

Enhancing the sustainability of employees' careers through training: The roles of career actors' openness and of supervisor support

Nikos Bozionelos, Cai-Hui (veronica) Lin, Kin Yi Lee

▶ **To cite this version:**

Nikos Bozionelos, Cai-Hui (veronica) Lin, Kin Yi Lee. Enhancing the sustainability of employees' careers through training: The roles of career actors' openness and of supervisor support. Journal of Vocational Behavior, 2020, 117, 10.1016/j.jvb.2019.103333 . hal-02312413

HAL Id: hal-02312413
https://hal.science/hal-02312413

Submitted on 20 May 2022

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution - NonCommercial 4.0 International License

Version of Record: https://www.sciencedirect.com/science/article/pii/S0001879119301058
Manuscript_bd819ad5c1a018910d83fd83e3ee81a2

Enhancing the Sustainability of Employees' Careers through Training:

The Roles of Career Actors' Openness and of Supervisor Support

Nikos Bozionelos*

EMLyon Business School, France

Cai-Hui (Veronica) Lin

University of Queensland, Australia

Kin Yi Le

The Open University of Hong Kong, Hong Kong

* Corresponding author

Author Note

Correspondence concerning this manuscript should be addressed to Nikos Bozionelos, EMLyon Business School, 23 avenue Guy de Collongue, CS 40203, 69134, Ecully, France; tel: +33(0)47833776; e-mail: bozionelos@em-lyon.com

© 2019 published by Elsevier. This manuscript is made available under the CC BY NC user license
https://creativecommons.org/licenses/by-nc/4.0/

Enhancing the Sustainability of Employees' Careers through Training: The Roles of Career Actors' Openness and of Supervisor Support

Abstract

Adopting a quasi-experimental design with four points in measurement, this study developed and tested a model whose variables represented key elements of the sustainable career process as captured in up-to-date thinking. The model posited that employees' openness to experience and supervisor support for training would lead to increases in employees' job performance and employability via learning as the result of an employer-sponsored training course. Training represented the contribution of the employer, who is the other key stakeholder in sustainable careers. The model was tested on 334 salespersons who attended an in-house job training course. Job performance and employability, as assessed by line managers, increased substantially and significantly following the training with respect to their pre-training levels, and learning as a result of the training mediated the relationships of openness to experience and supervisor support with the increases in job performance and employability. Contrary to expectations of a positive synergy, a substitution effect was found between openness and supervisor support in fostering learning as result of training, and subsequently, increases in job performance and employability. The study provided a comprehensive albeit short-term picture of the sustainable careers process as conceptualized in the theoretical literature. In addition, it illustrated the effectiveness of job training in the enhancement of employability. The implications of the study for theory and further research on sustainable careers and employability are discussed.

Keywords: Sustainable careers; training; job performance; employability; learning; openness to experience; supervisor; process; conservation of resources theory

A sustainable career is characterized by endurance that is granted by job performance and employability, which permit the individual to maintain their desired level of employment and personal pursuits over time (Van der Heijden & De Vos, 2015). Sustainability in careers benefit multiple stakeholders that, apart from individual career actors (employees), include the employers who benefit from their employees' knowledge, skills, energy, and other capacities to ensure sustainable performance and, hence, survival and prosperity in the longer term (Baruch, 2015; De Vos & Van der Heijden, 2017).

Theory on sustainable careers is in its early stages (De Vos & Van der Heijden, 2015; De Vos & Van der Heijden, 2017; De Vos, Van der Heijden & Akkermans, 2018). Nevertheless, the theoretical work that has already been done is sufficient to allow the development of testable propositions. For example, De Vos et al. (2018) have developed a theoretical model that posits sustainable careers as a process underpinned by the way factors located within the individual and in the context shape how individuals respond (e.g., how they learn from their circumstances) to events or situations to maintain or increase their job performance and employability – which serve as indicators of career sustainability. Empirical research, which is yet to appear, will contribute towards the further establishment of the construct and inform future theory. For that reason, informed by existing theory on sustainable careers (De Vos & Van der Heijden, 2017; De Vos et al., 2018; Van der Heijden & De Vos, 2015; and also De Prins, De Vos, Van Beirendonck, & Segers, 2015; Newman, 2011; Semeijn, Van Dam, Van Vuuren & Van der Heijden, 2015; Tomlinson, Baird, Berg & Cooper, 2018; Valcour, 2015) this study develops and tests a model (depicted in Figure 1) that posits increases in job performance and employability as the result of learning generated by employee-sponsored job training, with the individual characteristic of openness to experience and the contextual factor of supervisor support for training as factors that influence that learning. The variables in the model represent key elements of the sustainable

careers process proposed by De Vos et al. (2018). Hence, testing the model informs on the veracity of the theory.

The specific variables to serve the model were chosen as follows. Learning is a central element of sustainable careers (Anseel, 2017; Asuquo & Inaja, 2013; De Vos et al., 2018; Valcour, 2015) because these demand that individuals "learn the key knowledge, skills and abilities that prepare them for the present and future" (Lawrence, Hall & Arthur, 2015, p. 443). Employer-sponsored job training was chosen as a contextual factor that triggers the process of learning. Sustainable careers depend on learning as a response to situations and events that necessitate change and adaptation (De Vos et al., 2018) and job training aims at effecting change in employees' job-related cognitions, attitudes and behaviors (Bartel, 1994). Furthermore, sustainable careers are best attainable when employees and employers work in partnership (e.g., De Prins et al., 2015), and employer-sponsored training represents the employer's investment in that partnership. In this work we refer to the employer-sponsored job training course as "change event" following De Vos et al. (2018) who utilize the term to characterize any situation or event that influences the sustainable careers process.

Following from the above, the variables to reflect the individual and the contextual influence (De Vos et al., 2018) were selected from the perspective of facilitation of learning activities. Openness to experience (henceforth "openness") is an individual characteristic (one of the big five personality traits, Digman, 1990) manifested with motives and preferences (e.g., inquisitiveness, feedback seeking) that render it salient within a learning context because they facilitate independent action and enhance the meaningfulness of learning activities (e.g., Bidjerano & Dai, 2007; Busato, Prins, Elshout & Hamaker, 1999; Mirhashemi & Goodarzi, 2014; Ruffing, Hahn, Spinath, Brünken & Karbach, 2015). Supervisor support for training, an element of the work context, is pertinent to learning because it heightens employees' expectations from training, their motivation to learn, and

transfer of learning as a result of training (Baldwin & Magjuka, 1997; Blume, Ford, Baldwin & Huang, 2010; Massenberg, Schulte & Kauffeld, 2017).

Finally, job performance and employability represent major indicators of sustainable careers that are complementary to each other (De Vos et al., 2018). Specifically, we were interested in increases in job performance and employability, because these increases following a change event are indicative of career sustainability. Job performance refers to the past and the present, but it may also serve as a signal – albeit imperfect – of the person's potential in the future (Bozionelos et al., 2016; Sonnentag, Volmer & Spychala, 2008). Hence, the level of one's job performance influences the prospect of a sustainable career by increasing (or decreasing) the chances of future career continuity (for example, deficient job performance may prevent the person from making a flexible work arrangement, such as temporarily decreasing their workload or taking a long break from work, that may be beneficial in the long-term, or may deprive the person from a promotion or favorable transfer opportunity; for example, De Vos et al., 2018; Vinkenburg, Van Engen & Peters, 2015). Employability, on the other hand, primarily concerns the future because it reflects the ability to discover, create and seize work opportunities inside or outside the current workplace (Forrier & Sels, 2003; Van der Heijde & Van der Heijden, 2006). Hence, employability is critical if the individual is to achieve career continuity in the long-term, the core element of a sustainable career (Semeijn et al., 2015; Valcour, 2015; Van der Heijden & De Vos, 2015). It is for this reason that job performance and employability are complementary indicators of sustainable careers and, hence, should both be considered for a complete picture.

The present study contributes in the following ways: First and foremost, it develops and tests a model that incorporates variables representing key elements of the sustainable careers process as captured in up-to-date thinking (De Vos et al., 2018, primarily, but also De Vos & Van der Heijden, 2017; Van der Heijden & De Vos, 2015). The quasi-experimental design with multi-point measurement, albeit not extending over a long period of the individual's

career, enables us to look at the process by which major indicators of sustainable careers, job performance and employability, develop as a result of the learning generated by the change event (employer-sponsored training) along with the role of a person and a contextual factor in this process. The person factor (openness) and the contextual factor (supervisor support for training) were chosen for their apparent fit into training contexts. Hence, the study provides a test of sustainable careers theory, which is still in its early stages, while empirical research is very scant if it exists at all.

Second, the study demonstrates the effectiveness of job training (hereafter "training") in the enhancement of employability. Training refers to formally planned learning activities aiming to provide employees with knowledge, skills and attitudes that are helpful in their current jobs (Goldstein & Gilliam, 1990; Noe, 2013). Training is distinguished from development, which focuses on broader skills (e.g., decision-making, planning, goal-setting, negotiation, emotion management, leadership) that are not specific to the particular job the individual currently performs, but are presumed to help in future jobs and other endeavors (London, 1989; Noe, 2013). Being a relatively new construct, what fosters employability is still not perfectly understood, especially the role of factors outside the individual. Training accounts for a larger proportion of learning hours in organizations than any other type of formal learning activity (Wentworth, 2016), but to date we have no knowledge about whether it is effective in increasing employability. To date, there has been limited direct testing of the effects of any type of formal learning activity on employability and such testing as there has been focused exclusively on development. In particular, extant studies have examined whether development to strengthen career-enhancing skills, such as career reflection and exploration, self-promotion and networking (Akkermans, Brenninkmeijer, Schaufeli & Blonk, 2014; Spurk, Kauffeld, Barthauer & Heinemann, 2015), career planning and goal-setting (Akkermans et al., 2014; Brown, Hillier & Warren, 2010; Spurk et al., 2015), and emotional competence (Hodzic, Ripoll, Lira & Zenasni, 2015; Nelis et al., 2011) is effective

in improving employability; mostly in unemployed adults (Akkermans et al., 2014; Brown et al., 2010; Hodzic et al., 2015) or students (Akkermans et al., 2014; Nelis et al., 2011). Spurk et al. (2015) was an exception in this respect, they conducted their study with individuals in regular employment, and specifically with early career academics. Extant research, therefore, provided us with knowledge about whether development of skills and other personal resources selected for their theorized career-enhancing capacity and largely independent of specific job, occupation or setting increases employability, which has also been described as "career potential" (Van der Heijden & Bakker, 2011, p. 232). This is in line with the principles of development. Training, on the other hand, focuses on the present job and on skills and other personal resources specific to that job, without emphasis on the wider context of employment and career. The present study, therefore, contributes by showing that, as well as improving job performance in a specific job (e.g., Aguinis & Kraiger, 2009), training is also effective in enhancing employability. If training also improves employability, we have evidence to increase the criterion space of training within the domain of sustainable careers.

Hypothesis Development

In the formulation of hypotheses, the conservation of resources (COR) theory (Hobfoll, 1988, 1989) provided the overarching theoretical backdrop that integrated the elements of the model, and corroborated the logical argumentation that deployed extant knowledge about the constructs under consideration. COR theory was initially developed to explain the process of stress and its ensuing negative outcomes in clinical and non-clinical settings, but it is increasingly utilized to explain developmental processes and positive outcomes in a variety of arenas including the organizational setting (Halbesleben, Neveu, Paustian-Underdahl & Westman, 2014; Hobfoll, Halbesleben, Neveu & Westman, 2018) and careers (Spurk, Hirschi & Dries, 2019). COR theory is pertinent to sustainable careers because the core element behind both is the preservation and generation of resources (De Vos et al., 2018). In fact, all

elements of sustainable careers as these have been conceived in the literature thus far can be viewed under the lens of COR theory.

