 – 2003 Studies in Psychology at Technische Universität Dresden
2003 Dipl.-Psych.
2004 – 2007 PhD Project on Employability
2004 – 2007 Research and teaching assistant at the Institute of Work Psychology, since 2005 Organization, Work and Technology Group

Publications

Research Papers under Review and Revision


Journal articles


Books


Chapters in books

Conferences