COR theory's tenet is that individuals seek to retain, maintain and gain resources (Hobfoll, 1989, 2002, 2011). Resources can be anything, including physical objects, conditions, energies, and personal characteristics and states, that are valued either in their own right or because they facilitate attainment of valued outcomes that can include other resources (Halbesleben et al., 2014; Hobfoll, 1988, 1989). Depending on their location, resources can be categorized into personal and contextual (Hobfoll, 2002; and for a fine-grained sub-categorization see Spurk et al., 2019). Personal resources are located within the individual and are of a physical or psychological (i.e., affective, cognitive or intellectual) nature. Accordingly, openness, a personality characteristic, is a personal resource and so is learning because both are instrumental in the acquisition of other resources or valued outcomes (e.g., knowledge, skills, experience) (Halbesleben et al., 2014; Hobfoll, 1998; 2002; Steve, 2015). Job performance and employability are also personal resources because they can facilitate the attainment of valued outcomes such as career progression and success, employment security, and well-being (e.g., Bozionelos et al., 2016; Gonzalez-Roma, Gamboa & Peiro, 2018; Kirves, Kinnunen, De Cuyper & Makikangas, 2014; Spurk et al., 2019). Contextual resources, on the other hand, are located in the individual's environment, either the immediate (proximal contextual resources) or the wider (macro-resources) (Hobfoll, 2002; Spurk et al., 2019). Consequently, training and supervisor support are contextual resources because they are both sources of learning and forms of personal improvement that are either resources or valued outcomes in their own right (Demerouti, Bakker, Nachreiner & Schaufeli, 2001; Hobfoll, 2011; Hobfoll, 1998; Ten Brummelhuis & Bakker, 2012).

A key corollary of COR theory is that the resources individuals possess determine the extent to which they are able to obtain additional resources: the more resources one possesses or has access to the better one is positioned to increase these resources (Halbesleben et al.,

2014; Hobfoll, 1989, 2002) or to gain other resources (Hobfoll, 2001, 2011; Ten Brummelhuis & Bakker, 2012) in a dynamic process of resource accumulation (Spurk et al., 2019). This has been confirmed by empirical evidence in the organizational setting (Weigl, Hornung, Parker, Petru, Glaser & Angerer, 2010; Xanthopoulou, Bakker, Demerouti & Schaufeli, 2009). Furthermore, it follows from COR theory that availability and access to contextual workplace resources function as a catalyst for the enhancement of personal resources (Hobfoll, 1998; 2011; Ten Brummelhuis & Bakker, 2012; also Hobfoll, 1998). Hobfoll (2011), for example, notes that a condition for employees to develop themselves and enhance their work capabilities is for employers to provide the necessary resources such as training. The above principles and corollaries of COR theory are pertinent to the development of our hypotheses.

Employer-sponsored Training and the Indicators of Sustainable Careers

Training and job performance increase.

The primary purpose of training is to improve performance in the current job (Aguinis & Kraiger, 2009; McCarty & Skibniewski, 2015). COR theory, as seen above, suggests that possession or access to resources increase the capability of the individual to obtain additional resources or other valued outcomes (Hobfoll, 1989, 2002), and that contextual resources can initiate and facilitate the acquisition of personal resources (Hobfoll, 2011; Ten Brummelhuis & Bakker, 2012). Training is a contextual resource provided to employees with the purpose of improving their job performance, which from a sustainable careers' viewpoint is a personal resource that is volatile, meaning it is subject to development and change (Spurk et al., 2019). Because job performance is critical for employers, employees are normally offered little or no discretion over attending training (Brown & Sitzmann, 2011), meaning that a training course offered by the employer is a resource that will be available to all employees. It follows from COR theory, therefore, that training will lead to increases in job performance.

For the evaluation of the effectiveness of training, i.e., whether it really increases job performance as it is meant to, Kirkpatrick's (1959, 1976) four-level training evaluation model is often utilized. Kirkpatrick's model includes four types of criteria (reaction, learning, behavioral, and results). Learning criteria measure learning outcomes and behavioral criteria measure job performance. A comprehensive meta-analysis by Arthur, Bennett, Edens, & Bell, (2003) found that training resulted in improvement in all four criteria, although there was a decrease in effect size as the criteria moved away from learning to behavioral and results criteria. Similar findings have been observed in more recent quantitative reviews with a narrower scope (e.g., O'Connor, Campbell, Newon, Melton, Salas & Wilson, 2008; Ricci, Chiesi, Bisio, Panari & Pelosi, 2016).

The above discussion, therefore, directs towards the expectation for an increase in job performance following employer-sponsored training.

Hypothesis 1: Post-training job performance will be higher than pre-training job performance.

Training and employability increase.

In a manner similar to training and job performance, COR theory also directs towards the expectation for employability, which is also a volatile personal resource given that it can be enhanced, increase following training. COR theory posits that access to resources enables the individual to achieve gains in existing (or other resources), and contextual resources are likely to nourish personal resources or valued outcomes (Hobfoll, 2001, 2011; Ten Brummelhuis & Bakker, 2012). Employability is different from job performance because it concerns capacity to deliver in a broader range of conditions, environments and possibly jobs than in a specific job within a particular setting. However, it is often the case that different jobs share similar characteristics, which renders the capacities that facilitate performance in one of them partly generalizable to others (Heneman & Judge, 2012; Pearlman, Schmidt &

Hunter, 1980; Smith, 1994). This means that training for a specific job can act as a resource to enable increases in employability and not just performance in that particular job.

A fine-grained look at the nature of employability and training corroborates the above reasoning. Employability is defined as "the continuous fulfilling, acquiring or creating of work through the optimal use of competences" (Van der Heijde & Van der Heijden, 2005, p. 143) that enables the individual "to obtain and maintain employment inside or outside the current employer, for present or new customers, and with respect to future prospects" (Van der Heijden & Bakker, 2011, p. 233).

Competences are nourished or acquired via learning activities (Boyatzis, 2008; De Vos, De Hauw & Van der Heijden, 2011; Van der Heijde & Van der Heijden, 2006). For this reason, learning is an essential element of major approaches to employability (Forrier & Sels, 2003; Fugate, Kinicki & Ashforth, 2004; Van der Heijde & Van der Heijden, 2006) whether they explicitly refer to competences or not. Training is a prominent means of providing learning activities (Bernhard-Oettel & Naswall, 2015; Grossman & Salas, 2011; Paloniemi, 2006), which apart from improving effectiveness in the current job also serves the purpose of preparing people for future or alternative jobs and roles (Antonacopoulou, 2001; Laird, 1985). This is in line with the notion of employability. Indeed, training enables individuals to update their existing – and acquire new – knowledge, skills, and work-related values and attitudes, with which to discover new opportunities and sustain their suitability and value for current and future employers (McDowall & Saunders, 2010). Employer-sponsored training, therefore, should nourish and develop employability-related competences.

Van der Heijde and Van der Heijden's (2006) competence-based employability construct comprises five dimensions: occupational expertise, anticipation and optimization, personal flexibility, corporate sense, and balance. These relate to job-related competence as well as to more general competences, such as flexibility and sense of future needs, which enable individuals to successfully navigate internal and external labor markets in a way that

optimizes their own career interests without compromising the interests of their employer (Van der Heijde & Van der Heijden, 2006; Van der Heijden & Bakker, 2011). Employer-sponsored training enables individuals to stay on top of domain-related knowledge and skills (Arthur et al., 2003; Forrier & Sels, 2003). If proper conditions for transfer exist, the newly acquired knowledge and skills can be generalized to multiple contexts (Grossman & Salas, 2011), which should allow employees to anticipate and deal with change successfully, at both job content and more general levels. Furthermore, employer-sponsored training should enable employees to increase their understanding of the organization and how they fit into it, thus enhancing their corporate sense. Finally, employer-sponsored training also signals that employers value employees (Memon, Salleh & Baharom, 2016; Robinson & Morrison, 1995). As a result, employees are more likely to take the interests of the employer into account along with their own interests, increasing their competence regarding balance.

Based on the above argumentation, we expect that participants' employability after participation in employer-sponsored training will be higher than their pre-training employability.

Hypothesis 2: Post-training employability will be higher than pre-training employability.

Openness

Learning is affected by both individual characteristics and contextual factors (Noe, 2013). Openness is an individual trait that encompasses broad-mindedness, multiplicity of interests, willingness to play with new ideas and problems, inquisitiveness, curiosity, imagination and creativity (Digman, 1990; Goldberg, 1992; McCrae & John, 1992). Because of these features, within the training context openness may influence what people decide to pay attention to, the amount of effort they devote, whether they will actively engage, and whether they apply the skills acquired in training in the actual job (Bidjerano & Dai, 2007; Furnham, 2008; Furnham, Christopher, Garwood & Martin, 2007). There is abundant

evidence that openness favors training performance, which is the successful immediate or nearly immediate application of expertise, skills, and attitudes learned from training (Kraiger, 2003). In a key meta-analysis, which utilized the results of 11 meta-analyses conducted at that time, Barrick, Mount and Judge (2001) found that openness showed the strongest relationship with training performance out of all big five traits. Since then, meta-analyses that incorporated new studies and a variety of approaches to the measurement of the big five have replicated this finding (e.g., Salgado & Táuriz, 2014).

Furthermore, because if its nature openness should facilitate learning when engaging in learning activities. For example, it has been shown that those scoring high on openness adopt a "deep" approach to learning (Chamorro-Premuzic & Furnham, 2009; Zhang & Ziegler, 2016), meaning that they treat learning situations with intrinsic interest and a determination to really understand and assimilate the material (Biggs, Kember & Leung, 2001). Because training is a learning activity, it follows that individuals scoring higher on openness should achieve greater gains in job performance from training, as a result of superior learning from the training.

Openness should also facilitate adaptive performance following training. Adaptive performance encompasses quick adoption of new techniques, engagement in creative problem-solving, and flexibility in physical, cultural and interpersonal aspects of work (Woo, Chernyshenko, Stark & Conz, 2014). Openness should facilitate adaptive performance because open individuals approach situations, novel or routine, with interest, flexibility and experimentalism (Arteche, Chamorro-Premuzic, Ackerman & Furnham, 2009; Bidjerano & Dai, 2007; Ruffing et al, 2015; Goldberg, 1992; McCrae & John, 1992). That should make it more likely that they apply what they have learned with efficiency, creativity and flexibility when back in their jobs. Because it reflects capacity to perform under changing conditions, adaptive performance is pivotal in attaining employability (Callanan, Perri & Tomkowicz, 2017; De Guzman & Choi, 2013; Van der Heijde & Van der Heijden, 2006). Because we

have already contemplated that openness facilitates learning from training, it follows that more open individuals will display greater gains in employability following training, as a result of superior learning from the training.

The above reasoning is corroborated by COR theory's corollary, visited earlier, that those who possess more resources in the first place are better positioned for gaining additional resources (Hobfoll, 2001, 2011; Ten Brummelhuis & Bakker, 2012; Xanthopoulou et al., 2009). Openness is a personal resource that enables superior gains from learning during training. The relationship of openness and learning outcomes is so close that it can be described by the COR theory notion of "resource caravan" (Hobfoll, 1998; 2011; Hobfoll et al., 2018), i.e., certain resources tend to go together because the one nourishes or creates the conditions for generation and gains in the other (Hobfoll, 1998). Hence, it also follows from COR theory that those scoring higher on openness will register greater increases in job performance and employability from training due to superior learning. Hence, we propose:

Hypothesis 3: Openness will be positively related to increases in job performance (H3a) and employability (H3b), and the relationship will be mediated by learning from training (H3c and H3d, respectively).

Supervisor Support

Supervisor support within the context of training refers to whether line managers behave in ways that optimize trainees' on-the-job-use of knowledge, skills and attitudes acquired in the training (Govaerts & Dochy, 2014; Holton, Bates & Ruona, 2000). The role of the supervisor is pivotal in determining whether what is gained in the training is transferred into the actual work situation (Burke & Hutchins, 2008; Govaerts, Kyndt, Vreye & Dochy, 2018; Lancaster, Milia & Cameron, 2013). Supervisors have many means to boost the chances of transfer of training, such as discussing the content and providing feedback on its application, designing opportunities or prompting subordinates to apply newly-learned skills on the job, providing reinforcement, and giving direct feedback (Govaerts et al., 2018;

Lancaster et al., 2013; Saks & Belcourt, 2006; Taylor, Russ-Eft & Chan, 2005; Van den Bossche, Segers & Jansen, 2010). Successful transfer means that the training fulfills its intended aim to increase job performance (Brown & Sitzmann, 2011). As already discussed, because jobs share characteristics capacities that help performance in one job generalize to other jobs with similar characteristics. It follows, therefore, that supervisor support for training should also increase employability compared to its pre-training levels.

Supervisor support should also facilitate learning from training. To illustrate, prior to attending the training course, supervisors can provide support to trainees by discussing the value of the training and its learning objectives, setting learning goals, providing trainees with release time to prepare, and encouraging their attendance (Govaerts et al., 2018; Ng, 2015; Saks & Belcourt, 2006). Furthermore, in anticipation of and during the training, supervisors can facilitate learning by releasing them from major responsibilities and protecting them from urgent matters, discussing the content and providing feedback on its application (Cromwell & Kolb, 2004; Govaerts et al., 2018; Lancaster et al., 2013). Hence, we expect that employees who receive greater supervisor support will display increased job performance and employability following the training as a result of superior learning.

COR theory corroborates the above reasoning by its corollary that availability of resources, in this case supervisor support, gives an advantage in the acquisition of other resources following a resource acquisition process. Accordingly, those with greater supervisor support for training should experience superior learning from training. In turn, given that learning is a resource by itself, those with superior learning will register greater increases in job performance and employability. Hence, we hypothesize:

Hypothesis 4: Supervisor support for training will be positively related to increases in job performance (H4a) and employability (H4b), and the relationship will be mediated by learning from training (H4c and H4d, respectively).

Interaction between Openness and Supervisor Support

It follows from COR theory that when different resources nourish the same resource or valued outcome the effect can be multiplicative (Halbesleben et al., 2014). Furthermore, as already discussed, COR theory suggests that the process of gaining resources or other valued outcomes can be activated by contextual resources that stimulate the functioning of individual resources in that process (Hobfoll, 2011; Ten Brummelhuis & Bakker, 2012). We have already hypothesized that both openness and supervisor support nourish learning within training. On the basis of the above, we expect that supervisor support, a contextual resource, will strengthen the relationship between openness, a personal resource, and learning following the training, so that learning will reach its maximum when both openness and supervisor support are highest.

Hypothesis 5: Openness and supervisor support will interact in such a way that the positive relationship between openness and learning will be stronger when supervisor support for training is greater.

Combining the mediation and moderation hypotheses, we also propose a moderated mediation (Preacher, Rucker & Hayes, 2007), as follows:

Hypothesis 6: The mediation effect of learning in the relationship between openness and increases in job performance (H6a) and employability (H6b) will be moderated by supervisor support for training in such a way that the mediation effect will be stronger when supervisor support is greater.

The conceptual model is presented in Figure 1.

--- Insert Figure 1 about here ---

Method

Participants and Procedure. The methodology was quasi-experimental, specifically single group pretest-posttest design. Participants were 334 salespersons (158 men, 176 women) working for a large retail organization in Hong Kong. Demographic statistics are

presented in Table 1. There were 115 supervisors (54 men, 61 women) involved in the study (age M = 31 years, SD = 4.61 years; tenure M = 4.98 years, SD = 2.97 years).

The training was a 2-day course on service quality improvement delivered in-house. It covered the following domains: New company policies (new procedures in handling customer complaints, and new procedures in handling merchandise returns) and applications of behavioral science in customer service (in particular, identifying and charting customer behaviors, development of positive relations, understanding behaviors of irritated customers, scenarios of dialogues in complaints, and techniques in handling complaints). Modes of learning included instruction by an external instructor, practical demonstrations (videos and demonstrations from senior salespersons in conjunction with the instructor), and role-playing (at the final stage of the course, participants were given the role of a customer or a salesperson to handle scenarios in pairs by applying what was learned during the course). All employees underwent the training and due to demands imposed by the company, there was no control group, hence, the single group pretest-posttest characterization of the design (e.g., Graziano & Raulin, 2014). Supervisors were not present during the training, but had been informed in advance about it and were knowledgeable about its content and what knowledge, skills and other capacities it aimed to instill and improve.

There were four points in measurement. Job performance and employability were measured one month before training (Time 1), openness and supervisor support were measured just before training (Time 2), learning as a result of training was measured immediately after training (Time 3), while job performance and employability were measured again two months after training (Time 4). Openness, supervisor support, and learning were reported by employees on well-validated self-report measures, while job performance and employability were assessed by supervisors, also using established measures.

During that time period of three months, participants underwent no other training, in-house or out-house. In addition, to the extent the researchers were able to observe and

inquire, no major events (e.g., leadership change, reward system modification) occurred within the organization during that period. Despite the unavailability of a control group, the absence of any major event that could introduce confounding factors increases our confidence in the internal validity of the study (Kantowitz, Roediger & Elmes, 2011; Graziano & Raulin, 2014).

Measures

All measures utilized a seven-point response format unless otherwise specified. Questionnaires were given in Chinese. To ensure semantic equivalence with the original English versions, the forward-translation/back-translation procedure (Behling & Law, 2000 Brislin, 1986) was employed. All measures were first translated into Chinese by a linguistics Master's student and were subsequently back-translated into English by another Master's student majoring in English linguistics. The two versions were inspected and compared by eight bilingual academics based in Hong Kong, whose comments were utilized to finalize the measures.

Openness was measured with the BFI-10 (Rammstedt & John, 2007), which is the short version of the Big Five Inventory (John & Srivastava, 1999). It was measured from the perspective of the trainees at Time 2. A sample item is "I see myself as someone who has an active imagination." Empirical work attests to the validity of the BFI-10 (e.g., Carciofo, Yang, Song, Du & Xhang, 2016; Rammstedt & John, 2007; Thalmayer, Caucier & Eigenhuis, 2011). Cronbach α was .92.

Supervisor support for training was measured with Maurer, Weiss and Barbeite's (2003) 11-item scale that was completed by trainees at Time 2. A sample item is "My supervisor provides adequate time for me to attend training." Eight items were retained as a result of the confirmatory factor analysis (CFA) performed on all measures to establish discriminant validity (the fit indices of the CFA tests are reported in the next section). Cronbach α was .91.

Learning from the training was assessed at Time 3 with five items adapted from Hoegl and Gemuenden's (2001) scale, which has proven validity as a measure of individual learning (Yoon & Kayes, 2016). Trainees were asked to evaluate how much they had learned in the training course. A sample item is "I was able to acquire important knowledge through this training." Three items were retained following the CFA test. Cronbach α was .93.

Job performance was measured with four items from Bush, Bush, Ortinau and Hail's (1990) scale, which has been developed specifically for tapping into the performance of retail salespersons. Using the scale, supervisors evaluated the trainees' job performance at Time 1 and Time 4. A sample item is "Provides courteous service to customers." Cronbach α for pre- and post-training job performance was .87 and .92, respectively.

Employability was measured with 28 items from the supervisor version of the Van der Heijde and Van der Heijden (2006) scale that captures the five employability dimensions: professional expertise, personal flexibility, balance, anticipation and optimization, and corporate sense. Of these items of the supervisor version, 23 have demonstrated predictive validity and measurement invariance across different national settings (Bozionelos et al., 2016), and five were selected by Hong Kong academics for their perceived relevance to the Hong Kong and China context. Each supervisor completed the scale rating their subordinates at Time 1 and Time 4. Nine items were removed in the CFA procedure because of low or ambiguous factor loadings or sharing error variance with items of other scales. Hence, the final measure contained six items for professional expertise (pre- and post-training Cronbach alphas were .87 and .92); four for personal flexibility (Cronbach alphas were .86 and .92); three for balance (Cronbach alphas were .91 and .93); three for anticipation and optimization (Cronbach alphas were .82 and .95), and three for corporate sense (Cronbach alphas were .87 and .91). Of the removed items, three pertained to professional expertise ("in general, this employee is competent to distinguish main issues from side issues and to set priorities", "by virtue of my experience with this employee, I consider him/her competent to be of practical

assistance to colleagues with questions about the approach to work", "how would you rate the quality of this employee's skills overall?"), one to personal flexibility ("how quickly does this employee generally anticipate and take advantage of changes in the work environment?"), two to balance ("this employee's work efforts are in proportion to what he/she gets back in return [e.g. through primary and secondary conditions of employment, pleasure in work, etc.]", "the time this employee spends on work and career development on the one hand, and personal development and relaxation on the other, are evenly balanced "), two to anticipation and optimization ("this employee approaches the development of his/her weaknesses in a systematic manner", "this employee is focused on continuously developing him/herself") and one to corporate sense ("this employee supports the operational processes within the organization"). Though certain authors call for caution in eliminating items after data have been collected (Heggestad, Scheaf, Banks, Monroe Hausfeld & Tonidandel, 2019), the fitness of the measurement model is very important to validity, hence for confidence in the results; unacceptable data fitness signifies potential overlap between the measures of the core constructs in the model (Hair, Black, Babin & Anderson, 2014; Kline, 2011). Furthermore, the items in the final scale covered all five employability dimensions, which indicates that all aspects of employability as identified by Van der Heijde and Van der Heijden (2006) were tapped. This alleviates a major concern (i.e., potential loss of content validity) behind item removal (e.g., see Clark & Watson, 1995; Furr, 2011). Nevertheless, taking the concerns expressed into consideration, and in line with recent recommendations (Bono & McNamara, 2011; Heggestad et al., 2019), we report the dropped items (above) and all original items (in the Appendix) for reference for future researchers.

Controls. Gender, age, job tenure, and educational level were measured as controls because these may affect employability, job performance ratings, and learning as a result of training (e.g., Bozionelos et al., 2016; Chiaburu, Dam & Hutchins, 2010; Pham, Segers & Gijselaers, 2012). In the results, age appeared as the only control variable with significant

relationship with a core variable. Adding other control variables did not change the significance level of the results. Hence, following best practice recommendations (Bernerth & Aguinis, 2016), we excluded the other controls from the analysis because complex models can compromise model fit (West, Taylor & Wu, 2012). However, we report the descriptive and correlation statistics of these variables to ensure transparency (Bernerth & Aguinis, 2016; Spector & Brannick, 2011).

Results

Preliminary analysis.

A CFA was conducted with all items loaded on the constructs they were supposed to measure, seven in total: openness, supervisor support for training, learning from training, pre-training job performance, post-training job performance, pre-training employability, and post-training employability. Both pre-and post-training employability were modeled as second-order latent constructs with five first-order dimensions, as validated by Van der Heijde and Van der Heijden (2006) and Bozionelos et al. (2016). After deleting items with low factor loadings and ambiguous cross-loadings, the model fit was acceptable [$\chi^2(1622) = 2959.30$, $\chi^2/df = 1.82$, $p < .01$; CFI =.918, TLI=.913; RMSEA = .050, SRMR = .061)].

This model showed a significantly better fit than a number of alternative models. Specifically, (a) alternative model one, with all items loaded on a single factor, showed unacceptable fit [$\chi^2(1652) = 12896.24$, $\chi^2/df = 7.81$, $p < .01$; CFI =.308; TLI =.283; RMSEA = .143; SRMR =.170; $\Delta\chi^2$ (30) = 9936.94, $p < .01$]; (b) alternative model two, where T1 and T4 employability were modelled as five correlated dimensions instead of a second-order construct, which resulted in a latent covariance matrix that was not positive definite, indicating linear dependency among multiple latent constructs. For example, the correlations between T1 anticipation and optimization and T1 balance and between T1 personal flexibility and T1 professional expertise were above .90; (c) alternative model three, where T1 and T4 job performance items were loaded on a single factor, also showed inadequate fit [$\chi^2(1561) =$

3767.78, χ^2/df = 2.41, $p < .01$; CFI = .864; TLI = .851; RMSEA = .065; SRMR = .109; $\Delta\chi^2(61) = 808.48$, $p < .01$]; and (d) alternative model four, where the correlation between T1 and T4 employability was set equal to 1. This model failed to converge, with the estimated covariance matrix being non-invertible. Together, these analyses demonstrated the discriminant validity of the constructs in the study.

Considering that job performance and employability were measured at two different points in time, we also tested whether the constructs measured were equivalent on both occasions (Vandenberg & Lance, 2000). We first tested the configural invariance model where the same items were loaded on the same constructs across time. We allowed the error terms of the same item to co-vary across time. They turned out to be non-significant, so we dropped these co-variations in the models reported below. The configural invariance model showed good fit [χ^2 (974) = 1831.45, p < .01; CFI = .931; TLI = .927; RMSEA = .051; SRMR = .058]. We then constrained the factor loadings of all items on their respective constructs, and the factor loadings of first-order constructs on employability to be equal over time. The fit indices of the model were: χ^2 (995) = 1965.37, $p < .01$, CFI = .922, TLI = .919, RMSEA = .054, SRMR = .069. Because ΔCFI (ΔCFI = .009) was below the cut-off value of 0.01 (Cheung & Rensvold, 2002), metric invariance was established. We further constrained the intercepts of all items and first-order constructs to be equal over time. They turned out to be non-significant, so we did not include these co-variations. The fit indices of the model were: χ^2 (1016) = 2103.88, $p < .01$, CFI = .913, TLI = .911, RMSEA = .057, SRMR = .072. Again, compared to the metric invariance model, ΔCFI (ΔCFI = .009) was below the cut-off point of .01. Therefore, scalar invariance was established. These results showed that the measures of job performance and employability were stable over the two time points at which they were measured.

Analytical procedures.

Descriptive statistics and zero-order correlations are presented in Table 1.

----- Insert Table 1 about here -----

Because employees were nested within supervisors, the observations were non-independent. The ICC(1)s of supervisor support, learning, job performance and employability ranged from .01 to .14, meaning that between 1% and 14% of the variances in these variables could be explained by group membership (Raudenbush & Bryk, 2002). To take account of the non-independence, we used a sandwich estimator (syntax: "Type = Complex ") in Mplus (Muthén & Muthén, 1998-2017) to compute the standard errors. The implementation of this method to deal with complex survey data has been discussed in Asparouhov and Muthén (2005, 2006) and proved to provide robust estimates. This method has also been utilized in empirical studies (e.g., Schaubroeck, Shen & Chong, 2017) in which individuals were similarly clustered within supervisory groups. Noting that theoretically supervisor support could potentially represent a group-level construct, we examined the relevant indices for possible aggregation. The ICC(1) of supervisor support was not significant [ICC(1) = .05, F = 1.17, *ns*], suggesting lack of significant clustering effect at the group level (Bliese, 2000). The ICC(2) was only .14, meaning that as a group-level construct supervisor support does not have reliable between-group differences (LeBreton & Senter, 2008).

To estimate the level of changes in job performance and employability and test the relationships between the core variables, we adopted a latent change score approach (McArdle & Nesselroade, 2014). This approach explicitly models latent change variables representing increases or decreases in the true scores of variables at two occasions (e.g., Δjob performance T4-T1, and Δemployability T4-T1). It overcomes the problem with the non-latent difference score approach in which the difference could be purely caused by random error – a problem heavily criticized by Cronbach and Furby (1970). It further allows testing the effects of other variables on the change (e.g., openness, supervisor support, and learning), which is in line with our primary concern with changes and their underlying processes (Usami, Hayes & McArdle, 2016).

Hypothesis testing.

Hypotheses 1 and 2 postulated that post-training job performance and employability would be higher than their pre-training levels. The results of the analysis show that the mean of the latent change in job performance (T4 - T1) was 1.30 ($p < .01$) and the mean of the latent change in employability (T4 - T1) was 0.88 ($p < .01$). The significantly positive change scores rendered support to hypotheses 1 and 2.

Hypotheses 3 and 4 proposed that employee openness and supervisor support would be positively related to the increases in job performance and employability after the training, and the relationships would be mediated by learning. Hypotheses about the effects of openness and supervisor support on increases in job performance and employability (H3a, H3b, H4a, H4b) were tested first by developing a direct effects model. The direct effects model fitted the data satisfactorily [$\chi^2(2) = 5.30$, $p = .07$; CFI = .987; TLI = .928; RMSEA = .070; SRMR = .022]. The path coefficients are presented in Figure 2. Openness was positively related to increases in job performance ($\beta = -.09$, $p < .10$, marginally significant) and employability ($\beta = .24$, $p < .01$). Hence, H3a - openness would be positively related to job performance increase - received marginal support, and H3b that openness would be positively related to employability increase received full support.

Then we added learning to the model to test the mediation hypotheses (H3c, H3d, H4c, H4d). After adding learning, data fitness remained satisfactory [$\chi^2(4) = 7.90$, $p = .09$; CFI = .992; TLI = .962; RMSEA = .054; SRMR = .027). Path coefficients are presented in Figure 3.

---- Insert Figures 2 and 3 about here ----

The path coefficients between openness and learning ($\beta = .22$, $p < .01$), between learning and increase in job performance ($\beta = .28$, $p < .01$), and between learning and increase in employability ($\beta = .55$, $p < .01$) were all significant. The indirect effect of openness on increase in job performance via learning was .06. The $CI_{95\%}$ based on 1,000

times bootstrapping did not contain zero [.03, .11]. Therefore, H3c – that the relationship between openness and increase in job performance would be mediated by learning – received support. The same procedure suggested that the mediation effect of learning in the relationship between openness and increase in employability was significant (indirect effect coefficient = .09, CI $_{95\%}$ = .05, .14). Therefore, H3d – that the relationship between openness and increase in employability would be mediated by learning – also received support.

Regarding Hypothesis 4, the direct effects model showed significant positive relationships between supervisor support and increase in job performance ($\beta = .30$, $p < .01$) and in employability ($\beta = .31$, $p < .01$). That lent support to H4a and H4b. Furthermore, the mediation model indicated significant relationships between supervisor support and learning ($\beta = .32$, $p < .01$), as well as between learning and increase in job performance ($\beta = .28$, $p < .01$) and in employability ($\beta = .55$, $p < .01$). The indirect effect of supervisor support on increase in job performance via learning was significant (indirect effect coefficient = .09, CI $_{95\%}$ = .05, .14), lending support to H4c. The indirect effect of supervisor support on increase in employability via learning was also significant (indirect effect coefficient = .17, CI $_{95\%}$ = .10, .24), lending support to H4d.

To test Hypothesis 5 – that supervisor support would positively moderate the relationship between openness and learning – the interaction term of openness x supervisor support was added to the model, which retained its satisfactory fitness [$\chi^2(5) = 7.92$, $p = .16$; CFI = .994; TLI = .976; RMSEA=.042; SRMR =.023]. The model appears in Figure 4. The effect of the interaction term on learning was significant and negative ($\beta = -.18$, $p < .01$). The interaction plot (Figure 5) showed that at low levels of supervisor support (1 *SD* below the mean), the relationship of openness with learning was stronger (simple slope: $\beta = .39$, $p < .01$). At high levels of supervisor support (1 *SD* above the mean), the relationship between openness and learning was not significant ($\beta = .04$, *ns*). This ran contrary to Hypothesis 5, which was therefore not supported.

---- Insert Figures 4 and 5 about here -----

Hypothesis 6 postulated that supervisor support would positively moderate the mediation effect of learning in the relationship between openness and increases in job performance (H6a) and employability (H6b). To test it, in line with the recommendations of Edwards & Lambert (2007), we calculated the indirect effect of openness on increases in job performance and employability via learning at low and high levels of supervisor support (1 *SD* below and above the mean, respectively). The results are shown in Table 2. At low levels of supervisor support, the indirect effect of openness on job performance was significant (indirect effect coefficient = .11, CI $_{95\%}$ = .06, .18), while at high levels it was not (indirect path coefficient = .01, CI $_{95\%}$ = -.02, .05). One thousand times bootstrapping showed that the difference between the two indirect effects was significant (d = .10, CI $_{95\%}$ = 0.06, 0.16). Hence, the indirect effect of openness on increase in job performance via learning was significantly stronger when supervisor support was lower, which led to the rejection of H6a. The indirect effect of openness on increase in employability via learning was significant at low levels of supervisor support (indirect effect coefficient = .20, CI $_{95\%}$ = .14, .28) and non-significant at high levels of supervisor support (indirect effect coefficient = .02, CI $_{95\%}$ = -.04, .08). This pattern was the opposite of what H6b postulated. Furthermore, 1,000 times bootstrapping showed that the difference between the two indirect effects was significant (d = .18, CI $_{95\%}$ = .12, .26). H6b was, therefore, not supported either.

---- Insert Table 2 about here ----

In addition to the results related to the hypothesis testing, the latent change score analysis also reveals that there was a negative relationship between T1 job performance and increases in job performance (β = -1.03, $p < .01$) and between T1 employability and increases in employability (β = - .96, $p < .01$), suggesting that those who had a higher baseline gained less increase.

Supplementary analysis.

Recognizing that the autoregressive model is another commonly used model to analyze longitudinal data (Usami et al., 2016), we conducted supplementary analysis where we regressed T4 job performance and employability on their T1 levels to compare the results from the two approaches. While there were sporadic changes in the numerical values of coefficients, the direction and significance levels of the results were identical, reinforcing confidence in our findings.

Discussion

Motivated by theory on sustainable careers, this study developed and tested a model that reflected the process of sustainable careers, or more precisely the process of enhancing the chances of sustainable careers considering that whether a career is sustainable can be reliably judged only after studying it over most of its course (e.g., see De Vos et al., 2018). The model posited that job performance and employability, key indicators of sustainable careers, would increase as a result of learning following an employer-sponsored training course, the event that triggered the process. The model also posited that the amount of learning would depend on career actors' scores on the personality trait of openness, indicative of the personal element in the sustainable career process, and supervisor support for training, indicative of the contextual element in the sustainable career process, and their interplay. The study provided a test of sustainable career theory, which is still in its early stages and on which empirical testing is naturally very scant. Testing the model also enabled the second main contribution of the study, which was to investigate whether job training is able to increase employability, one of the key indicators of sustainable careers.

Theoretical Contributions and Implications

Overall, the findings were supportive of the limited theory behind sustainable careers, especially as epitomized in most up-to-date articulation of it (i.e., De Vos et al., 2018). First, the findings highlighted the importance of both the person and the contextual dimension in the sustainable careers process. Openness was predictive of gains in job performance and

employability following training. Because it encompasses willingness to embrace the new, inquisitiveness, experimentation, and capacity for assimilation of new experiences, openness is advantageous in situations that revolve around learning, such as the employer-sponsored training that served as the triggering event in our study. Because learning occupies a central position in sustainable careers theory, openness may be an individual characteristic that offers a consistent advantage in attaining sustainability in career. Supervisor support for training, the contextual element, also emerged as nourishing job performance and employability via learning following the training. Support from the supervisor is a factor that is partly under the control of the employer; hence, the finding underlines the role of the employer as contributor and stakeholder in sustainable careers (De Vos & Van der Heijden, 2017). The role of the employer is also, and primarily, highlighted by that the training that triggered learning along with job performance and employability increase was the initiative of the employing organization.

The findings also underscore the central role of learning, hence empirically reiterating the theoretical literature on sustainable careers (e.g., Anseel, 2017; De Vos et al., 2018; Lawrence et al., 2015). The relationships of both openness and perceived supervisor support with increase in job performance and in employability following the training were mediated by learning. This means that opportunities for learning, coupled with the propensity of the person to take advantage of these opportunities, along with encouragement and facilitation of application on the job of what was learned, increase the likelihood of sustainable careers.

The illustration of the effectiveness of training in increasing employability was the second main contribution of the study. Despite the contemporary importance of employability, our knowledge about tools for enhancing it remains incomplete. Employer-sponsored learning activities, including training and development, appears a suitable tool for employability enhancement. However, to date pertinent testing has been limited, and concerned exclusively with the effects of development mostly in people not in regular

employment. Though training is utilized systematically by employers (Brown & Sitzmann, 2011) and accounts for more learning time than any other formal learning activity (Wentworth, 2016), we have had, until now, no evidence about whether it can serve as a tool to increase employability beyond job performance. The present study provides such evidence. It is worth noting the magnitude of increase in employability that followed the training. The change in mean employability scores is translated into an increase of 35.63% in employability over their pre-training levels; or, from another perspective, an increase that represented 14.7% over the total employability continuum. Therefore, the gains in employability were not simply statistically significant but also very substantively significant. The study design allows us to state with some confidence (to be discussed further below) that it was the training course that produced that considerable increase, for the most part. It seems unlikely that employability (and job performance, which also increased substantially) could have improved so dramatically in such a large number of employees within a period as short as three months in the absence of the training and any other major event.

The findings, however, run contrary to the hypothesis of a positive interaction - a synergy effect - between openness and supervisor support. Specifically, when supervisor support was high, the simple slope of openness against learning was not significant, indicating no difference between employees with high versus low openness in terms of their learning following the training. The same applies to job performance and employability. This implies a substitution effect of supervisor support for openness. The implication is that strong supervisor support for training could compensate for low openness. Therefore, even people rigid in approaching new experiences can reap career-sustaining benefits from training provided their line managers have an enthusiastic and supportive approach to training. This result stresses once more the role of the employer in selecting, orienting and developing its managers.

Nevertheless, the negative interaction effect was a finding contrary to expectations, which necessitates some reflection. Though we believe that the reasoning behind the positive interaction hypothesis was correct, we feel obliged to note that Hobfoll and his associates (Hall, Rattigan, Walter & Hobfoll, 2006; also Hobfoll, 2001) have suggested that under pressurizing circumstances a resource that is no longer available may be substituted by another resource that can cover the deficit, that resource being the one most readily available to the individual at the time (Hall et al., 2006). Though at first glance this seems to fit our finding, Hall et al. (2006) imply that resource substitution may happen under circumstances of resource loss: the individual used to possess and rely on a resource that for some reason is no longer available, leading them to grasp another available resource that serves a similar role (Hall et al., 2006). Openness, however, is a personality trait and is stable over adulthood (Judge, Higgins, Thoresen & Barrick, 1999; Rantanen, Metsapelto, Feldt, Pulkkinen & Kokko, 2007). Consequently, we can assume that people low on openness have never experienced the benefits of high openness in learning situations. In other words, openness is not a resource that individuals low on it once possessed and used to rely on, it is a resource of whose absence they were never aware. Openness, therefore, does not fit the profile of a resource that can be substituted in the way discussion within COR theory suggests (Hall et al., 2006). Nevertheless, though we do not see resource substitution as a likely explanation of the finding, we considered it worth noting, given the still limited testing of COR theory and its implications within frameworks of positive developmental processes and outcomes (Hobfoll et al., 2018; Spurk et al., 2019). Instead, we find as a more likely explanation for the finding the very character of openness. Specifically, open individuals thrive under conditions of high autonomy and strong personal control over the learning experience, as opposed to conditions that contain guidance and direction by others (Donche, De Maeyer, Coertjens, Van Daal & Van Petegem, 2013). This may have reduced the utility of supervisor support. Future

research should shed light on whether this substitution effect is peculiar to the combination of variables utilized in the present study or whether it is more general.

Practical Implications

The findings of this study offer important practical implications. They reveal that all major stakeholders have a part to play in fostering employees' career sustainability. First, employees who were predisposed to be open to new experiences learned more from training and achieved more gains in their job performance and employability. Hence, they showed better potential for developing a sustainable career in the long run. Organizations can take this into account when hiring employees.

Second, given the facilitative role of supervisor support in employee learning from the training, employers should raise managers' awareness of the importance of providing support to subordinates for their participation in training and subsequent transfer of training into the work situation. Managers may also need to be chosen and developed in doing so. Our findings that supervisor support will more likely benefit those who are low in openness, imply that a tailored approach would work best. This recommendation is consistent with the path-goal model (House, 1971), which states that those in leadership roles should adapt their style and behaviors to achieve a goal.

Finally, the study suggests that organizational investment in training has a potent role in developing sustainable careers – this is clearly indicated by the degree of increase in job performance and employability after the training. Considering that sustainable careers are to the interest of both employers and employees, the study reiterates the pay offs of investment in training.

Limitations and Future Research Directions

The quasi-experimental design is a strength because, unlike most other research designs and despite its inherent limitations, it allows some faith in the validity of the assumed causal order (e.g., Graziano & Raulin, 2014). On the other hand, the lack of a control group remains

a notable shortcoming that forces us to refrain from absolute statements on causality (i.e., we cannot be absolute that the training was the sole cause of the observed changes). Therefore, future studies are encouraged to adopt fully experimental designs, however difficult these may be to arrange in real settings.

Employability was measured from the perspective of a third party rather than of the career actor oneself. We see it as a minor contribution because employability has so far been nearly exclusively viewed and measured from the viewpoint of the career actor (self-perceived employability, Rothwell & Arnold, 2007). Though individuals' own perceptions of their own employability certainly provide an important viewpoint with practical use (for example, it can serve as predictor of job search behaviors, De Battisti, Gilardi, Gugliemetti & Seletti, 2016), the perspectives of third parties who are knowledgeable of the individual are also of value (Guilbert, Bernaud, Gouvernet & Rossier, 2016). To illustrate, considering that sustainable careers are shaped by factors both internal and external to the person, the perceptions of third parties matter because these are likely to influence sustainability-related situations and opportunities (for example, the supervisor's views would most likely matter when the individual negotiates a move or a deal such as an alternative work arrangement, a career break or employer-sponsored education that is instrumental towards career sustainability). It is, therefore, prudent to suggest that future research focus more on the perspective of third parties in the theorization and measurement of employability, especially as it appears that congruence between the two is low (Liu, 2018).

Third, it is conceivable that supervisors may have been biased and have inflated their post-training ratings because of their knowledge that their subordinates attended the training. This possibility cannot be ruled out. However, we tried to minimize this possibility by keeping the participants blind to the purpose of this study. Also, supervisors were not present during the training event, and we did not involve supervisors in rating their subordinates

during or immediately after the training. We hope that the two months' time lag reduced the priming effect of training on supervisors' rating of employees' performance.

Fourth, our measurement of supervisor support and learning relied on participants' own perceptions. Being perceptions, these may or may not accurately reflect reality. In addition, measuring both variables with self-reports invokes the possibility of same source bias. However, that we measured these at different points in time reduces that danger (Podsakoff, MacKenzie & Podsakoff, 2012). Nevertheless, future research testing sustainable careers theory should consider using other sources to obtain measures of the variables.

Fifth, openness fitted very well into our model because its features render it a potent facilitator of learning. Other traits, however, may also come to the foreground depending on the nature of the event that requires adaptation. For example, it is not unusual to have change events (e.g., job redesign or organizational restructuring) that involve shifts in the way work is organized towards collaborative projects and teamwork. In such cases, traits such as agreeableness, whose features render the person especially effective in collaboration and co-operation (Barrick et al., 2001), may also be instrumental in career sustainability. Hence, future studies ought to also investigate the role of other personality traits.

Finally, the time horizon of our study was limited, since post-training measurement took place only two months after the training. Though this design was appropriate for the measures in this study, the notion of sustainable careers has long-term connotations (e.g., De Prins et al., 2015; De Vos et al., 2018; De Vos & Van der Heijden, 2017). Future research may take a longer timeframe to investigate, for example, whether and under what conditions the gains in job performance and employability are relatively permanent. Or whether and how these gains assist the individual in retaining sustainable career indicators under further change events of a similar or different nature (e.g., change in work responsibilities, sudden change in personal circumstances that demand a special arrangement, or even announcement of redundancies by the employer). Future research should also examine other career

sustainability indicators that acquire meaning in the longer term, such as achieving work-life balance, and retaining physical and psychological health (De Hauw & Greenhaus, 2015; Greenhaus & Kossek, 2014; Van der Heijden & De Vos, 2015). A shorter timeframe, however, may be apropos to studying those who are in more precarious employment situations than the professional/semi-professional participants in our study. These can include migrant workers or individuals with limited qualifications working under temporary contracts (De Vos & Van der Heijden, 2017). The longevity of interventions aiming to enhance career sustainability can be studied more readily in such groups because they are more likely to find themselves in need of job or career changes within relatively short time horizons.

References

Aguinis, H., & Kraiger, K. (2009). Benefits of training and development for individuals and teams, organizations, and society. *Annual Review of Psychology, 60*, 451-474.

Akkermans, J., Brenninkmeijer, V., Schaufeli, W. B., & Blonk, R. W. B. (2015). It's all about CareerSKILLS: Effectiveness of a career development intervention for young employees. *Human Resource Management, 54*(4), 533-551.

Asparouhov, T. & Muthén, B. (2005). Multivariate statistical modeling with survey data. Proceedings of the FCMS 2005 Research Conference.

Asparouhov, T. & Muthén, B. (2006). Multilevel modeling of complex survey data. Proceedings of the Joint Statistical Meeting in Seattle, August 2006. *ASA Section on Survey Research Methods*, 2718-2726.

Anseel, F. (2017). Agile learning strategies for sustainable careers: A review and integrated model of feedback-seeking behavior and reflection. C*urrent Opinion in Environmental Sustainability, 28*, 51-57.

Antonacopoulou, E. P. (2001). The paradoxical nature of the relationship between training and learning. *Journal of Management Studies, 38*(3), 327-350.

Arteche, A., Chamorro-Premuzic, T., Ackerman, P., & Furnham, A. (2009). Typical intellectual engagement as a byproduct of openness, learning approaches, and self-assessed intelligence. *Educational Psychology, 29*(3), 357-367.

Arthur, W., Bennett, W., Edens, P. S., & Bell, S. T. (2003). Effectiveness of training in organizations: A meta-analysis of design and evaluation features. *Journal of Applied Psychology, 88*(2), 234-245.

Asuquo, P. N., & Inaja, A. E. (2013). Fostering sustainable career development and employability among young people in the changing world of work: Employers' perspective. *Procedia-Social and Behavioral Sciences, 84*, 1492-1499.

Baldwin, T. T., & Madjuka, R. J. (1997). Training as an organizational episode: Pretraining influences on trainee motivation. In J. K. Ford, S. W. J. Kozlowski, K. Kraiger, E. Salas, & M. S. Teachout (Eds.), *Improving training effectiveness in work organizations* (pp. 99-127). Mahwah, NJ: Lawrence Erlbaum.

Barrick, M. R., Mount, M. K., & Judge, T. A. (2001). Personality and job performance at the beginning of the new millennium: What do we know and where do we go next? *International Journal of Selection and Assessment, 9*(1), 9-30.

Bartel, A. P. (1994). Productivity gains from the implementation of employee training programs. *Industrial Relations*, *33*(4), 411-425.

Baruch, Y. (2015). Organizatitonal and labor markets as career ecosystem. In A. De Vos & B. I. J. M. Van der Heijden (Eds.), *Handbook of research on sustainable careers* (pp. 364-380). Cheltenham, UK: Edward Elgar.

Behling, O., & Law, K. S. (2000). *Translating questionnaires and other research instruments: Problems and solutions*. Thousand Oaks, CA: Sage.

Bernerth, J. B., & Aguinis, H. (2016). A critical review and best-practice recommendations for control variable usage. *Personnel Psychology*, *69*(1), 229-283.

Bernhard-Oettel, C., & Naswall, K. (2015). Career continuance and transfer of competencies after job transitions: Insights from a Swedish study. In A. De Vos & B. I. J. M. Van der Heijden (Eds.), *Handbook of research on sustainable careers* (pp. 381-397). Cheltenham, UK: Edward Elgar Publishing.

Bidjerano, T., & Dai, D. Y. (2007). The relationship between the big-five model of personality and self-regulated learning strategies. *Learning and Individual Differences, 17*(1), 69–81.

Biggs, J., Kember, D., & Leung, D. Y. P. (2001). The revised two-factor Study Process Questionnaire: R-SPQ-2F. *British Journal of Educational Psychology, 71*(1), 133–149.

Bliese, P. D. (2000). Within-group agreement, non-independence, and reliability: Implications for data aggregation and analysis. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations* (pp. 349-381). San Francisco: Jossey-Bass.

Blume, B. D., Ford, J. K., Baldwin, T. T., & Huang, J. L. (2010). Transfer of training: A meta-analytic review. *Journal of Management, 36*(4), 1065-1105.

Bono, J. E., & McNamara, G. 2011. From the editors: Publishing in AMJ- Part 2: Research design. *Academy of Management Journal, 54*(4), 657–660.

Boyatzis, R. E. (2008). Competencies in the 21st century. *Journal of Management Development*, *27*(1), 5-12.

Bozionelos, N., Kostopoulos, K., Van der Heijden, B., Rousseau, D. M., Bozionelos, G., Hoyland, T., . . . Van der Heijde, C. (2016). Employability and job performance as links in the relationship between mentoring receipt and career success: A study in SMEs. *Group & Organization Management, 41*(2), 135-171.

Brislin, R. (1986). The wording and translation of research instruments. In W. Loner & J. Berry (Eds.), *Field methods in cross-cultural research* (pp. 137–164). Beverley Hills, CA: Sage.

Brown, T, Hillier, T-L., & Warren, A. M. (2010). Youth employability training: Two experiments. *Career Development International, 15*(2), 166-187.

Brown, K. G., & Sitzmann, T. (2011). Training and employee development for improved performance. In S. Zedeck (Ed.), *APA handbook of industrial and organizational psychology: Vol. 2: Selecting and developing members of the organization* (pp. 469-503). Washington, DC: American Psychological Association.

Burke, L. A., & Hutchins, H. M. (2008). A study of best practices in training transfer and proposed model of transfer. *Human Resource Development Quarterly, 19*(2), 107-128.

Busato, V. V., Prins, F. J., Elshout, J. J., & Hamaker, C. (1999). The relations between learning styles, the Big Five personality traits and achievement motivation in higher education. P*ersonality and Individual Differences, 26*, 129−140.

Bush, R. P., Bush, A. J., Ortinau, D. J., & Hair, J. F. (1990). Developing a behavior-based scale to assess retail salesperson performance. *Journal of Retailing*, *66*(1), 119-129.

Callanan, G. A., Perri, D. F., & Tomkowicz, S. M. (2017). Career management in uncertain times: Challenges and opportunities. *Career Development Quarterly, 65*(4), 353-365.

Carciofo, R., Yang, J., Song, N., Du, F., & Zhang, K. (2016). Psychometric evaluation of Chinese-language 44-Item and 10-Item Big Five Personality Inventories, including correlations with chronotype, mindfulness and mind wandering. *PLOS One, 11*(2), e0149963. doi:10.1371/journal.pone.0149963

Chamorro-Premuzic, T., & Furnham, A. (2009). Mainly Openness: The relationship between the Big Five personality traits and learning approaches. *Learning and Individual Differences, 19*(4), 524-529.

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling*, *9*(2), 233-255.

Chiaburu, D. S., Dam, K. V., & Hutchins, H. M. (2010). Social support in the workplace and training transfer: A longitudinal analysis. *International Journal of Selection and Assessment*, *18*(2), 187-200.

Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment, 7*(3), 309-319.

Cromwell, S. E., & Kolb, J. A. (2004). An examination of work-environment support factors affecting transfer of supervisory skills training to the workplace. *Human Resource Development Quarterly, 15*(4), 449-471.

Cronbach, L. J., & Furby, L. (1970). How we should measure" change" - Or should we? *Psychological Bulletin*, *74*(1), 68-80.

De Battisti, F., Gilardi, S., Guglielmetti, C., Siletti, E. (2016). Perceived employability and reemployment: Do job search strategies and psychological distress matter? *Journal of Occupational and Organizational Psychology, 89*(4), 813-833.

De Guzman, A. B., Choi, K. O. (2013). The relations of employability skills to career adaptability among technical school students. *Journal of Vocational Behavior, 82*(2), 199-207.

De Hauw, S., & Greenhaus, J. H. (2015). Building a sustainable career: The role of work-home balance in career decision making. In A. De Vos & B. I. J. M. Van der Heijden (Eds.), *Handbook of research on sustainable careers* (pp. 223-238). Cheltenham, UK: Edward Elgar Publishing.

De Prins, P., De Vos, A., Van Beirendonck, L., & Segers, J. (2015). Sustainable HRM for sustainable careers: Introducing the 'Respect Openness Continuity (ROC) model'. In A. De Vos & B. I. J. M. Van der Heijden (Eds.), *Handbook of research on sustainble careers* (pp. 319-334). Cheltenham, UK: Edward Elgar Publishing.

De Vos, A., De Hauw, S., & Van der Heijden, B. I. J. M. (2011). Competence development and career sucess. The mediating role of employability. *Journal of Vocational Behavior, 79*(2), 438-447.

De Vos, A., & Van der Heijden, B. I. J. M. (Eds.) (2015). *Handbook of research on sustainable careers*. Cheltenham, UK: Edward Elgar Publishing.

De Vos, A., & Van der Heijden, B. I. J. M. (2017). Carrent thinking on contemporary careers: The key roles of sustainable HRM and sustainability of careers. *Current Opinion in Environmental Sustainability, 28*, 41-50.

De Vos, A., & Van der Heijden, B. I. J. M., & Akkermans, J. (2018). Sustainable careers: Towards a conceptual model. *Journal of Vocational Behavior.* doi.org/10.1016/j.jvb.2018.06.011

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-

resources model of burnout. *Journal of Applied Psychology, 86*(3), 499-512.

Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. *Annual Review of Psychology, 41*(1), 417-440.

Donche, V., De Maeyer, S., Coertjens, L., Van Daal, T., & Van Petegem, P. (2013). Differential use of learning strategies in first-year higher education: The impact of personality, academic motivation, and teaching strategies. *British Journal of Educational Psychology, 83*(2), 238-251.

Edwards, J. R., & Lambert, L. S. (2007). Methods for integrating moderation and mediation: A general analytical framework using moderated path analysis. *Psychological Methods, 12*(1), 1-22.

Forrier, A., & Sels, L. (2003). The concept employability: A complex mosaic. *International Journal of Human Resources Development and Management, 3*(2), 102-124.

Fugate, M., Kinicki, A. J., & Ashforth, B. E. (2004). Employability: A psycho-social construct, its dimensions, and applications. *Journal of Vocational Behavior, 65*(1), 14-38.

Furnham, A. (2008). *Personality and intelligence at work*. London: Routledge.

Furnham, A., Christopher, A., Garwood, J., & Martin, G. (2007). Approaches to learning and the acquisition of general knowledge. *Personality and Individual Differences, 43*(6), 1563–1571.

Furr, R. M. (2011). *Scale construction and psychometrics for social and personality psychology*. London: Sage.

Goldberg, L. R. (1992). The development of markers for the big-five factor structure. *Psychological Assessment, 4*(1), 26-42.

Goldstein, I. L., & Gilliam, P. (1990). Training system issues in the year 2000. *American Psychologist, 45*(2), 134-143.

Gonzalez-Roma, V., Gamboa, J. P., & Peiro, J. M. (2018). University graduates' employability, employment status, and job quality. *Journal of Career Development, 45*(2), 132-149.

Govaerts, N., & Dochy, F. (2014). Disentangling the role of the supervisor in transfer of training. *Educational Research Review*, *12*(1), 77 – 93.

Govaerts, N., Kyndt, E., Vreye, S., & Dochy, F. (2018). A supervisors' perspective on their role in transfer of training. *Human Resource Development Quarterly, 28*(4), 515-552.

Graziano, A. M., & Raulin, M. L. (2014). *Research methods: A process of inquiry* (8th ed.). Harlow, UK: Pearson.

Greenhaus, J. H., & Kossek, E. E. (2014). The contemporary career: A work-home perspective. *Annual Review of Organizational Psychology and Organizational Behavior, 1*, 361-388.

Grossman, R., & Salas, E. (2011). The transfer of training: What really matters. *International Journal of Training and Development, 15*(2), 103-120.

Guilbert, L., Bernaud, J.-L., Gouvernet, B., & Rossier, J. (2016). Employability: review and research prospects. *International Journal for Educational and Vocational Guidance, 16*(1), 69-89.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis.* (7th ed.). Harlow, UK: Pearson Education.

Halbesleben, J. R. B., Neveu, J.-P., Paustian-Underdahl, S. C., & Westman, M. (2014). Getting to the "COR": Understanding the role of resources in conservation of resources theory. *Journal of Management, 40*(5), 1334-1364.

Hall, B. J., Rattigan, S., Walter, K. H., & Hobfoll, S. E. (2006). Conservation of resources theory and trauma: An evaluation of new and existing principles. In P. Buchwald (Ed.), *Stress and anxiety - Application to health, community, work place, and education* (pp. 230-250). Cambridge: Cambridge Scholar Press Ltd.

Heggestad, E. D., Scheaf, D. J., Banks, G. C., Monroe Hausfeld, M., Tonidandel, S., & Williams, E. B. (2019). Scale adaptation in organizational science research: A review and best-practice recommendations. *Journal of Management*, doi: 10.1177/0149206319850280

Heneman, H. G. III, & Judge, T. A. (2012). *Staffing organizations*. New York: McGraw-Hill.

Hobfoll, S. E. (1988). *The ecology of stress*. New York: Hemisphere.

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist, 44*(3), 513–524.

Hobfoll S. E. (1998). *Stress, culture, and community: The psychology and philosophy of stress*. New York: Plenum.

Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources theory. *Applied Psychology: An International Review, 50*(3), 337-369.

Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology, 6*(4), 307-324.

Hobfoll, S. E. (2011). Conservation of resource caravans and engaged settings. *Journal of Occupational and Organizational Psychology, 84*(1), 116-122.

Hobfoll, S. E., Halbesleben, J., Neveau, J-P., & Westman, M. (2018). Conservation of resources in the organizational context: The reality of resources and their consequences. *Annual Review of Organizational Psychology and Organizational Behavior, 5*, 103-128.

Hodzic, S., Ripoll, P., Lira, E., & Zenasni, F. (2015). Can intervention in emotional competences increase employability prospects of unemployed adults? *Journal of Vocational Behavior, 88*(1), 28-37.

Hoegl, M., & Gemuenden, H. (2001). Teamwork quality and the success of innovative projects: A theoretical concept and empirical evidence. *Organization Science, 12*(4), 435–449.

Holton, E. F. I., Bates, R. A., & Ruona, W. E. A. (2000). Development of a generalized learning transfer system inventory. *Human Resource Development Quarterly, 11*(4), 333–360.

House, R. J. (1971). A path goal theory of leader effectiveness. *Administrative Science Quarterly, 16*(3), 321-339.

John, O. P., & Srivastava, S. (1999). The Big-Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: theory and research* (Vol. 2, pp. 102–138). New York: Guilford Press.

Judge, T. A., Higgins, C. A., Thoresen, C. J., & Barrick, M. R. (1999). The big five personality traits, general mental ability, and career success across the life span. *Personnel Psychology*, *52*(3), 621–652.

Kantowitz, B. H., Roediger, H. L. III, & Elmes, D. G. (2011). *Experimental psychology* (10th ed.). Belmont, CA: Wadsworth.

Kirkpatrick, D. L. (1959). Techniques for evaluating training programs. *Journal of the American Society of Training Directors, 13*(11), 3-9.

Kirkpatrick, D. L. (1976). Evaluation of training. In R. L. Craig (Ed.), *Trainig and development handbook: A guide to human resource development* (2nd ed., pp. 301-319). New York: McGraw-Hill.

Kirves, K., Kinnunen, U., De Cuyper, N., & Makikangas, A. (2014). Trajectories of perceived employability and their associations with well-being at work: A three-wave study. *Journal of Personnel Psychology, 13*(1), 46-57.

Kline, R. B. (2011). *Principles and practice of structural equation modeling*. New York: Guildford Press.

Kraiger, K. (2003). Perspectives on training and development. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Handbook of psychology: Vol. 12. Industrial and organizational psychology* (pp. 171–192). Hoboken, NJ: Wiley.

Laird, D. (1985). *Approaches to training and development*. New York, NY: Wiley.

Lancaster, S., Milia, L. D., & Cameron, R. (2013). Supervisor behaviours that facilitate training transfer. *Journal of Workplace Learning*, *25*(1), 6-22.

Lawrence, B. S., Hall, D. T., & Arthur, M. B. (2015). Sustainable careers then and now. In A. De Vos & B. I. J. M. Van der Heijden (Eds.), *Handbook of research on sustainable careers* (pp. 432-449). Cheltenham, UK: Edward Elgar Publishing.

LeBreton, J. M., & Senter, J. L. (2008). Answers to 20 questions about interrater reliability and interrater agreement. *Organizational Research Methods*, *11*(4), 815-852.

Liu, W. (2018). High-involvement human resource practices, employee learning and employability. *Career Development International, 23*(3), 312-326.

London, M. (1989). *Managing the training enterprise*. San Francisco: Jossey-Bass.

Massenberg, A. -C., Schulte, E. -M., & Kauffeld, S. (2017). Never too early: Learning transfer system factors affecting motivation to transfer before and after training programs. *Human Resource Development Quarterly, 28*(1), 55-85.

Maurer, T. J., Weiss, E. M., & Barbeite, F. G. (2003). A model of involvement in work-related learning and development activity: The effects of individual, situational, motivational, and age variables. *Journal of Applied Psychology*, *88*(4), 707-724.

McArdle, J. J., & Nesselroade, J. R. (2014). *Longitudinal data analysis using structural equation models*. Washington, DC: American Psychological Association.

McCarty, A. J., & Skibniewski, M. J. (2015). Understanding the value of training in the professional workplace: A literature review. *International Journal of Continuing Engineering Education and Life-Long Learning, 25*(3), 347-358.

McCrae, R. R., & John, O. P. (1992). An introduction to the five-factor model and its applications. *Journal of Personality*, *60*(2), 175-215.

McDowall, A., & Saunders, M. N. (2010). UK managers' conceptions of employee training and development. *Journal of European Industrial Training, 34*(7), 609-630.

Memon, M. A., Salleh, R., & Baharom, M. N. R. (2016). The link between training satisfaction, work engagement and turnover intention. *European Journal of Training and Development, 40*(6), 407-429.

Mirhashemi, M., & Goodarzi, H. (2014). Self-Regulated learning strategies: The role of personal factors (motivational beliefs and personality). *Journal of Educational and Management Studies, 4*(1), 152-161.

Muthén, L. K., & Muthén, B. O. (1998-2017). Mplus user's guide (8th ed.). Los Angeles, CA: Muthén & Muthén.

Nelis, D., Kotsou, I., Quoidbach, J., Hansenne, M., Weytens, F., Dupuis, P., & Mikolajczak, M. (2011). Increasing emotional competence improves psychological and physical well-being, social relationships, and employability. *Emotion, 11*(2), 354-366.

Newman, K. L. (2011). Sustainable careers: Lifecycle engagement in work. *Organizational Dynamics, 40*(2), 136-143.

Ng, K. H. (2015). Supervisory practices and training transfer: Lessons from Malaysia. *Asia Pacific Journal of Human Resources*, *53*(2), 221-240.

Noe, R. A. (2013). *Employee training and development* (6th ed.). Burr Ridge, IL: McGraw-Hill Irwin.

O'Connor, P., Campbell, J., Newon, J., Melton, J., Salas, E., & Wilson, K. A. (2008). Crew resource management training effectiveness: A meta-analysis and some critical needs. *International Journal of Aviation Psychology, 18*(4), 353-368.

Paloniemi, S. (2006). Experience, competence and workplace learning. *Journal of Workplace learning, 18*(7/8), 439-450.

Pearlman, K., Schmidt, F. L., & Hunter, J. E. (1980). Validity generalization results for tests used to predict job proficiency and training success n clerical occupations. *Journal of Applied Psychology, 65*(4), 373-406.

Pham, N. T. P., Segers, M. S. R., & Gijselaers, W. H. (2012). Effects of work environment on transfer of training: Empirical evidence from Master of Business Administration programs in Vietnam. *International Journal of Training and Development*, *17*(1), 1-19.

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology, 63*, 539-569.

Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research, 42*(1), 185-227.

Rammstedt, B., & John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of research in Personality, 41*(1), 203-212.

Rantanen, J., Metsapelto, R-L., Feldt, T., Pulkkinen, L., & Kokko, K. (2007). Long-term stability in the Big Five personality traits in adulthood. *Scandinavian Journal of Psychology, 48*(6), 511-518.

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods*. Thousand Oaks, CA: Sage.

Ricci, F., Chiesi, A., Bisio, C., Panari, C., & Pelosi, A. (2016). Effectiveness of occupational health and safety training: A systematic review with meta-analysis. *Journal of Workplace Learning, 28*(6), 355-377.

Robinson, S. L., & Morrison, E. W. (1995). Psychological contracts and OCB: The effect of unfulfilled obligations on civic virtue behavior. *Journal of Organizational Behavior, 16*(3), 289-298.

Rothwell, A., & Arnold, J. (2007). Self-perceived employability: Development and validation of a scale. *Personnel Review, 36*(1/2), 23-41.

Ruffing, S., Hahn, E., Spinath, F. M., Brünken, R., & Karbach, J. (2015). Predicting students' learning strategies: The contribution of chronotype over personality. *Personality and Individual Differences, 85*, 199-204.

Saks, A. M. & Belcourt, M. (2006). An investigation of training activities and transfer of training in organizations. *Human Resource Management*, *45*(4), 629-648.

Salgado, J. F., & Táuriz, G. (2014). The five-factor model, forced-choice personality inventories and performance: A comprehensive meta-analysis of academic and occupational validity studies. *European Journal of Work and Organizational Psychology, 23*(1), 3-30.

Schaubroeck, J. M., Shen, Y., & Chong, S. (2017). A dual-stage moderated mediation model linking authoritarian leadership to follower outcomes. *Journal of Applied Psychology*, *102*(2), 203-214.

Semeijn, J. H., Van Dam, K., Van Vuuren, T., & Van der Heijden, B. I. (2015). Sustainable labour participation and sustainable careers. In A. De Vos & B. I. J. M. Van der Heijden (Eds.), *Handbook of research on sustainable careers* (pp. 146-160). Cheltenham, UK: Edward Elgar Publishing.

Smith, M. (1994). A theory of the validity of predictors in selection. *Journal of Occupational and Organizational Psychology*, 67(1), 13-31.

Sonnentag, S., Volmer, J., & Spychala, A. (2008). Job performance. In J. Barling & C. L. Cooper (Eds.), *Sage handbook of organizational behavior: Vol. 1: Micro approaches* (pp. 427-447). Los Angeles: Sage.

Spector, P. E., & Brannick, M. T. (2011). Methodological urban legends: The misuse of statistical control variables. *Organizational Research Methods*, *14*(2), 287-305.

Spurk, D., Hirschi, A., & Dries, N. (2019). Antecedents and outcomes of objective versus subjective career success: Competing perspectives and future directions. *Journal of Management, 45*(1), 35-69.

Spurk, D., Kauffeld, S., Barthauer, L., & Heinemann, N. S. R. (2015). Fostering networking behavior, career planning and optimism, and subjective career success: an intervention study. J*ournal of Vocational Behavior, 87*, 134-144.

Steve, G. (2015). Learning as a resource to career development. *Career Planning and Adult Development Journal, 31*(3), 17-20.

Taylor, P. J., Russ-Eft, D. F., & Chan, D. W. L. (2005). A meta-analytic review of behavior modeling training. *Journal of Applied Psychology, 90*(4), 692-709.

Thalmayer, A. G., Saucier, G., Eigenhuis, A. (2011). Comparative validity of brief to medium-length Big Five and Big Six Personality Questionnaires. *Psychological Assessment, 23*(4), 995–1009.

Ten Brummelhuis, L. L., & Bakker, A. B. (2012). A resource perspective on the work-home interface: The work-home resources model. *American Psychologist, 67*, 545-556.

Tomlinson, J., Baird, M., Berg, P., & Cooper, R. (2018). Flexible careers across the life course: Advancing theory, research and practice. *Human Relations, 71*(1), 4-22.

Usami, S., Hayes, T., & McArdle, J. J. (2016). Inferring longitudinal relationships between variables: Model selection between the latent change score and autoregressive cross-lagged factor models. *Structural Equation Modeling: A Multidisciplinary Journal*, *23*(3), 331-342.

Valcour, M. (2015). Facilitating the crafting of sustainable careers in organizations. In A. De Vos & B. I. J. M. Van der Heijden (Eds.), *Handbook of research on sustainable careers* (pp. 20-34). Cheltenham, UK: Edward Elgar Publishing.

Van den Bossche, P., Segers, M., & Jansen, N. (2010). Transfer of training: The role of feedback in supportive social networks. *International Journal of Training and Development*, *14*(2), 81-94.

Van der Heijde, C. M., & Van der Heijden, B. I. J. M. (2005). The development and psychometric evaluation of a multi-dimensional measurement instrument of employability—and the impact of ageing. In G. Costa, W. J. A. Goedhard, & J. Ilmarinen (Eds.), Assessment and promotion of work ability, health and well-being of ageing workers. Proceedings of the 2nd International Symposium on Work Ability, Verona, Italy, October 18–20, 2004. International Congress Series (ICS) 1280. San Diego, CA: Elsevier.

Van der Heijde, C. M., & Van der Heijden, B. I. (2006). A competence-based and multidimensional operationalization and measurement of employability. *Human Resource Management, 45*(3), 449-476.

Van der Heijden, B. I. J. M., & Bakker, A. B. (2011). Toward a mediation model of employability enhancement: A study of employee-supervisor pairs in the building sector. *Career Development Quarterly, 59*(1), 232-248.

Van der Heijden, B. I., & De Vos, A. (2015). Sustainable careers: Introductory chapter. In A. De Vos & B. I. J. M. Van der Heijden (Eds.), *Handbook of research on sustainable careers* (pp. 1-19). Cheltenham, UK: Edward Elgar Publishing.

Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. *Organizational Research Methods*, *3*(1), 4-70.

Vinkenburg, C. J., Van Engen, M. L., & Peters, P. (2015). Promoting new norms and true flexibility: Sustainability in combining career and care. In A. De Vos & B. I. J. M. Van der Heijden (Eds.), *Handbook of research on sustainable careers* (pp. 131-145). Cheltenham, UK: Edward Elgar Publishing.

Weigl, M., Hornung, S., Parker, S. K., Petru, R., Glaser, J., & Angerer, P. (2010). Work engagement accumulation of task, social, personal resources: A three-wave structural equation model. *Journal of Vocational Behavior, 77*(1), 140-153.

Wentworth, D. (2016). Top spending trends for training, 2016-2017. *Traning*. Accessed from https://trainingmag.com/top-spending-trends-training-2016-2017/

West, S. G., Taylor, A. B., & Wu, W. (2012). Model fit and model selection in structural equation modeling. In R. H. Hoyle (Ed.), *Handbook of structural equation modeling* (pp. 209-231). New York: Guilford.

Woo, S. E., Chernyshenko, O. S., Stark, S. E., & Conz, G. (2014) Validity of six openness facets in predicting work behaviors: A meta-analysis. *Journal of Personality Assessment, 96*(1), 76-86.

Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2009). Reciprocal relationships between job resources, personal resources, and work engagement. *Journal of Vocational Behavior, 74*(3), 235-244.

Yoon, J. & Kayes, D. C. (2016). Employees' self-efficacy and perception of individual learning in teams: The cross-level moderating role of team-learning behaviour. *Journal of Organizational Behavior*, *37*(7), 1044-1060.

Zhang, J., & Ziegler, M. (2016). How do the big five influence scholastic performance? A big five-narrow traits model or a double mediation model. *Learning and Individual Differences, 50*, 93-102.

Table 1

Descriptive statistics and inter-correlations ($N = 334$).

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Gender	.47	.50										
2. Age	28.14	4.92	.08									
3. Job tenure	3.48	2.42	-.02	.77**								
4. Education	2.39	1.13	.05	.16**	-.17**							
5. Openness	4.18	1.19	.13*	-.03	-.06	-.02						
6. Supervisor support	4.43	1.11	.02	.11*	.09	-.04	.45**					
7. Learning	4.32	1.26	.10	.14*	.11*	.05	.36**	.43**				
8. Pre-training employability	3.47	1.03	.10	.09	.10	.01	.19**	.19**	.18**			
9. Post-training employability	4.35	.92	.07	.15**	.10	.01	.39**	.45**	.67**	.23**		
10. Pre-training job performance	3.13	1.16	.02	.11*	.09	0	.06	-.02	.11*	.02	.13*	
11. Post-training job performance	4.43	1.27	.00	.12*	.04	.07	.22**	.35**	.39**	.12*	.60**	.04

Note: $^{*}p < .05$, $^{**}p < .01$

Table 2. The indirect effect of openness on job performance and employability through learning at different levels of supervisor support.

	Supervisor support					
Indirect effect	low	CI $_{95}$%	high	CI $_{95}$%	difference	CI $_{95}$%
Openness → learning→ increases in job performance	.11	(.06, .18)	.01	(-.02, .05)	.10	(.06, .16)
Openness → learning→ increases in employability	.20	(.14, .28)	.02	(-.04, .08)	.18	(.12, .26)

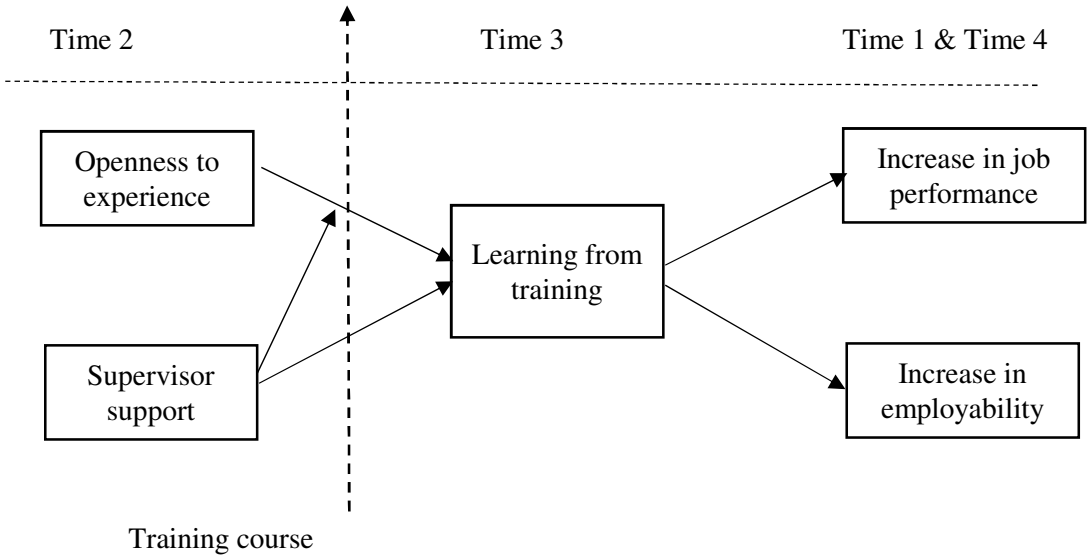


Figure 1

The hypothesized model.

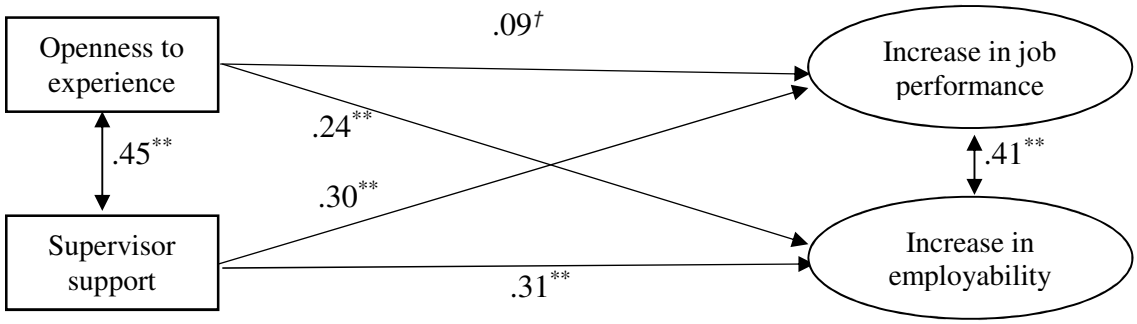


Figure 2

The direct effects model [$\chi^2(2) = 5.30$, $p = .07$; CFI = .987; TLI = .928; RMSEA = .070; SRMR = .022].

Note 1: $^{*}p < .05$, $^{**}p < .01$

Note 2: For the sake of simplicity, only the relationships between the core variables are displayed. The full results are available from the second author upon request.

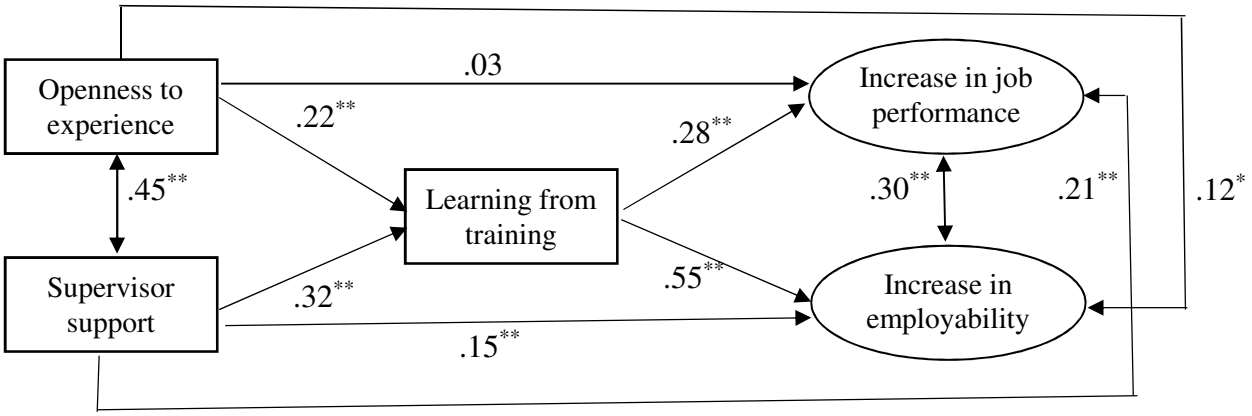


Figure 3

The mediation model [$\chi^2(4) = 7.90$, $p = .10$; CFI = .992; TLI = .962; RMSEA = .054; SRMR = .027].

Note: $^{*}p < .05$, $^{**}p < .01$

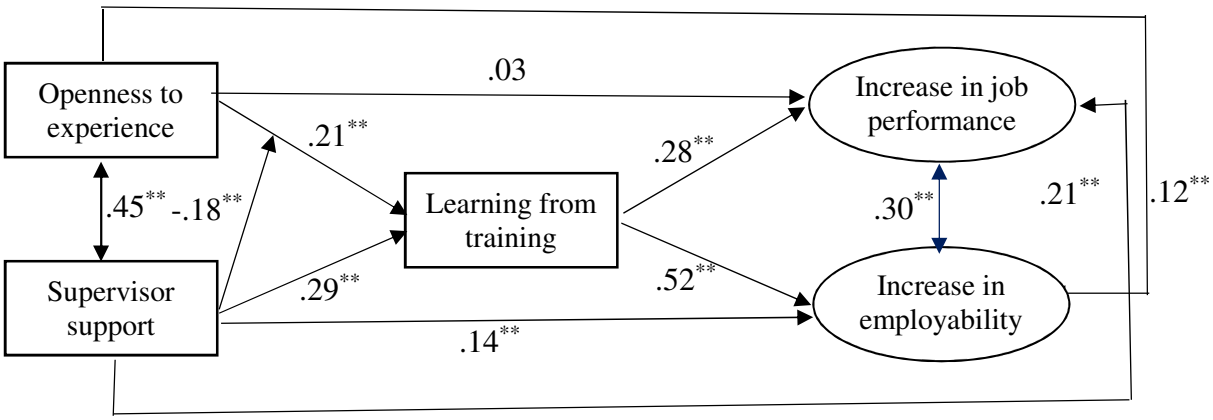


Figure 4

The final and full model, containing all effects [$\chi^2(5) = 7.92$, $p = .16$; CFI = .994; TLI = .976; RMSEA=.042; SRMR =.023].

Note: $^{*}p < .05$, $^{**}p < .01$

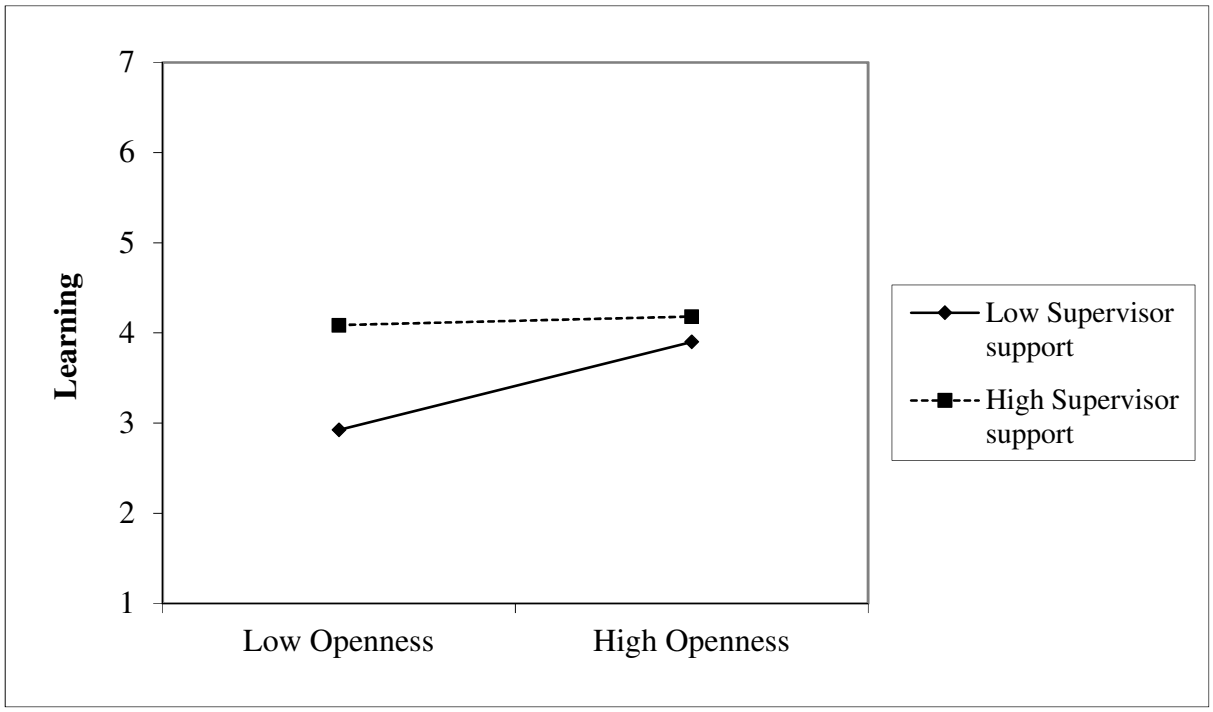


Figure 5

The interaction effect of openness and supervisor support on learning.

Appendix

The full list of the items in the employability measure (in the parenthesis is the corresponding employability dimension).

1. This employee takes responsibility for maintaining his/her labor market value. [Anticipation & Optimization]
2. This employee approaches the development of his/her weaknesses in a systematic manner. [Anticipation & Optimization]
3. This employee is focused on continuously developing him/herself. [Anticipation & Optimization
4. This employee's work and private life are evenly balanced. [Balance]
5. This employee's working, learning and living are in harmony. [Balance]
6. This employee's work efforts are in proportion to what he/she gets back in return (e.g. through primary and secondary conditions of employment, pleasure in work). [Balance]
7. The time this employee spends on work and career development on the one hand, and personal development and relaxation on the other, are evenly balanced. [Balance]
8. This employee achieves a balance in alternating between reaching his/her own work goals and supporting his/her colleagues. [Balance]
9. During the past year, this employee associated himself/herself with the latest developments in his/her job domain. [Anticipation and optimization]
10. This employee does that extra bit for his/her organisation/department over and above his/her direct responsibilities. [Corporate sense]
11. This employee supports the operational processes within the organization. [Corporate sense]
12. In his/her work, this employee takes the initiative in sharing responsibilities with colleagues. [Corporate sense]
13. In the organization, this employee takes part in forming a common vision of values and goals. [Corporate sense]
14. How easily would you say this employee could adapt to changes in the workplace? [Personal flexibility]
15. How easily would you say this employee could change employer, if necessary? [Personal flexibility]
16. Relying on my experience with this employee, I consider him/her competent to engage in in-depth, specialist discussions in his/her job domain. [Occupational expertise]

17. During the past year, this employee was in general competent to take prompt decisions with respect to the approach to the work. [Occupational expertise]
18. In general, this employee is competent to distinguish main issues from side issues and to set priorities. [Occupational expertise]
19. By virtue of my experience with this employee, I consider him/her competent to be of practical assistance to colleagues with questions about the approach to work. [Occupational expertise]
20. Relying on my experience with this employee, I consider him/her competent to weigh up and reason out the 'pros' and 'cons' of particular decisions on working methods, materials and techniques in his/her job domain. [Occupational expertise]
21. How much time does this employee spend on improving the knowledge and skills that will be of benefit to his/her work? [Anticipation and optimization]
22. How much confidence do you have in this employees' capacities within their area of expertise? [Occupational expertise]
23. How would you rate the quality of this employee's skills overall? [Occupational expertise]
24. How quickly does this employee generally anticipate and take advantage of changes in the working environment? [Personal flexibility]
25. What proportion of his/her work would you say this employee brought to a successful conclusion in the past year? [Occupational expertise]
26. During the past year, how sure of him/herself (self-assured) would you say this employee has felt at work? [Occupational expertise]
27. This employee has a _____ attitude to changes in his/her function. (Please choose the most appropriate response.) [Personal flexibility]
28. This employee finds working with new people _____. (Please tick the most appropriate response.) [Personal flexibility]